VCX Service Manual

For Internal Use Only

Manual Number: MC083

Revision Date: 5/2022

The VCX Service Manual is for internal, Valco use only.

This manual written and designed at Valco Melton, 497 Circle Freeway Drive, Suite 490, Cincinnati, Ohio 45246.
http://www.valcomelton.com

Part Number: MC083

Written and printed in the USA.

Valco Cincinnati, Inc.
497 Circle Freeway Drive
Suite 490
Cincinnati, OH 45246
Tel: (513) 874-6550
Fax: (513) 874-3612
Email: sales@valcomelton.com
Web: http://www.valcocincinnatiinc.com

Valco Cincinnati Limited
Hortonwood 32
Telford, TFI 7YN, England
Tel: (+44) 1952-677911
Fax: (+44) 1952-677945
Email: sales@valco.co.uk
Web: http://www.valco.co.uk

Valco Cincinnati GmbH
Bonnerstrasse 349
40589 Dusseldorf-Benrath, Germany
Tel: +49 211 984 798-0
Fax: +49 211 984 798-20

Melton S.L.U.
Pol. Industrial Agustinos
calle G, n. 34
31160 Orcoyen, Navarra, Spain
Tel: (34) 948-321-580
Fax: (34) 948-326-584

Valco Melton France
Technoparc des Hautes Faventines
32 Rue Jean Bertin
26000 Valence
Tel: +33 (0)4 75 78 13 73
Fax: +33 (0)4 75 55 74 20

Declaration of Conformity

(According to EN 45014)

CE

The following declaration is issued under the sole responsibility of the manufacturer:

Manufacturer:	Valco Melton A division of Valco Cincinnati, Incorporated 411 Circle Freeway Drive Cincinnati, OH 45246 USA	
Authorized Representatives in Europe:	Valco Cincinnati, Ltd. Unit 7-8 Hortonwood 32 Telford TF1 7YN England	Melton S.L.U. Pol. Industrial Agustinos calle G, n. 34 31160 Orcoyen Navarra, Spain

declares that the product:

Product Name:	VCX Service Manual

complies with the following Council Directives:

Safety of Machinery:	2006/42/EC
Low Voltage Equipment:	2014/35/EU
EMC:	2014/30/EU
Reduction of Hazardous Substances (RoHS)	2011/65/EC

and conforms to the following standards:

Safety:	EN60204-1:2006/A1:2009 EN13849-1
Risk:	ISO12100:2010
EMC Emissions:	EN61000-6-4:2007/A1:2009 EN61000-4-2
EMC Immunity:	EN61000-6-2:2005 EN61000-4-3 EN61000-4-4 EN61000-4-5 EN61000-4-6 EN61000-4-8 EN61000-4-11
Place and Date:	Cincinnati, Ohio USA CE Mark first fixed 2006
Signature:	Cincinnati, OH USA David H. Swedes, Vice President of Engineering & Manufacturing

This Declaration of Conformity has been generated electronically and is legally binding without signature

Table of Contents

Section 1 - Introduction

The VCX Control is a modular, integrated system for gluing control and quality assurance. Pattern Control Modules, Inspection Control Modules, and Tracking/Ejecting Modules can be combined with one or two VCX Controls to provide all functions of glue application, inspection, and quality assurance.

This manual provides the information necessary to setup, maintain, and troubleshoot the VCX Control hardware. (Software programming and operation information is not included in this manual.) A parts list with options

is also included.

Valco Cincinnati, Inc. recommends reading this manual before beginning to use the VCX Control.

Section 2 - Safety and Use

Read Thoroughly Before Handling Equipment

WARNING!

Read and follow all safety precautions, warnings, cautions, and other recommendations in this manual. OTHERWISE, DEATH, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

Read this entire section before handling the equipment.

Symbols

The following symbols may be used on the equipment and/or in this manual.

	This symbol represents a **Caution** or a **Warning**. *Cautions* draw special attention to anything that could damage equipment or cause the loss of data. *Warnings* draw special attention to anything that could injure or kill the reader. Both Cautions and Warnings are placed before the step they apply to.
	This symbol represents a **Hot Surface**.
	This symbol represents a **Puncture Risk.** It is usually used in regard to nozzle cleaning appliances and other sharp instruments that can cause puncture wounds and risk exposure to bloodborne pathogens and other debris.
	This symbol means that **Working Gloves** are required.
	This symbol means that **Goggles** are required.
	This symbol indicates a Shock Hazard. There is a presence of non-insulated dangerous voltage within the product's enclosure. This voltage may cause electrical shock or fire.
	This symbol indicates the need to Unplug/Disconnect All Power Sources and to let them de-energize before attempting any type of work or maintenance. Remember that there can still be energy in equipment, cords, and wires even when unplugged/disconnected.
	This symbol indicates the need to **Lock Out All Power Sources** and to let them de-energize before attempting any type of work or maintenance. If power is not locked out, the person working on the equipment may be injured or killed if someone unknowingly switches on the power to the equipment.
	This symbol indicates a Note. Notes point out something of special interest or importance to the reader. They give tips, hints, and information in addition to what is necessary for the step preceding it.

Owner Responsibilities

The owner of the equipment is under obligation to manage all safety information. Some examples include:

- Examine all safety materials and documents as well as jurisdictional laws and make certain all laws, recommendations, and other safety/hazard laws, certification requirements, training, and instructions are followed and kept current.
- Maintain all safety materials including tags, labels, documents, and MSDS information. Make certain they are distinct and can be read/understood. Replace any that are dirty, worn, or unreadable.
- Make sure all personnel who will handle, install, maintain, operate, fix, and work around the equipment have ready access to the safety information, training, and equipment according to jurisdictional authorities.

The owner of the equipment is under obligation to make certain that all instructions, requirements, and jurisdictional laws are met. Some examples include:

- Make sure there are regular inspections of equipment and safety devices.
- Have regular safety drills and inspections supervised by the proper authorities.
- Provide all required safety items, first aid equipment, and training.

The owner of the equipment is under obligation to make certain that all personnel who will handle, install, maintain, operate, fix, and work around the equipment are qualified, trained, and up-to-date with all information regarding the equipment. Some examples include:

- Make sure all personnel have the proper safety training, equipment, education, and abilities necessary for the job function according to safety instructions and all jurisdictional laws and regulations.
- It is strongly advised that personnel receive first-responder medical care training in case of burns, medical emergencies, or other injuries. Training should be kept up to date.
- Make sure all personnel understand and can follow safety policies and procedures for the organization as well as for the specific equipment.
- Make sure that all personnel are consistently trained, evaluated, free of alcohol and medications that may impair judgment and reflexes, and are tested for banned substances according to jurisdictional authorities.

Limitations of Use

Read this document and all information regarding the equipment before handling the equipment. The intended use of the equipment is stated in Section 1 of this manual.

Do not use this equipment for anything other than its intended use. Do not modify, change, or alter the equipment in any way. If you are unsure of the intended use and the limitations of use for the equipment, contact your Valco Melton Representative before handling the equipment.

Installation/Startup/Use Safety Information

Valco Melton hot melt units, cold glue units, controllers, inspection systems and all related accessories have the following universal safety precautions (this is not intended to be an exhaustive list; follow all instructions and safety precautions for the specific type of equipment involved):

WARNING! 

Only qualified personnel should install the equipment. Valco Melton strongly recommends that a Valco Melton Technician install all equipment. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

WARNING! 

The equipment should be installed so that it can be turned off at a location **away** from the equipment in case of injury, electrical problems, or malfunction. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! 

Properly route all electrical wires. Never tamper with equipment. Only use approved and correct voltage, type of current, fuses, and other power supplies. Replace worn cords, hoses, etc. immediately. FAILURE TO OBSERVE WARNING MAY RESULT IN DEATH, PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE.

WARNING! 

Poor ventilation, smoking, and open flames can cause overheated hot melt to ignite. Adequate ventilation must be provided. Smoking should be prohibited in the immediate vicinity of the molten adhesive. Open flames must be kept away from the area around molten adhesive. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

WARNING! 

Never use any Valco Melton equipment in an explosive environment. Explosive environments include, but are not limited to, solvent-based cleaners or adhesives, explosive materials, radioactive materials, etc. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! 

Equipment will start automatically when remotely controlled by triggering devices. Be sure to disable all triggering devices, carefully release hydraulic pressure, and disconnect air pressure before servicing or working near guns, valves, and other triggered devices. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

Shut Down Safety Information

Valco Melton hot melt units, cold glue units, controllers, inspection systems and all related accessories have the following universal safety precautions (this is not intended to be an exhaustive list; follow all instructions and safety precautions for the specific type of equipment involved):

WARNING! 
Purge the fluid pressure and the air pressure from the system before disconnecting/disabling any part of the system. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! 
Disconnect and lock out all power before maintenance or other need to open the equipment. Only qualified personnel should open and service the control. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! 
Equipment may still be energized even if unplugged! When making adjustments or performing checkout procedures, stay clear of any moving mechanical parts and do not touch exposed electrical equipment or electrical connectors. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! 
Disconnect/disable all mechanical and/or electrical devices that send activation signals to the gun(s), valve(s), melter pump(s), etc. This includes pattern controls, timers, input/output signals, etc. Only qualified personnel should open and service the control. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! 
Disable all triggering devices, relieve all residual pressure (hydraulic and air) and allow adhesive to cool before attempting to disconnect guns, hoses, valves, etc. Only qualified personnel should open and service the control. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! 
Never point an adhesive dispensing gun, valve, hose, air hose, or anything else at yourself or another person. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

Hot-Melt-Specific, General Safety Information

Valco Melton hot melt units have the following universal safety precautions in addition to all other universal precautions previously mentioned (this is not intended to be an exhaustive list; follow all instructions and safety precautions for the specific type of equipment involved):

WARNING! 
Never process any polyurethane reactive (PUR) hot melt or solvent-based material in a Valco Melton unit unless you are certain that the unit is compatible and is marked “PUR”! Read all instructions and MSDS sheets carefully, following manufacturer’s instructions, especially regarding heat levels. If you have any question as to the compatibility of a Valco Melton unit for PUR hot melt, call your Valco Melton Representative before attempting to use the unit for PUR or solvent-based materials. OTHERWISE, HAZARDOUS FUMES, EXPLOSION, DEATH, OR PERSONAL INJURY COULD OCCUR.

WARNING! 
Keep pump cover and electrical enclosures closed except during setup, service, and checkout procedures. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! People with respiratory problems (e.g., asthma, bronchitis, etc.) should not work in the vicinity of molten adhesive. RESPIRATORY PROBLEMS MAY BE AGGRAVATED BY THE FUMES. Do not wear a face mask when working around molten adhesive. THE MASK MAY TRAP THE FUMES AND DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Keep hot melt hoses away from walkways and the moving parts of hot melt systems. OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

WARNING! Hot surfaces! Do not touch! Use extreme caution when refilling the unit by hand. OTHERWISE, PERSONAL INJURY COULD OCCUR.

WARNING! Wear protective gloves and goggles at all times around all machinery, especially hot melt. OTHERWISE, SERIOUS PERSONAL INJURY COULD OCCUR.

WARNING! Never use an open flame to heat hot melt components or adhesive. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

What to Do if Contact with Hot Adhesive Occurs

If hot adhesive comes in contact with the skin, do the following:

WARNING! Do not attempt to remove heated hot melt adhesive from the skin. OTHERWISE, SEVERE PERSONAL INJURY AND DEATH COULD OCCUR.

1. Immediately immerse the contacted area in clean, cold water.

   It is strongly recommended that a source of clean, cold water be provided near the hot melt work area.

2. Cover the affected area with a clean, wet compress and call the emergency medical response system (such as 911) immediately.
3. Watch for and treat the subject for signs of shock while waiting for professional help to arrive.

What to Do if Inhalation of Adhesive Fumes Occurs

If adhesive fumes are inhaled, immediately follow these steps:

1. Take the victim away from the immediate work area.
2. Provide victim with fresh air.
3. Call the emergency medical response system (such as 911) immediately.

What to Do if Adhesive-Related Fire or Explosion Occurs

During the heating and melting process, the surface of the adhesive will be exposed to air. The mixture of polymer fumes and air can catch fire if the hot melt is overheated.

WARNING! 

Poor ventilation, smoking, and open flames can cause overheated hot melt to ignite. Adequate ventilation must be provided. Smoking should be prohibited in the immediate vicinity of the molten adhesive. Open flames must be kept away from the area around molten adhesive. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO EQUIPMENT COULD OCCUR.

WARNING! 

Exposed arcing may ignite the fume/air mixture. Shield all electrical equipment from melt fumes to avoid exposed arcing. OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

WARNING! 

Do not use a water extinguisher to extinguish the fire! OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

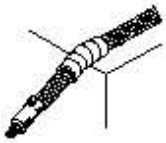
If the hot melt adhesive ignites, promptly perform the following steps:

1. Sound a fire alarm.
2. Evacuate the immediate area.
3. Turn off all local electrical equipment at the source.
4. Leave the area immediately if conditions are unsafe.

If you feel you can fight the fire **safely**, do ***one*** of the following:

- Smother the fire with a fire blanket.
- Aim a CO_2 fire extinguisher at the base of the flames.
- Aim a dry-powder fire extinguisher at the base of the flames.

Hose Safety Information

DO NOT		DO	
Do not use bindings, wire ties, or unapproved fasteners around the hoses.		**Do** use approved wrapping (P/N KAP0434), making sure the wrapping is slightly snug but not tight.	
Do not place hoses close together.		**Do** allow at least 2 inches (5.1 cm) between hoses for proper ventilation.	
Do not bend hoses sharply. **Do not** allow kinks or indentations in the hoses.		**Do** use a minimum bend radius of 10 inches for a 20-inch diameter coil hose.	
Do not use unapproved hooks to hang hoses. **Do not** wrap hoses over or around objects.		**Do** use a hose hanging kit (P/N 781xx827).	
Do not use the “one handed/one wrench” technique to attach or remove hoses. **Do not** wrench on any surface other than the large hexagon swivel nuts.		**Do** use two hands and two wrenches to tighten or loosen connections on hoses. **Do** wrench only on large hexagon swivel nuts.	
Do not allow hoses to rub against objects or to come into contact with sharp edges or points.		**Do** wrap the hoses in approved padding (P/N 795xx549) if the hoses must be installed where they will come into contact with objects.	
Do not use worn, damaged, or bent hoses.		**Do** inspect all hoses regularly for damage and/or wear and replace damaged or worn hoses immediately.	

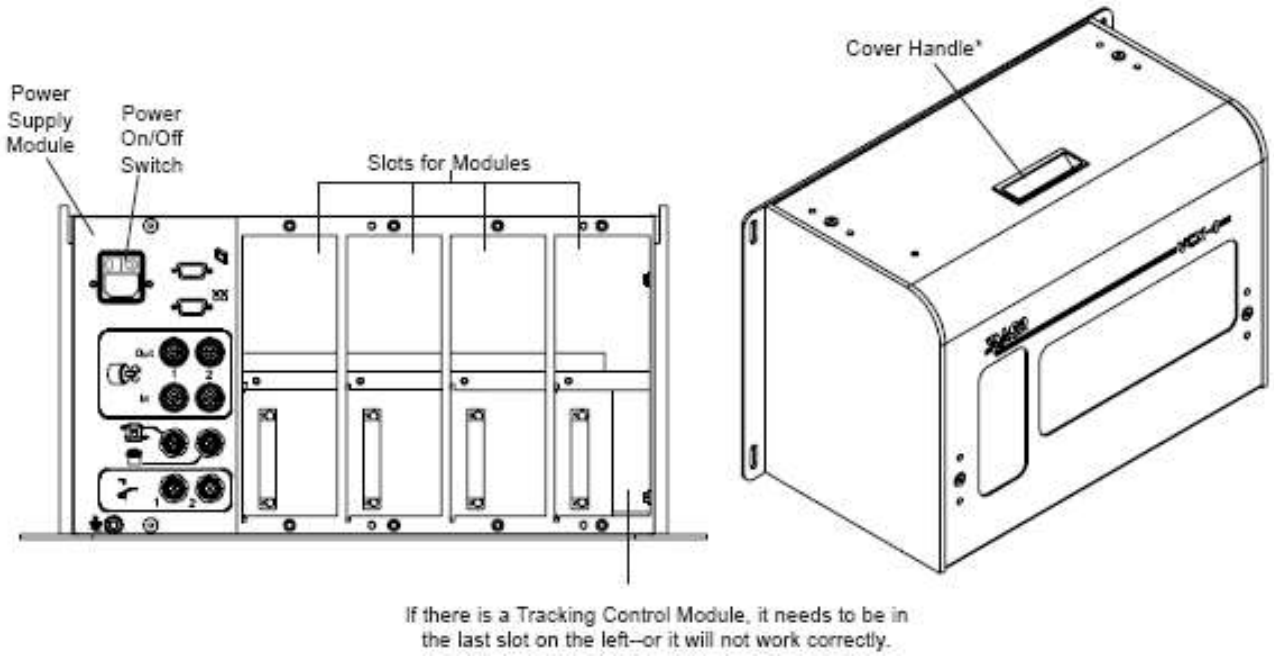
Section 3 - Basic Features

VCX Control

The VCX Control consists of a Power Supply Module (148xx063) in a base assembly. Four slots are available in the base assembly for additional modules. Module choices include Pattern Control Modules (PCM), Inspection Control Modules (ICM), Tracking Control Modules with Ejector (TCM-E), and Color Code Reader (CDS).

Figure 3-1 illustrates the VCX Control base with the Power Supply Module. Notice that the Power Supply Module is always on the left side of the control.

Additional modules are added from left to right. Always place the Tracking Control Module(s), if used, in the slot(s) on the right.



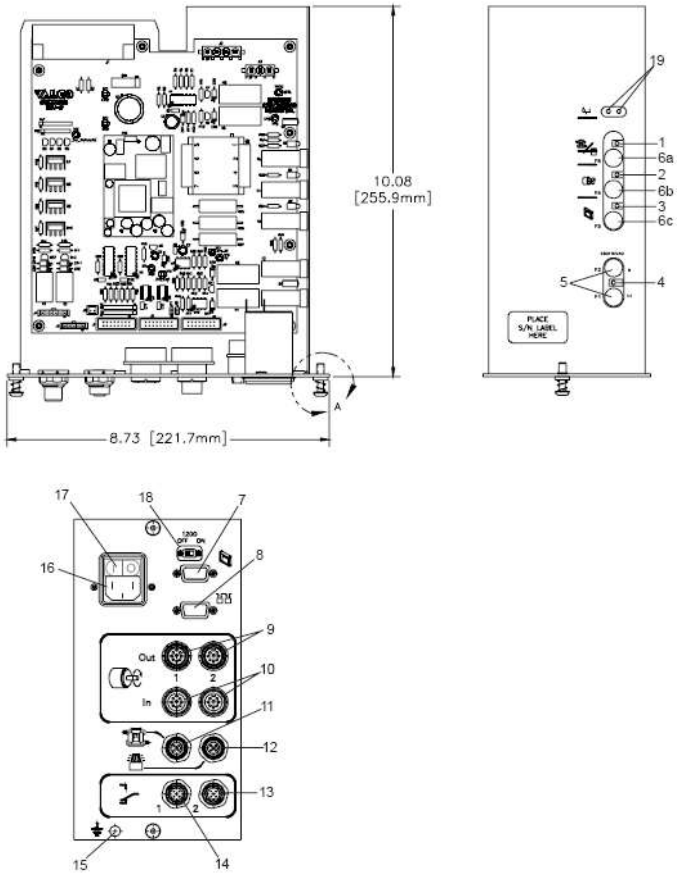
*Do NOT carry the entire control by the cover handle. This handle is only used when attaching and removing the cover.

Figure 3-1. VCX Control

VCX Specifications

DIMENSIONS AND WEIGHT	
SIZE	
Width	19" [482.6mm]
Height	12"[304.8mm]
Depth	9.5"[241.3mm]
WEIGHT	Overall weight is dependent on the configuration.
Base unit weight	33lb (15kg),
Module weight @	4.5lb (2kg)
APPLICABLE INPUT VOLTAGES AND POWER CONSUMPTION	
VOLTAGE RANGE	100-125VAC and 200-245VAC (Automatic Selection)
POWER CONSUMPTION	800W max.
INPUTS AND OUTPUTS	I/O is dependent on the configuration.

Power Supply Module



Power Supply Module - Continued

Power Supply Module Features

Status LEDs:

Number	Name
1	Power Supply Pump/Alarm
2	Power Supply Encoder
3	Power Supply Terminal
4	Line Voltage Selection 115/230
19	Relay

Power Supply Module Features

Connectors/Switches:

Number	Name
7	Terminal Port
8	Control Link Port
9	Encoder Out Connections (1 & 2)
10	Encoder In Connections (1 & 2)
11	Pump Connection
12	Beacon (Alarm) Connection
13	Relay Feed Stop Connection
14	Relay Machine Stop Connection
15	Grounding Stud
16	Power Cord Entry
17	Power On/Off Switch
18	CAN Switch

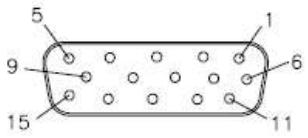
Power Supply Module Features

Fuses:

Number	Fuse	Type	Part No.
5	Main Fuse (F1&F2)	6.3A	085xx221
6a	Fuse Power Supply (F5); Pump/Alarm	2A2A	085xx220
6b	Fuse Power Supply (F4); Encoder		085xx220
6c	Fuse Power Supply (F3); Terminal	2A	085xx220

Power Supply Module Connector Pinouts

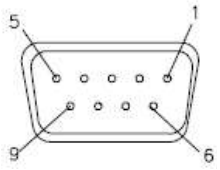
Terminal Port

Connector 7	Terminal Port
Pin #	**Description**
1	CAN - Low
2	CAN - High
3	P Button +
4	P Button -
5	Remote Out +
6	24V
7	24V
8	24V
9	OV
10	OV
11	OV
12	OV
13	OV
14	N/C
15	N/C
Pinout Drawing for Connector 7	
	

Control Link Port

Connector 8	Control Link Port
Pin #	Description
1	N/C
2	CAN - Low
3	CAN - Ground
4	OV
5	N/C
6	N/C
7	CAN - High
8	Remote - Out +
9	CAN +5V

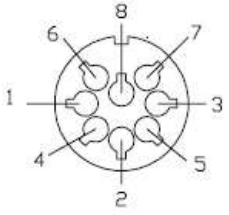
Pinout Drawing for Connector 8



Encoder Connections - Male/Output

Connector 9	Encoder Connections	
Pin #	Description	Color
1	Ground	Black
2	A Signal	Orange
3	+24V/+12V	Red
4	B Signal	Yellow
5	Z Signal	Brown
6	/Z Signal	Violet
7	/B Signal	Blue
8	/A Signal	Green

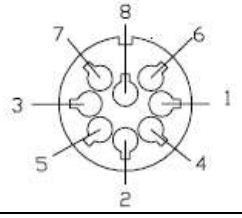
Pinout Drawing for Connector 9



Encoder Connections - Female/Input

Connector 10	Encoder Connections	
Pin #	Description	Color
1	Ground	Black
2	A Signal	Orange
3	+24V/+12V	Red
4	B Signal	Yellow
5	Z Signal	Brown
6	/Z Signal	Violet
7	/B Signal	Blue
8	/A Signal	Green

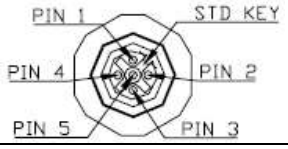
Pinout Drawing for Connector 10



Pump Connection

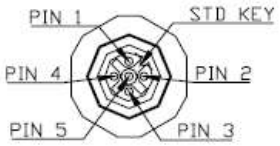
Connector 11	Pump Connection	
Pin #	Description	Color
1	24VDC	Brown
2	N.C.	White
3	24VDC	Blue
4	N.C.	Black
5	PE	Shield/Gray

Pinout Drawing for Connector 11



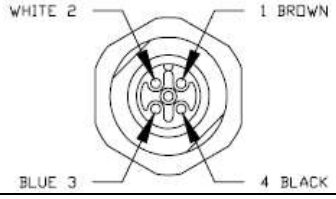
Beacon (Alarm) Connection

Connector 12	Beacon/Alarm Connection	
Pin #	Description	Color
1	Ground	Brown
2	Light (Glue)	White
3	Light (Jam)	Blue
4	Buzzer	Black
5	Light (LLD)	Shield/Gray
Pinout Drawing for Connector 12		



Relay Feed Stop Connection

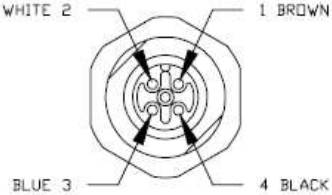
Connector 13	Relay Feed Stop Connection	
Pin #	Description	Color
1	COM	Brown
2	N.C.	White
3	N.O.	Blue
4	COM*	Black
Pinout Drawing for Connector 13		



*Only applies to PSM modules with SN1604 or higher.

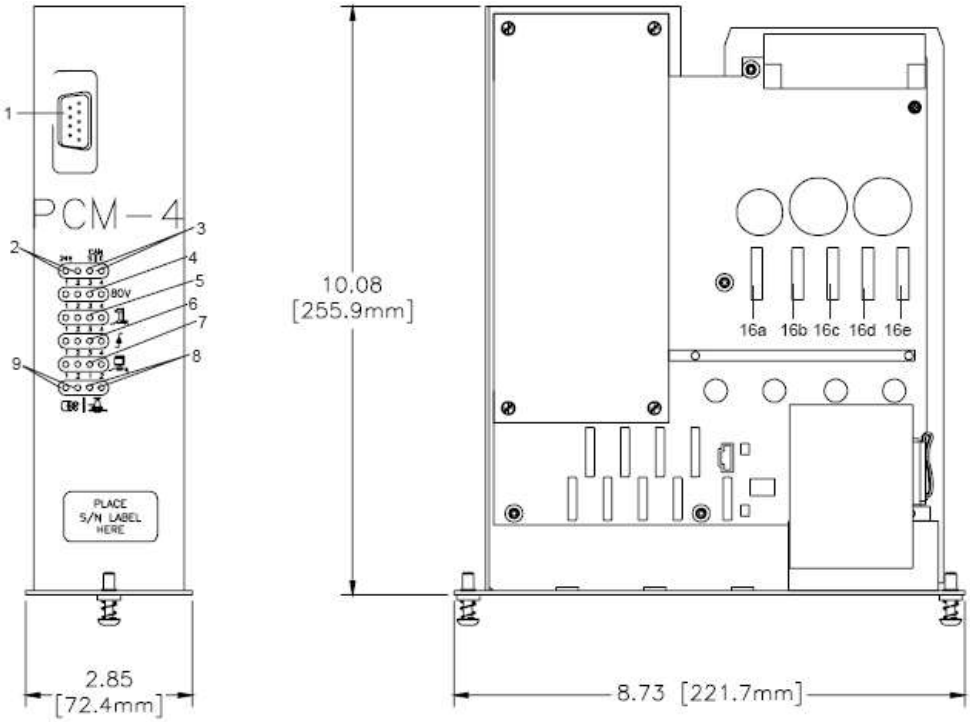
Relay Machine Stop Connection

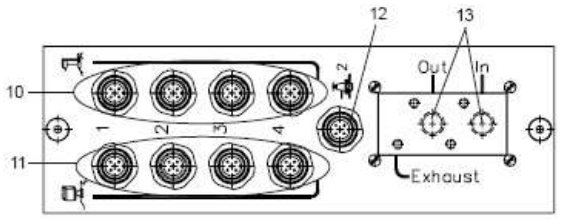
Connector 14	Relay Machine Stop Connection	
Pin #	Description	Color
1	COM	Brown
2	N.C.	White
3	N.O.	Blue
4	COM*	Black
Pinout Drawing for Connector 14		

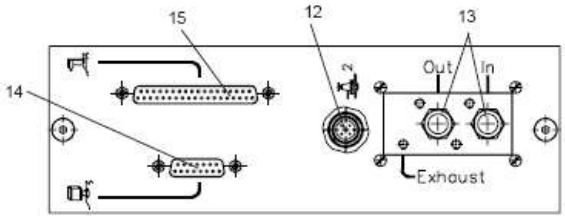


*Only applies to PSM modules with SN1604 or higher.

Pattern Control Module (PCM)







The back of the module may vary depending on the options and the style of the module. Two examples are illustrated above.

Pattern Control Module (PCM) - Continued

Pattern Control Module Features

Status LEDs:

Number	Name/Description
2	Supply Scanner/Logic (1 and 2)
3	CAN -S - Illuminates steady green when two-way communication is occurring. Flashes green when the communication channel is open but a signal is not being received at the present time.
	CAN -E - Illuminates green when there is an error with communication.
4	Valve Power Supply LEDs (1-4)
5	Valve Activation LEDs (1-4)
6	Trigger Status LEDs (1-4)
7	Scanner Status LEDs (1-4)
8	EPC Status LEDs (1-2)
9	Encoder Status LEDs (1-2)

Pattern Control Module Features

Connectors:

Number	Name
1	Diagnostic Port
10	Valve Connections (1-4)
11	Scanner Connections (1-4)
12	EPC 2 Connection
13	EPC 1 In/Out Connections
14	Scanner Junction Box (E-Box) Port
15	Valve Junction Box (E-Box) Port

Pattern Control Module Features

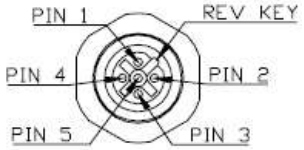
Fuses:

Number	Fuse	Type	Part No.
16a	Fuse Power Supply - Scanner, EPC, Purge (F1)	3.15A	085xx208
16b	Fuse Power Supply - Valve 1 (F2)	3.15A	085xx208
16c	Fuse Power Supply - Valve 2 (F3)	3.15A	085xx208
16d	Fuse Power Supply - Valve 3 (F4)	3.15A	085xx208
16e	Fuse Power Supply - Valve 4 (F5)	3.15A	085xx208

Pattern Control Module Connector Pinouts

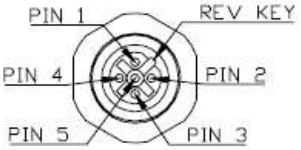
Valve Connections

Connector 10	Valve Connections	
Pin #	**Description**	**Color**
1	Coil	Brown
2	Coil	White
3	Purge	Blue
4	Purge	Black
5	PE (Shield)	Green/Yellow
Pinout Drawing for Connector 10		

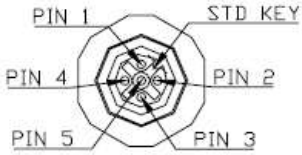


Scanner Connections

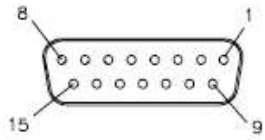
Connector 11	Trigger/Scanner Connections	
Pin #	**Description**	**Color**
1	+24V	Brown
2	PNP	White
3	Ground	Blue
4	NPN	Black
5	Shield	Shield/Grey
Pinout Drawing for Connector 11		



EPC 2 Connection

Connector 12	EPC 2 Connection	
Pin #	Description	Color
1	+24V	Brown
2	OV (Signal)	White
3	Ground	Blue
4	0-20 mA*	Black
5	Shield	Shield/Grey
Pinout Drawing for Connector 12		
		
*Can be switched to 0-10V via software		

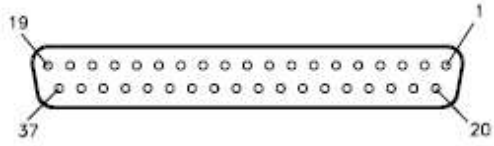
Scanner Junction Box (E-Box) Port

Connector 14	Scanner Junction Box Port
Pin #	Description
1	24V
2	Scanner 1 PNP
3	Scanner 1 NPN
4	Scanner 2 PNP
5	Scanner 2 NPN
6	Scanner 3 PNP
7	Scanner 3 NPN
8	Scanner 4 PNP
9	Scanner 4 NPN
10	N/C
11	N/C
12	N/C
13	N/C
14	N/C
15	Ground
Pinout Drawing for Connector 14	
	

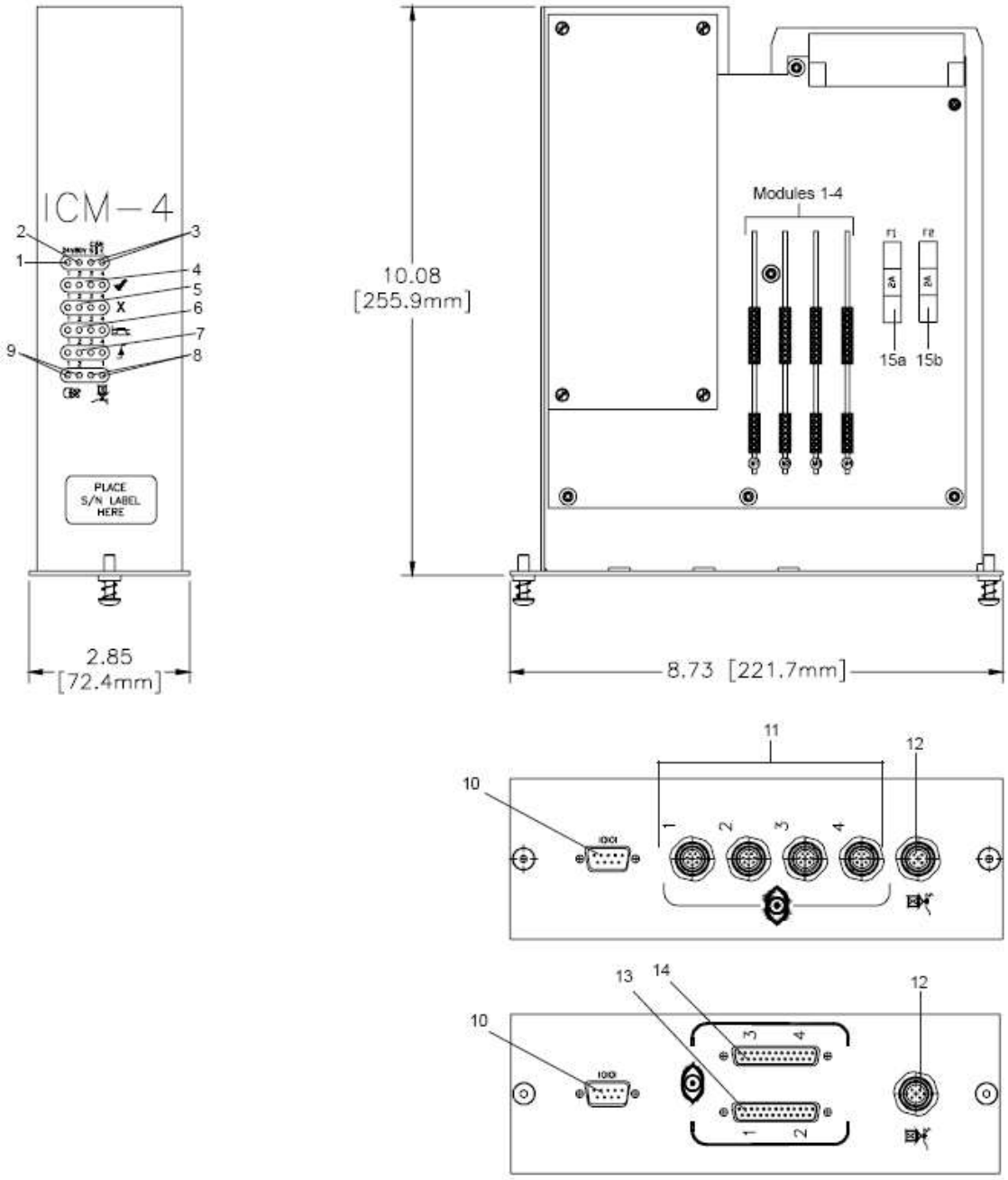
Valve Junction Box (E-Box) Port

Connector 15	Valve Junction Box Port
Pin #	Description
1	Valve 1 - Coil +
2	N/C
3	N/C
4	Valve 1 - Coil -
5	Valve 2 - Coil +
6	Valve 2 - Purge +
7	Valve 2 - Purge -
8	Valve 2 - Coil -
9	Valve 4 - Coil +
10	N/C
11	N/C
12	Valve 4 - Coil -
13	Valve 3 - Coil +
14	Valve 3 - Purge +
15	Valve 3 - Purge -
16	Valve 3 - Coil -
17	N/C
18	N/C
19	N/C
20	Valve 1 - Coil +
21	Valve 1 - Purge +
22	Valve 1 - Purge -
23	Valve 1 - Coil -
24	Valve 2 - Coil +
25	Valve 2 - Coil -
26	N/C
27	N/C
28	Valve 4 - Coil +
29	Valve 4 - Purge +
30	Valve 4 - Purge -
31	Valve 4 - Coil -
32	Valve 3 - Coil +
33	N/C
34	N/C
35	Valve 3 - Coil -
36	N/C
37	N/C

Pinout Drawing for Connector 15

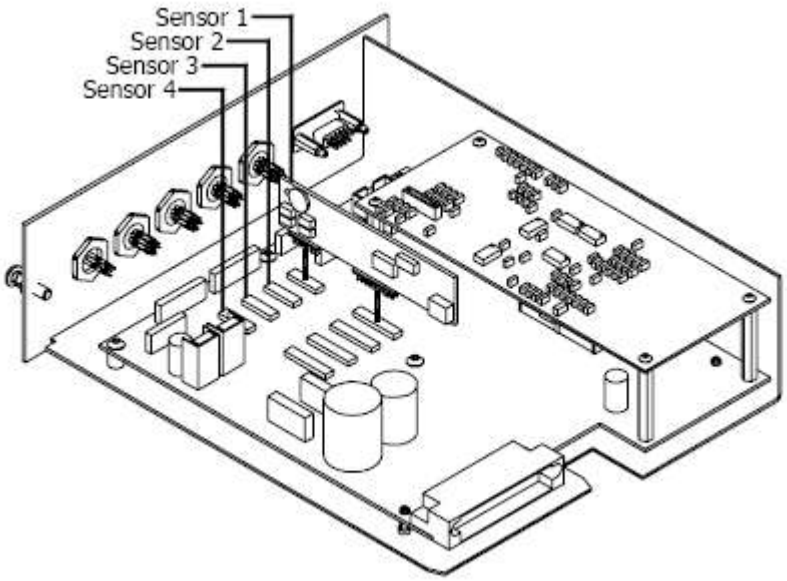


Inspection Control Module (ICM)



Sensor Adapter Modules

Different sensor adapter modules are available for use in the Inspection Control Module. These modules slide in as shown below:



The modules available are:

AS 601	151xx501
AS 301	151xx512
AS CGS	151xx460
Digital	151xx539
Microwave	151xx507

Inspection Control Module Features

Status LEDs:

Number	Name/Description
1	Sensor Power Supply LED
2	Marking Valve Power Supply LED
3	CAN -S - Illuminates steady green when two-way communication is occurring. Flashes green when the communication channel is open but a signal is not being received at the present time.
	CAN -E - Illuminates green when there is an error with communication.
4	Good Product Detected (1-4)
5	Bad Product Detected (1-4)
6	Glue Level Sensor (1-4)
7	Trigger (1-4)
8	Marking Valve (1-2)
9	Encoder (1-2)

Inspection Control Module (ICM) - Continued

Inspection Control Module Features

Connectors:

Number	Name
10	RS-232 Port
11	Sensor Connection (1-4)
12	Marking Valve Connection
13	Sensor Connection (1-2)
14	Sensor Connection (3-4)

Inspection Control Module Features

Fuses:

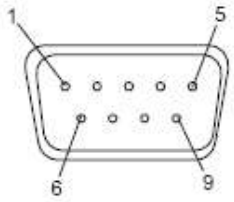
Number	Fuse	Type	Part No.
15a	Fuse Power Supply - Sensors (F1)	3.15A	085xx208
15b	Fuse Power Supply - Marking Valve (F2)	3.15A	085xx208

Inspection Control Module Connector Pinouts

RS-232 Port

Connector 10	RS-232 Port
Pin #	**Description**
1	N/C
2	RXD
3	TXD
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C

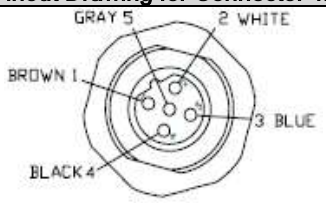
Pinout Drawing for Connector 10



Marking Valve Connection

Connector 12	Marking Valve Connection	
Pin #	Description	Color
1	Coil	Brown
2	Coil	White
3	Purge	Blue
4	Purge	Black
5	PE (Shield)	Grey

Pinout Drawing for Connector 12

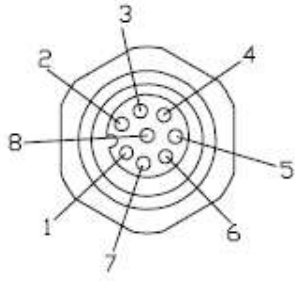


Scanner Connection

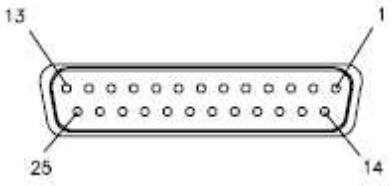
Type	Sensor Adapter Module
AS 601	151xx501
AS 301	151xx512
AS CGS	151xx460
Digital	151xx539
Microwave	151xx507

Connector 11	Sensor Connection					
Pin #	AS 601	AS 301	CGS	Digital	Description	Color
1	+ 10V AN Signal	+ 10V AN Signal	(0-20mA) AN Signal	IN 1 (NPN/PNP)	+ 10V AN Signal	White
2	Int. Scanner/NPN	Int. Scanner/NPN	Int. Scanner/PNP	IN 3 (NPN/PNP)	N/C	Brown
3	+12V	+12V	ST. LED	OUT 1 (NPN/PNP)	+12V	Green
4	N/C	AN. GND	AN. GND	IN 2 (NPN/PNP)	N/C	Yellow
5	+12V	+24V	+24V	24V	+12V	Grey
6	-12V	-12V	N/C	OUT 2 (NPN/PNP)	-12V	Pink
7	ERR	ERR	ERR	IN 4 (NPN/PNP)	ERR	Blue
8	GND	GND	GND	GND	GND	Red

Pinout Drawing for Connector 11

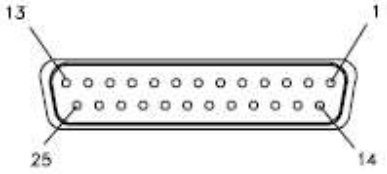


Sensors 1-2 (J-Box) Connections

Connector 13	Sensor Connections 1 & 2
Pin #	**Description**
1	Sensor 1 - 1
2	Sensor 1 - 2
3	Sensor 1 - 3
4	Sensor 1 - 4
5	Sensor 1 - 5
6	Sensor 1 - 8
7	N/C
8	Sensor 2 - 1
9	Sensor 2 - 2
10	Sensor 2 - 3
11	Sensor 2 - 4
12	Sensor 2 - 5
13	Sensor 2 - 8
14	Sensor 1 - 1
15	Sensor 1 - 3
16	Sensor 1 - 6
17	Sensor 1 - 7
18	Sensor 1 - 8
19	N/C
20	N/C
21	Sensor 2 - 1
22	Sensor 2 - 3
23	Sensor 2 - 6
24	Sensor 2 - 7
25	Sensor 2 - 8
Pinout Drawing for Connector 13	
	

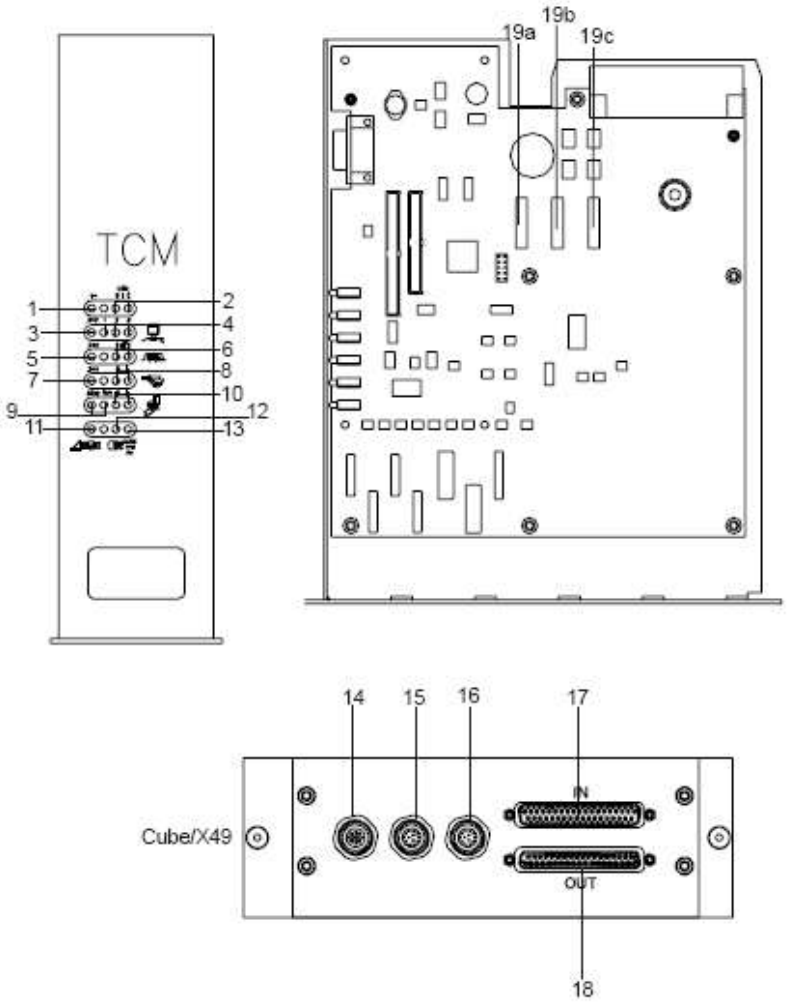
For signal description reference table “Connector 11”

Sensors 3-4 (J-Box) Connections

Connector 14	Sensor Connections 3 & 4
Pin #	Description
1	Sensor 3 - 1
2	Sensor 3 - 2
3	Sensor 3 - 3
4	Sensor 3 - 4
5	Sensor 3 - 5
6	Sensor 3 - 8
7	N/C
8	Sensor 4 - 1
9	Sensor 4 - 2
10	Sensor 4 - 3
11	Sensor 4 - 4
12	Sensor 4 - 5
13	Sensor 4 - 8
14	Sensor 3 - 1
15	Sensor 3 - 3
16	Sensor 3 - 6
17	Sensor 3 - 7
18	Sensor 3 - 8
19	N/C
20	N/C
21	Sensor 4 - 1
22	Sensor 4 - 3
23	Sensor 4 - 6
24	Sensor 4 - 7
25	Sensor 4 - 8
Pinout Drawing for Connector 14	
	

For signal description reference table “Connector 11”

Tracking Control Module (TCM) - Cube/X49



Tracking Control Module (TCM) - Cube/X49 - Continued

Tracking Control Module Features - Cube/X49

Status LEDs:

Number	Name
1	Counter Power Supply
2	CAN Status
3	Power Supply Scanner
4	Scanner Status (1-3)
5	CDS Power Supply
6	CDS Status
7	Inactive
8	Inactive
9	Inactive
10	Inactive
11	Ejector
12	Encoder
13	Power Supply Cube/X49

Tracking Control Module Features – Cube/X49

Connectors:

Number	Name
14	Sync Scanner
15	CDS Sensor 1
16	CDS Sensor 2
17	Cube/X49 Connector (Bobst) - IN
18	Cube/X49 Connector (Bobst) - OUT

Tracking Control Module Features

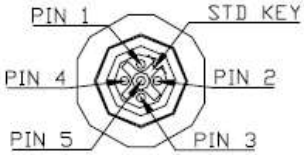
Fuses:

Number	Fuse	Type
19a	Fuse Power Supply	2.0A
19b	Fuse Power Supply CDS	2.0A
19c	Fuse Power Supply Flipper	2.0A

Tracking Control Module Connector Pinouts - Cube/X49

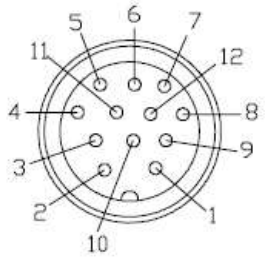
Sync Scanner Connection

Connector 14	Sync Scanner Connections	
Pin #	**Description**	**Color**
1	+24V	Brown
2	PNP	White
3	Ground	Blue
4	NPN	Black
5	Shield	Shield/Grey
Pinout Drawing for Connector 14		



CDS Sensor 1 and 2 Connection

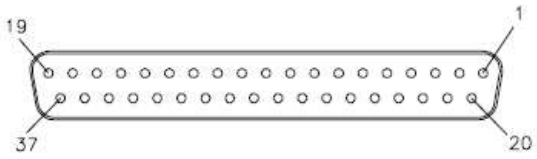
Connectors 15 & 16	CDS Sensor 1 and 2	
Pin #	**Description**	**Color**
1	+24V	White
2	ENC-A	Brown
3	ENC-Ā	Green
4	CAN-Low	Yellow
5	CAN-High	Grey
6	GND	Pink
7	+24V	Blue
8	Sync	Red
9	Result	Orange
10	F-Stop	Tan
11	M-Stop	Black
12	GND	Violet
Pinout Drawing for Connector 15 & 16		



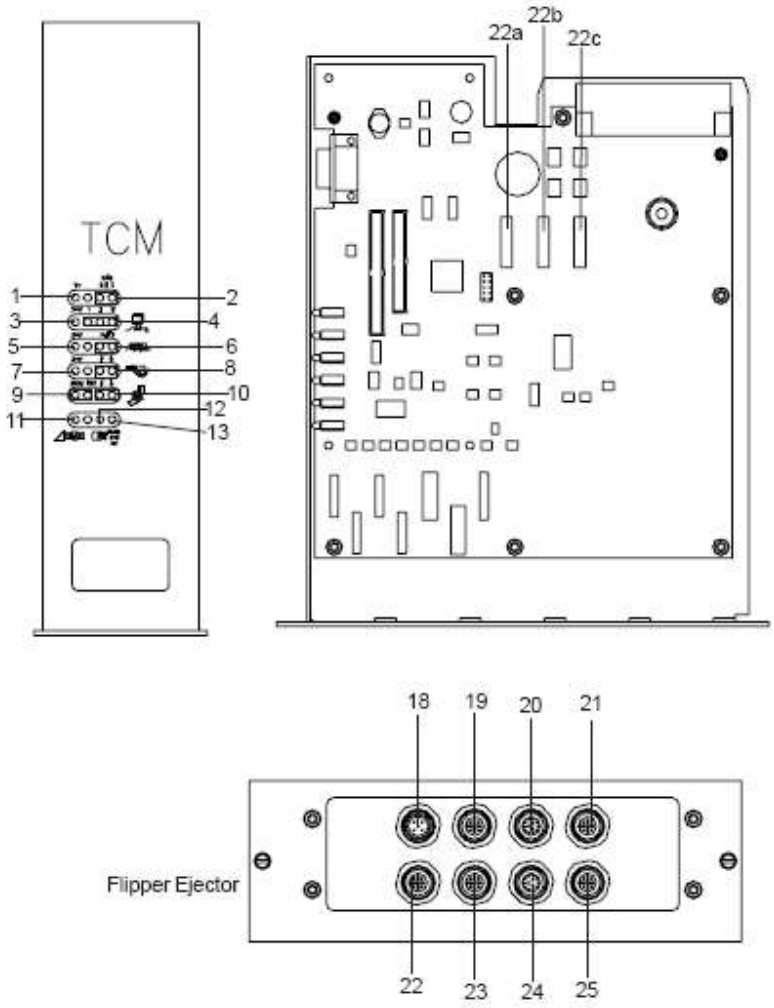
Pinouts for the CDS Control Box connections are shown, along with the CDS connection layout, in Section 4.

Cube/X49 Connector (Bobst)

Connector 17	Cube/X49 Connector (Bobst)	
Pin #	Description	
	IN	OUT
1	Sensor 6 (cube)	N/C
2	Sensor 5 (cube)	N/C
3	Sensor 4 (cube)	Sensor 6 (cube)
4	Sensor 3 (cube)	Sensor 5 (cube)
5	SENSOR 2 - Valco	Sensor 4 (cube)
6	SENSOR 1- Valco	Sensor 3 (cube)
7	Err 6 (cube)	N/C
8	Err 5 (cube)	N/C
9	Err 4 (cube)	Err 6 (cube)
10	Err 3 (cube)	Err 5 (cube)
11	ERROR 2 - Valco	Err 4 (cube)
12	ERROR 1 - Valco	Err 3 (cube)
13	N.C. K0	N/C
14	N.C. K1	N/C
15	N.C. K2	N.C. K0
16	N.C. K3	N.C. K1
17	N.C. K4	N.C. K2
18	N.C. K5	N.C. K4
19	Reserve 0	N/C
20	Reserve 1	N/C
21	Reserve 2	Reserve 0
22	Reserve 3	Reserve 1
23	Reserve 4	Reserve 2
24	Reserve 5	Reserve 3
25	GND (cube)	GND (cube)
26	N/C RXD (cube)	N/C RXD (cube)
27	N/C TXD (cube)	N/C TXD (cube)
28	GND (cube)	GND (cube)
29	N/C LSI (cube)	N/C LSI (cube)
30	GND (cube)	GND (cube)
31	TACHO-A	TACHO-A
32	TACHO-B	TACHO-B
33	GND (cube)	GND (cube)
34	M-STOP	M-STOP
35	F-STOP	F-STOP
36	Timeout (cube)	Timeout (cube)
37	+5V (cube)	+5V (cube)
Pinout Drawing for Connector 17		



Tracking Control Module (TCM) - Flipper Ejector



Tracking Control Module (TCM) - Flipper Ejector - Continued

Tracking Control Module Features - Flipper

Status LEDs:

Number	Name
1	Counter Power Supply
2	CAN Status
3	Power Supply Scanner
4	Scanner Status (1-3)
5	CDS Power Supply
6	CDS Status
7	Flipper Power Supply
8	Flipper Status
9	Ejector Power Supply
10	Inactive
11	Ejector
12	Encoder
13	Inactive

Tracking Control Module Features – Flipper

Connectors:

Number	Name
18	Counter Output
19	Scanner 1
20	CDS 1
21	Flipper Valve 'Belt'
22	Scanner 2
23	Scanner 3
24	CDS 2
25	Flipper Valve 'Diverter'

Tracking Control Module Features

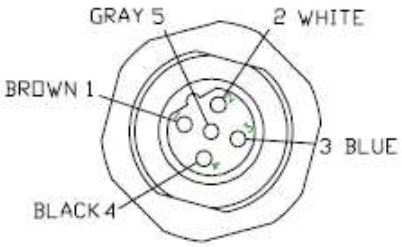
Fuses:

Number	Fuse	Type	Part No.
29a	Fuse Power Supply	2.0A	085xx220
29b	Fuse Power Supply CDS	2.0A	085xx220
29c	Fuse Power Supply Flipper	2.0A	085xx220

Tracking Control Module Connector Pinouts - Flipper

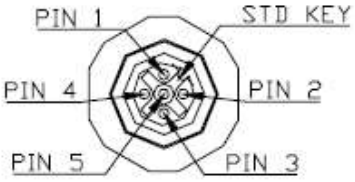
Counter Output Connection

Connector 18	Counter Output	
Pin #	**Description**	**Color**
1	+V	Brown
2	Count N.O.	White
3	GND	Blue
4	Count N.C.	Black
5	Shield	Shield/Grey
Pinout Drawing for Connector 18		



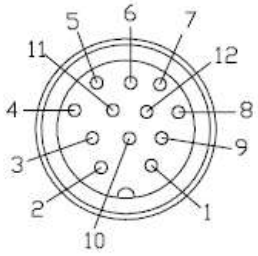
Scanner Connection

Connectors 19, 22, 23	Scanner	
Pin #	**Description**	**Color**
1	+24V	Brown
2	PNP	White
3	Ground	Blue
4	NPN	Black
5	Shield	Shield/Grey
Pinout Drawing for Connectors 19, 22, 23		



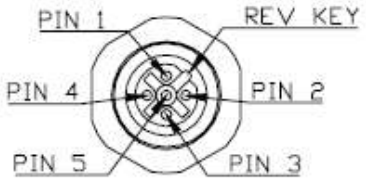
CDS Connection

Connectors 20 & 24	CDS Sensor 1 and 2	
Pin #	**Description**	**Color**
1	+24V	White
2	ENC-A	Brown
3	ENC-Ā	Green
4	CAN-Low	Yellow
5	CAN-High	Grey
6	GND	Pink
7	+24V	Blue
8	Sync	Red
9	Result	Orange
10	F-Stop	Tan
11	M-Stop	Black
12	GND	Violet
Pinout Drawing for Connectors 20 & 24		

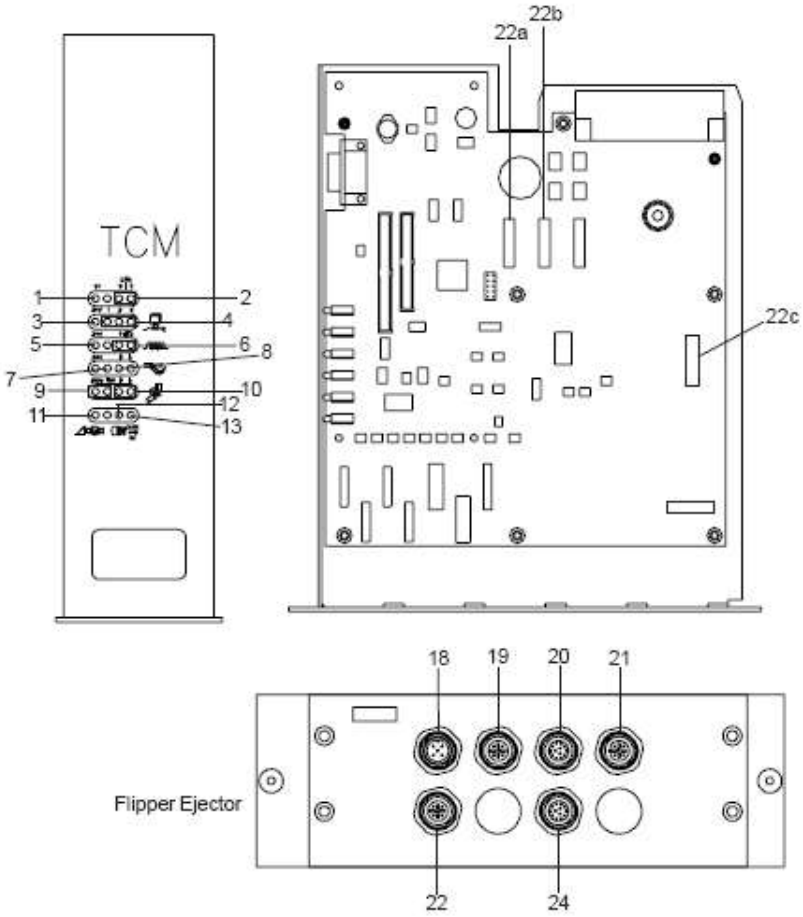


Flipper Connection - 21=Belt - 25=Diverter

Connectors 21 & 25	Flipper	
Pin #	**Description**	**Color**
1	Coil	Brown
2	Coil	White
3	N/C	-
4	N/C	-
5	PE	Green/Yellow
Pinout Drawing for Connectors 21 & 25		



Tracking Control Module (TCM) - Sprayer/Kicker



074xx052

Tracking Control Module Features - Sprayer/Kicker

Status LEDs:

Number	Name
1	Counter Power Supply
2	CAN Status
3	Power Supply Scanner
4	Scanner Status (1-2)
5	CDS Power Supply
6	CDS Status
7	Sprayer Power Supply
8	Sprayer Status
9	Inactive
10	Inactive
11	Inactive
12	Encoder
13	Inactive

Tracking Control Module Features - Sprayer/Kicker

Connectors:

Number	Name
18	Counter Output
19	Scanner 1
20	CDS 1
21	Spray Valve
22	Scanner 2
24	CDS 2

Tracking Control Module Features - Sprayer/Kicker

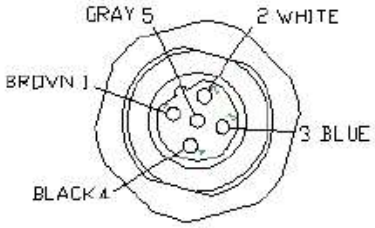
Fuses:

Number	Fuse	Type	Part No.
29a	Fuse Power Supply	2.0A	085XX220
29b	Fuse Power Supply CDS	2.0A	085XX220
29c	Fuse Power Supply Sprayer	2.0A	085XX220

Tracking Control Module Connector Pinouts - Sprayer/Kicker

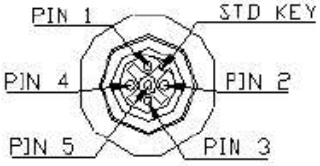
Counter Output Connection

Connector 18	Counter Output	
Pin #	**Description**	**Color**
1	+24V	Brown
2	PNP	White
3	Ground	Blue
4	NPN	Black
5	Shield	Shield/Gray
Pinout Drawing for Connectors 18		



Scanner Connection

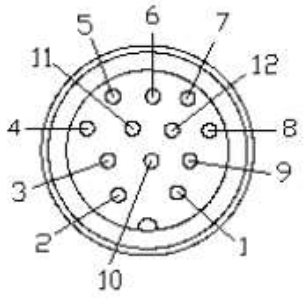
Connectors 19, 22, 23	Scanner	
Pin #	**Description**	**Color**
1	+24V	Brown
2	PNP	White
3	Ground	Blue
4	NPN	Black
5	Shield	Shield/Gray
Pinout Drawing for Connectors 19, 22		



CDS Connection

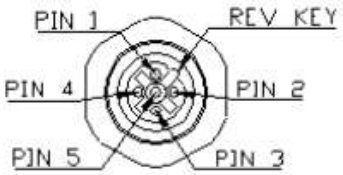
Connectors 20 & 24	CDS Sensor 1 & 2	
Pin #	**Description**	**Color**
1	+24V	White
2	ENC-A	Brown
3	ENC-A	Green
4	CAN-Low	Yellow
5	CAN-High	Gray
6	GND	Pink
7	+24V	Blue
8	Sync	Red
9	Result	Orange
10	F-Stop	Tan
11	M-Stop	Black
12	GND	Violet

Pinout Drawing for Connectors 20 & 24

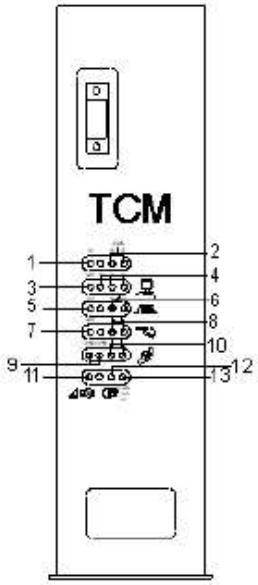


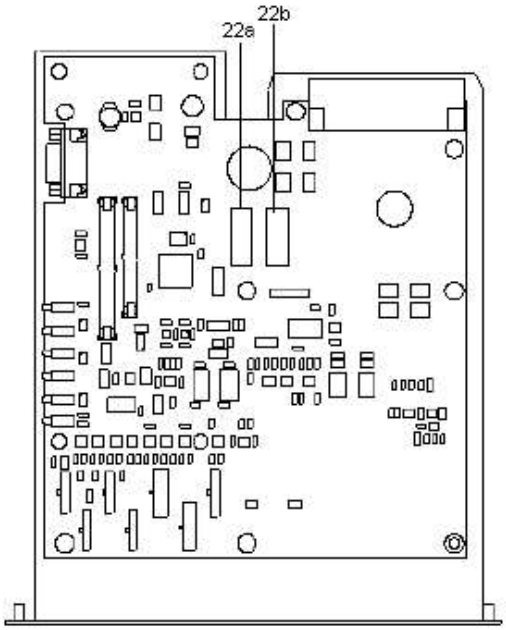
Spray Valve Connection

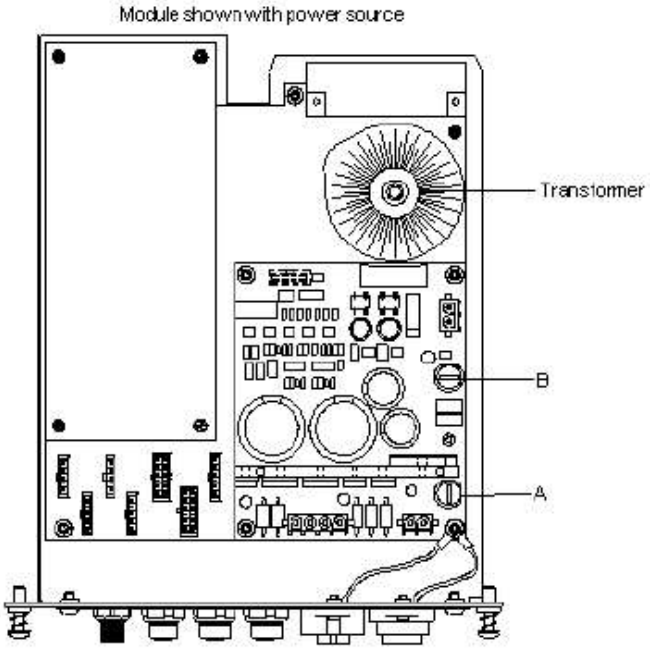
Connector 21	Flipper	
Pin #	**Description**	**Color**
1	Coil	Brown
2	Coil	White
3	Purge	Black
4	Purge	Black
5	PE (shield)	Gray
Pinout Drawing for Connectors 20 & 24		

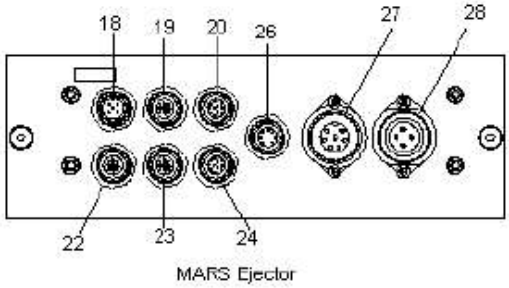


Tracking Control Module (TCM) - MARS Ejector









MARS Ejector

Tracking Control Module (TCM) - MARS Ejector - Continued

Tracking Control Module Features - MARS Ejector

Status LEDs:

Number	Name
1	Counter Power Supply
2	CAN Status
3	Power Supply Scanner
4	Scanner Status (1-3)
5	CDS Power Supply
6	CDS Status
7	Inactive
8	Inactive
9	Ejector Power Supply
10	Ejector Status
11	Ejector RPM
12	Encoder
13	Inactive

Tracking Control Module Features - MARS Ejector

Connectors:

Number	Name
18	Counter Output
19	Scanner 1
20	CDS 1
22	Scanner 2
23	Scanner 3
24	CDS 2
26	Ejector Control
27	Ejector Valve
28	Ejector Power Supply

Tracking Control Module Features

Fuses:

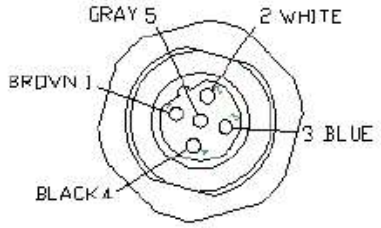
Number	Fuse	Type	Part No.
29a	Fuse Power Supply	2.0A	085xx220
29b	Fuse Power Supply CDS	2.0A	085xx220
A	Fuse Power Supply Ejector	4 A	085xx181
B	Fuse Ejector Driver	400 m A	085xx252

Tracking Control Module Connector Pinouts - MARS Ejector

Counter Output Connection

Connector 18	Counter Output	
Pin #	**Description**	**Color**
1	+V	Brown
2	Count N.O.	White
3	GND	Blue
4	Count N.C.	Black
5	Shield	Shield/Gray

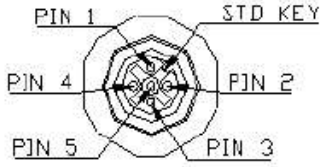
Pinout Drawing for Connectors 18



Scanner Connection

Connectors 19, 22, 23	Scanner	
Pin #	**Description**	**Color**
1	+24V	Brown
2	PNP	White
3	Ground	Blue
4	NPN	Black
5	Shield	Shield/Gray

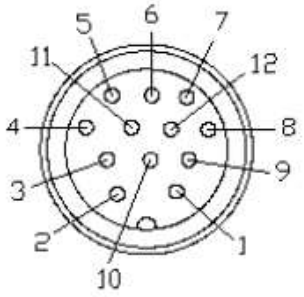
Pinout Drawing for Connectors 19, 22, 23



CDS Connections 1 & 2

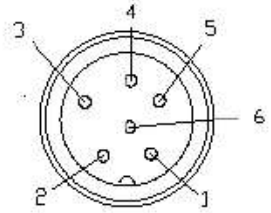
Connectors 20 & 24	CDS Sensor 1 & 2	
Pin #	**Description**	**Color**
1	+24V	White
2	ENC-A	Brown
3	ENC-A	Green
4	CAN-Low	Yellow
5	CAN-High	Gray
6	GND	Pink
7	+24V	Blue
8	Sync	Red
9	Result	Orange
10	F-Stop	Tan
11	M-Stop	Black
12	GND	Violet

Pinout Drawing for Connectors 20 & 24



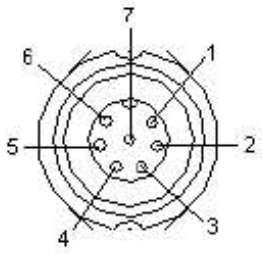
Ejector Control Connection

Connector 26	Ejector Control	
Pin #	**Description**	**Color**
1	0-10V	Brown
2	GND	White
3	EJ - Enable (+)	Black
4	EJ - Enable (-)	Black
5	EJ - Stat (+)	Gray
6	EJ - Stat (-)	Pink
Pinout Drawing for Connectors 26		



Ejector Valve Connection

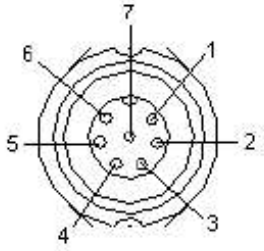
Connector 27	Ejector Control
Pin #	**Description**
1	Coil-Up (-)
2	Coil-Up (+)
3	Coil-Down (-)
4	Coil-Down (+)
5	N/C
6	N/C
PE	PE
Pinout Drawing for Connectors 27	



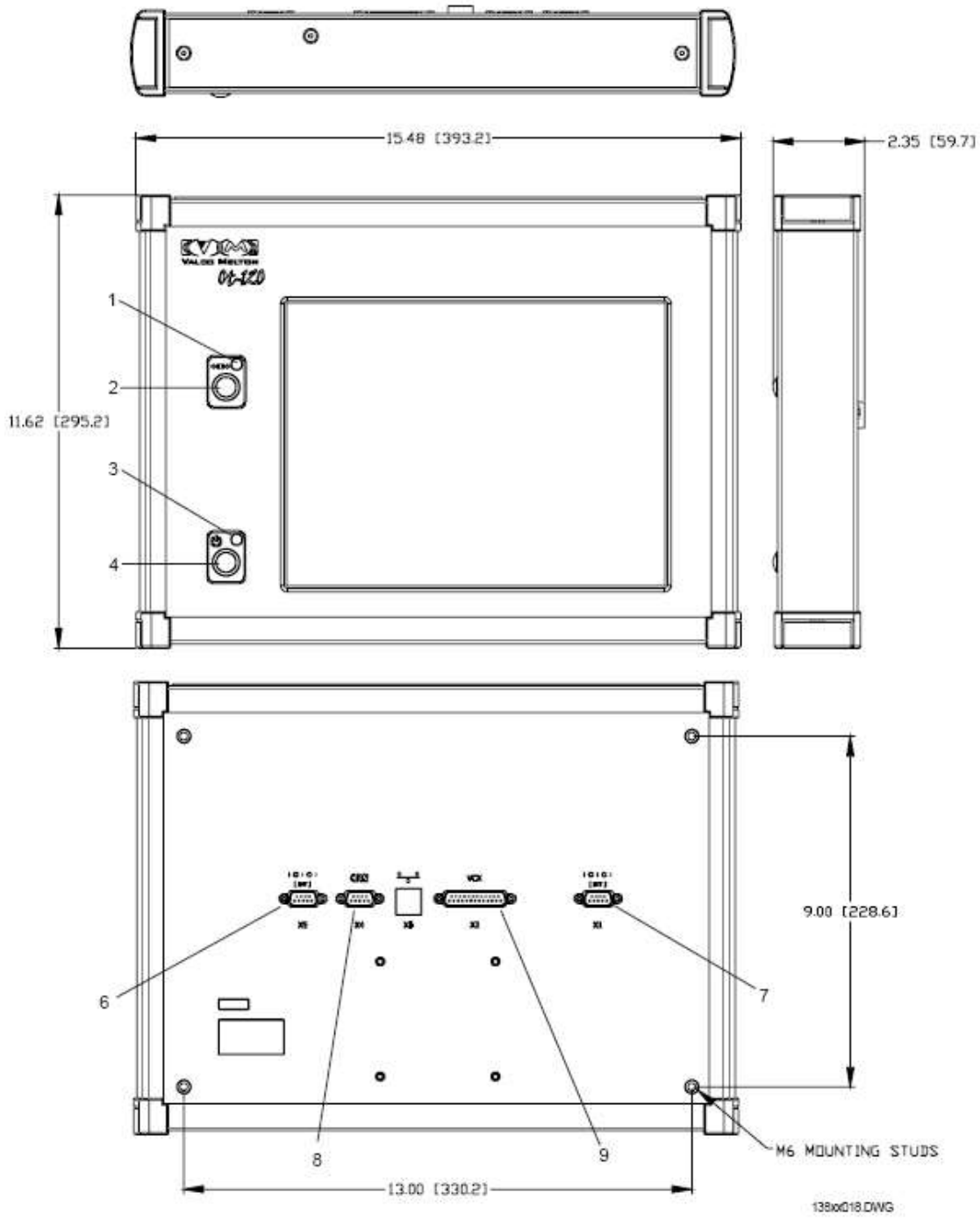
Ejector Power Supply Connection

Connector 28	Ejector Power Supply
Pin #	**Description**
1	230VAC (L)
2	230VAC (N)
3	N/C
PE	PE

Pinout Drawing for Connectors 28



OT-120 Terminal



OT-120 Terminal - Continued

OT-120 Features

LEDs:

Number	Name
1	Consecutive Faults LED (Illuminates when the [programmed] maximum number of consecutive faults is reached.)*
3	Power On LED

*Available for MCU only.

Buttons:

Number	Name
2	Clear Faults Button*
4	Power On/Off Button

*Available for MCU only.

Connectors:

Number	Name
6	COM Port - Int
7	COM Port - Ext
8	CAN Port
9	Power/Control Port

The Power/Control Port (#9, above) accepts the following cables, according to the length required:

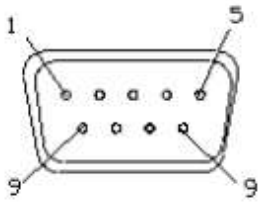
Description	Cable Length	Part Number
OT-120 Cable	2m	029xx331
	5m	029xx126
	10m	029xx147
	15m	029xx159
	20m	029xx160

OT-120 Terminal Connector Pinouts

COM Port Connection

Connector 7	COM Port
Pin #	**Description**
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	N/C

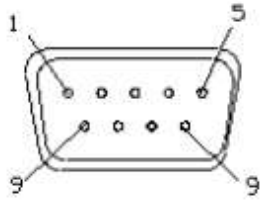
Pinout Drawing for Connector 7



CAN Port Connection

Connector 8	COM Port
Pin #	**Description**
1	N/C
2	CAN-Low
3	CAN-GND*
4	GND
5	N/C
6	N/C
7	CAN-High
8	Remote-Out
9	N/C

Pinout Drawing for Connector 8

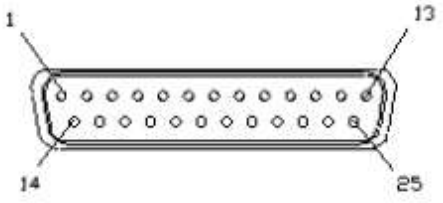


*Only with JPI Closed

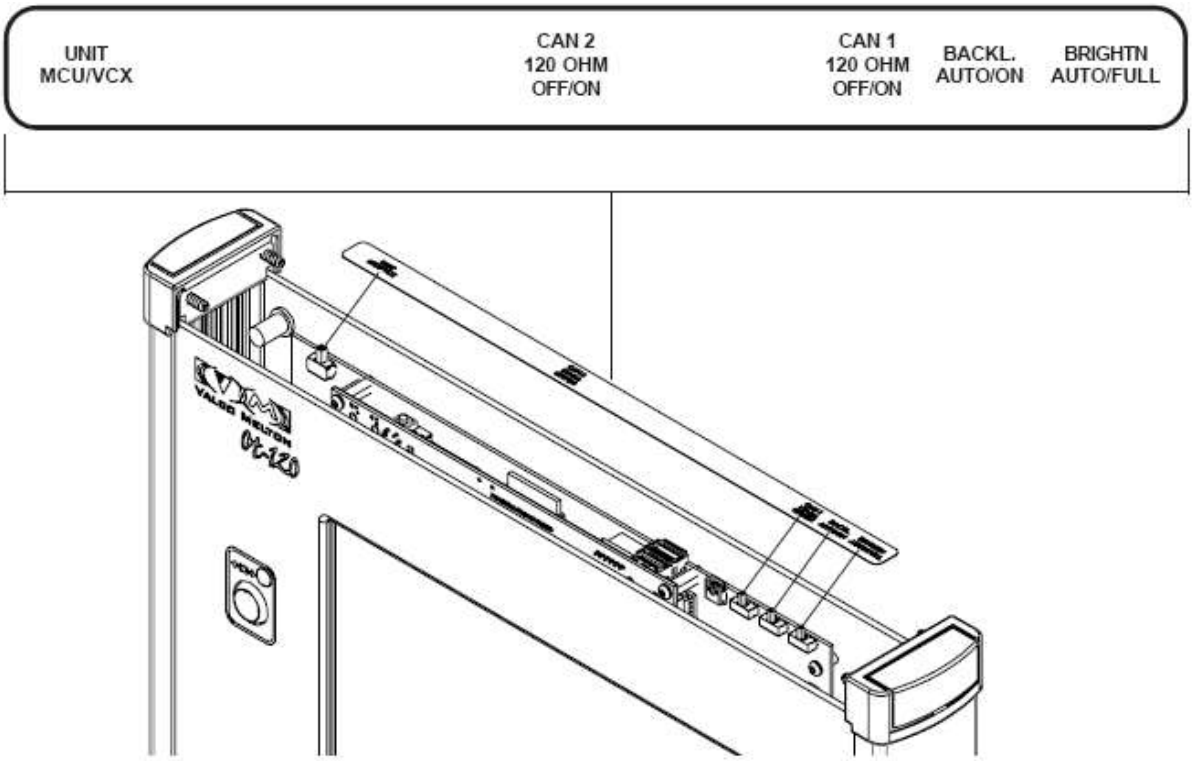
Power/Control Port Connection

Connector 9	Power/Control Port
Pin #	**Description**
1	CTS-
2	CTS+
3	RX485+
4	RX485-
5	TX485+
6	TX485-
7	Remote in 2
8	MCU Enable
9	PButton+
10	PButton-
11	24V
12	24V
13	24V
14	RTS-
15	RTS+
16	MCU MStop
17	Remote Out +
18	Remote GND
19	CAN-Low
20	CAN-High
21	Remote in 1
22	GND
23	GND
24	GND
25	GND

Pinout Drawing for Connector 9



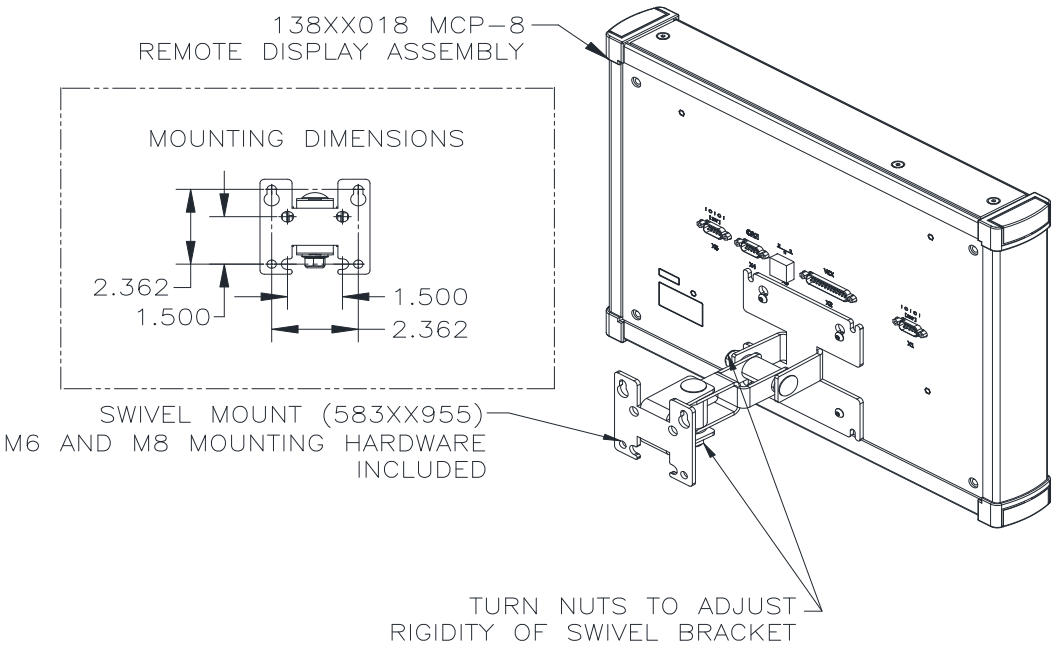
Top Switch Function Label



Switch	Description	Default Setting
Unit MCU/VCX	Switches between MCU and VCX	VCX
CAN 2 120 Ohm Off/On	Not Connected	N/A
CAN 1 120 Ohm Off/On	Switches CAN 1 Off or On	On
Backl. Auto/On	Turns the screen backlight to Auto or On	Auto
Brightn Auto/Full	Turns the screen lighting to Auto or Full	Full

Mounting Bracket for OT-120 Control

The mounting bracket for the OT-120 allows the operator to swivel the control for best viewing. See the Part Number List Section for more details.



Section 4 - Setup

Adding Modules

The Power Supply Module is always on the left side of the VCX Control. Additional modules are added from left to right. Always place the Tracking Control Module(s) in the slot(s) on the right.

Module choices include Pattern Control Modules (PCM), Inspection Control Modules (ICM), Tracking Control Modules with Ejector (TCM-E), and Color Code Reader (CDS).

Removing the Cover of the VCX Control

WARNING! Turn off all power and disconnect the power cord to the VCX Control before adding or removing modules. FAILURE TO OBSERVE WARNING MAY RESULT IN DEATH, PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE.

To remove the cover of the VCX Control, use a hex wrench to turn the hex latches 1/2 turn to unhook the 4 latches that lock the cover onto the base (see Figure 4-1). Carefully remove the cover by grasping the cover “cup” handle and lifting the cover off of the unit. Reverse this procedure to replace the cover.

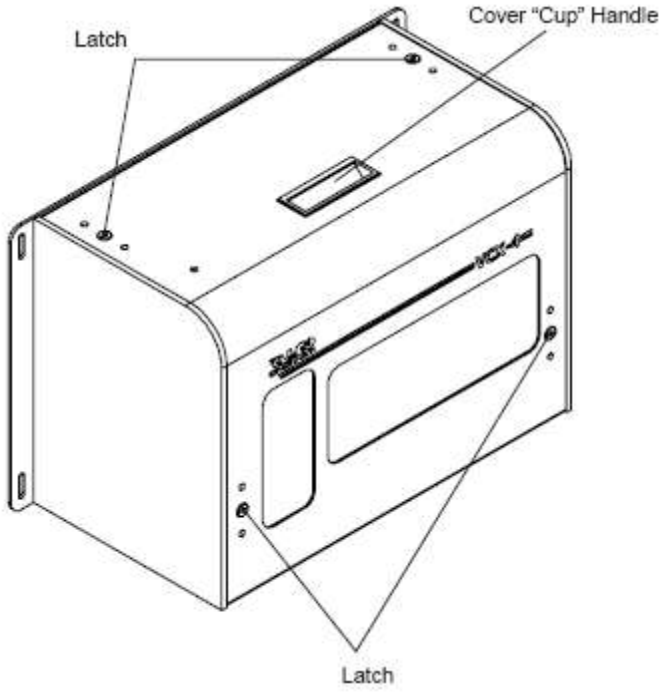


Figure 4-1. Remove the VCX Control Cover

Add Modules

To add a module, do the following:

1. Turn off all power to the unit and disconnect the power cord from the power source.
2. Remove the cover from the VCX Control as described in this section.

CAUTION! Do not apply excessive force and do not use tools to seat the module! Damage to the equipment may result.

3. Slide the module into the VCX Control base as shown in Figure 4-2.

> Make sure the module slides in easily. Pay attention to the connector and make sure the locator pin matches up with the mating connector.

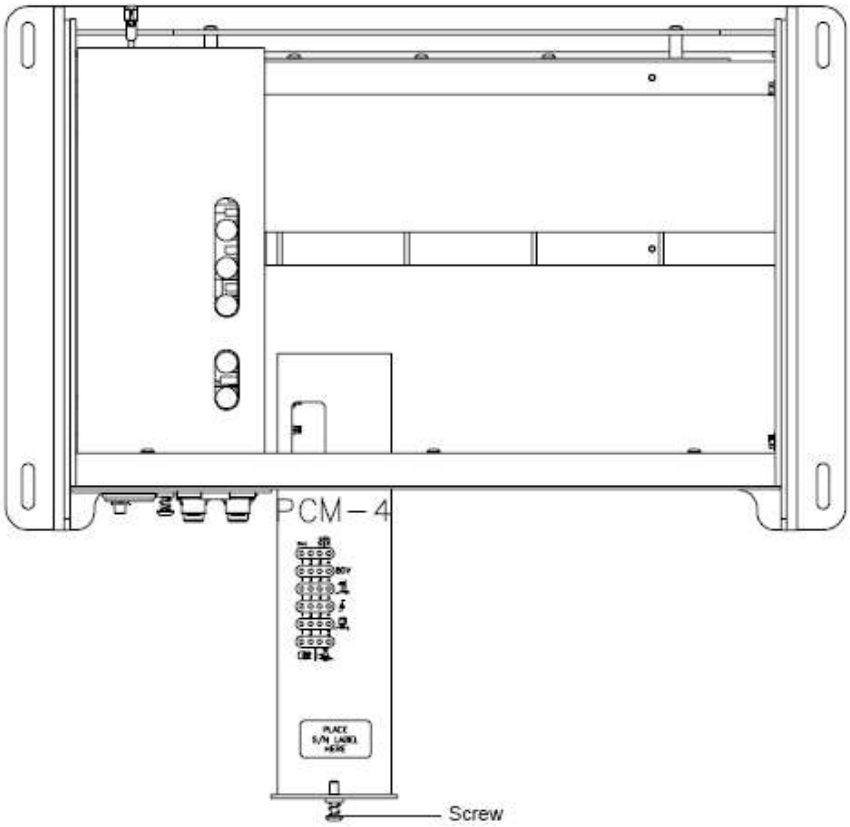


Figure 4-2. Adding/Removing a Module

4. Secure the module to the base rails with the screws located on both sides of the module (see Figure 4-2).
5. Connect the appropriate cables/plugs on the back of the module, using the guides in Section 3 - Basic Features.
6. Reconnect the power cord and follow the powering up sequence.

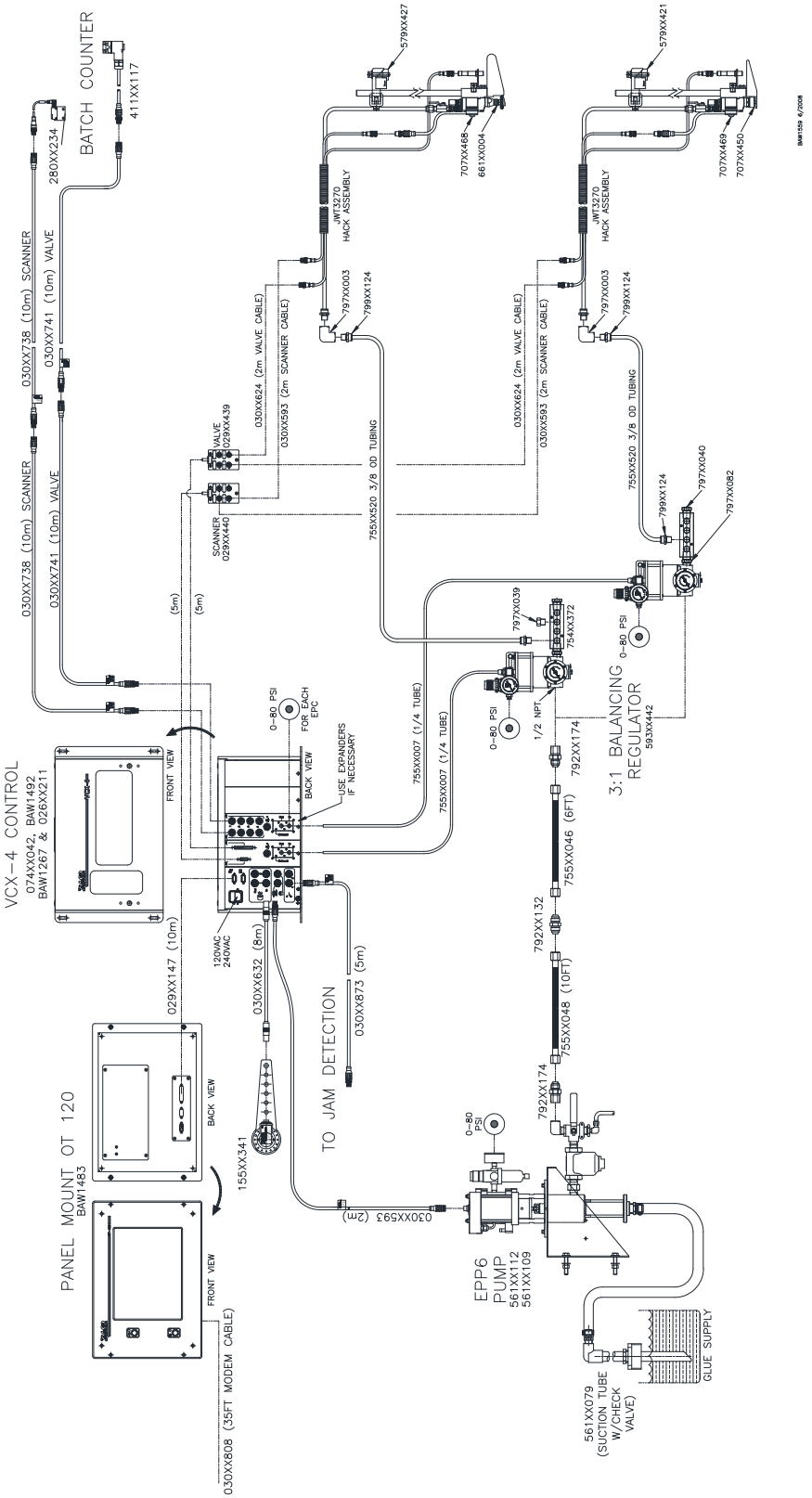
Remove Modules

To remove a module, do the following:

WARNING!  Turn off all power and disconnect the power cord to the VCX Control before adding or removing modules. FAILURE TO OBSERVE WARNING MAY RESULT IN DEATH, PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE.

1. Turn off all power to the unit and disconnect the power cord from the power source.
2. Disconnect all cables/plugs from the back of the module.
3. Loosen the screws that secure the module to the base rails of the VCX Control base (see Figure 4-2).
4. Slide the module out of the VCX Control base (see Figure 4-2).
5. Replace the cover on the VCX Control as described in this section.
6. Reconnect the power cord and follow the powering up sequence.

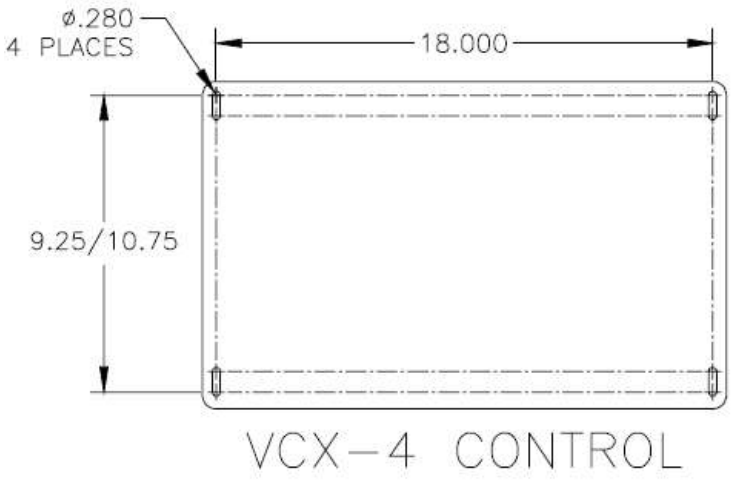
System Layout Example Illustration



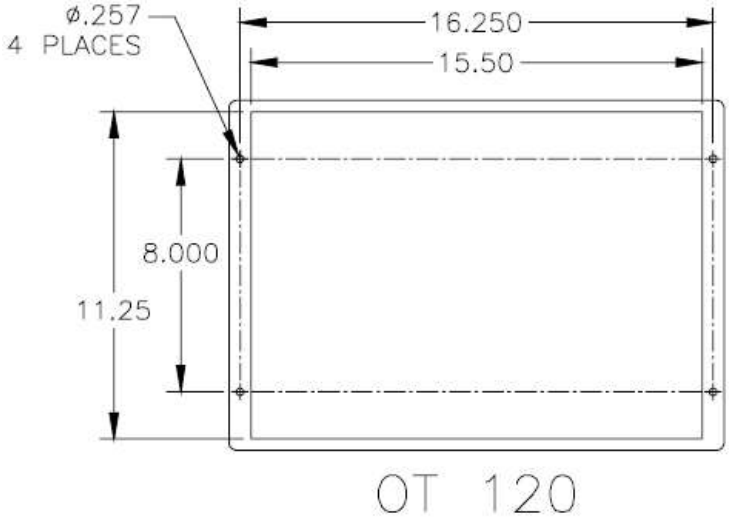
Bracket Mounting Patterns

All mounting patterns are enlarged to show detail.

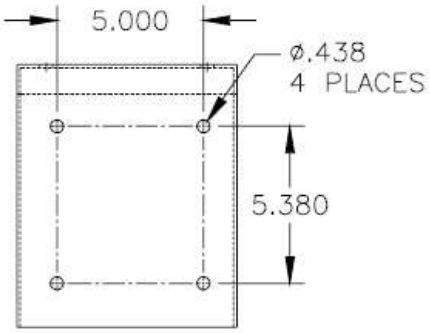
VCX Control



OT-120 Panel Mount

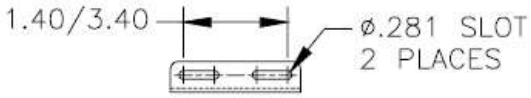


EPP-6 Pump



EPP6
PUMP

3:1 Balancing Regulator



3:1 BALANCING
REGULATOR

Linking Two VCX Controls

Two VCX Controls can be linked together. To connect two VCX Controls, do the following:

WARNING! Turn off all power and disconnect the power cord to both VCX Controls and the OT Unit before linking. FAILURE TO OBSERVE WARNING MAY RESULT IN DEATH, PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE.

1. Disconnect all power to all units/controls.
2. Determine the control that will be called “VCX -1.”
3. Remove the covers from both VCX Controls (see Figure 4-1).
4. Verify that the Control Selector Switch on “VCX -1” is set to “1” (see Figure 4-3).

> CAREFULLY reach under the cover plate to reach the switch with your fingers (see Figure 4-3).
>
> When the system is powered up the VCX-1 will automatically be the control where valve or/and sensor #1 is located.

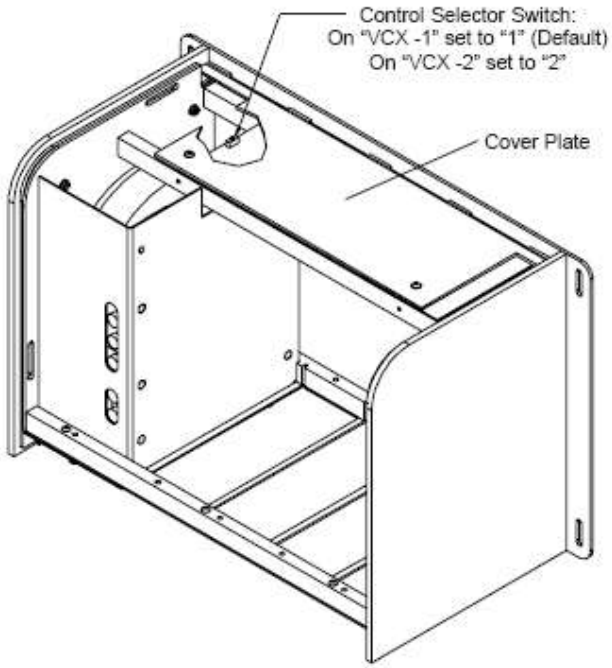
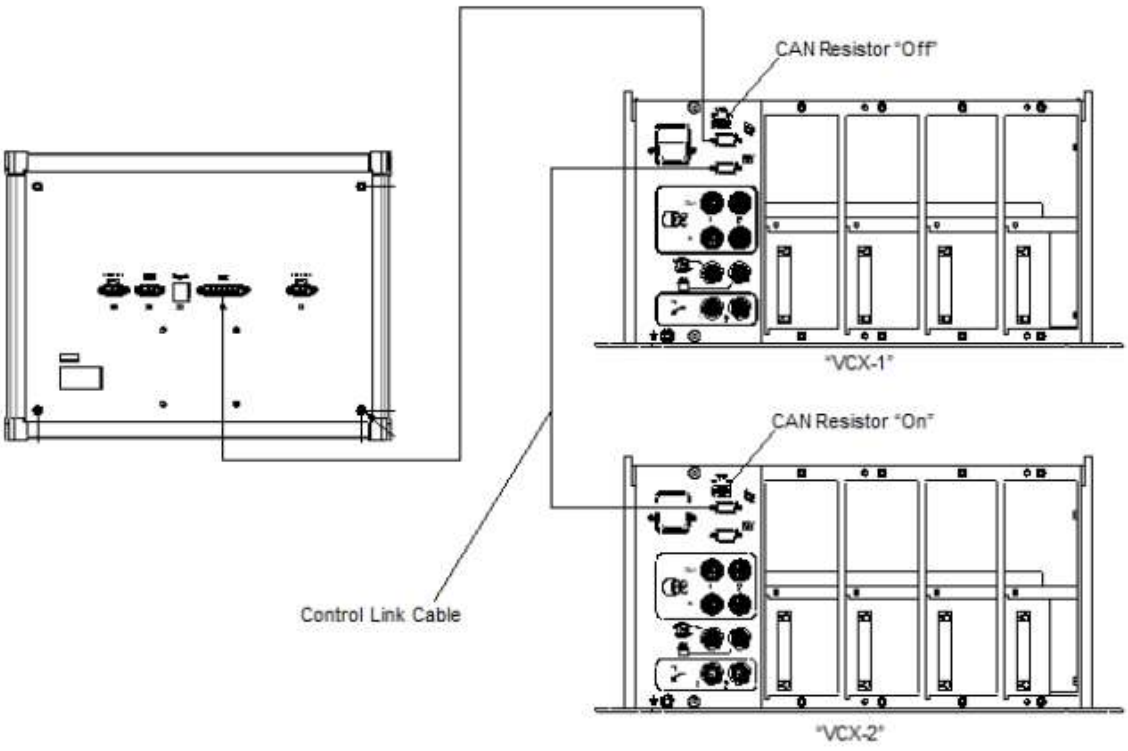


Figure 4-3. Control Selector Switch on the VCX Control

5. Set the Control Selector Switch on “VCX -2” to “2” (see Figure 4-3).
6. Replace the covers on both VCX Controls (see Figure 4-1).
7. Connect the cables on the “VCX -1,” the “VCX -2,” and the OT-120 Unit as shown in Figure 4-4.
8. Reconnect the power.
9. Perform the power up sequence.

Linking Two VCX Controls -Continued



The encoders can be linked together as shown above.

Figure 4-4. Connecting the Cables

CDS Color-Code Reader

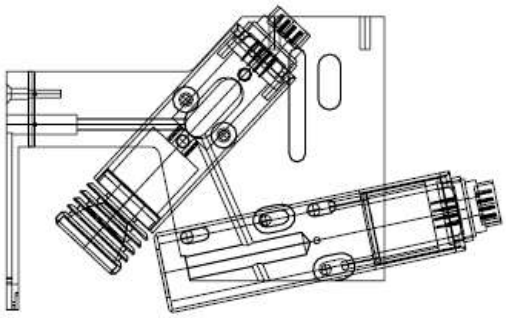


Figure 4-5. CDS Camera - Operator Side (SB3001)

Description

The CDS Color-Code Reader is a versatile tool that provides the following high-speed inspection functions: mixed copy, missing color and color density, print registration, die-cut registration (lateral and longitudinal), and skewed cartons and double feeds.

Specifications

- Colors: All
- Code types: Binary-type codes (EMS, Bobst, Pharma, Free-style)
- Machine speed: 600 m/min

(limitations: smallest code bar must be 0.5 mm wide, dark-colored background, holographic background)

Suitability

- Cartons with code picture printed on the glue flap (using prefolder-mounted camera)
- Cartons with black-and-white binary codes
- Cartons with color binary codes
- Color bars

CDS Connection Layout

The figure below shows the basic system configuration for the CDS, including cables and key components.

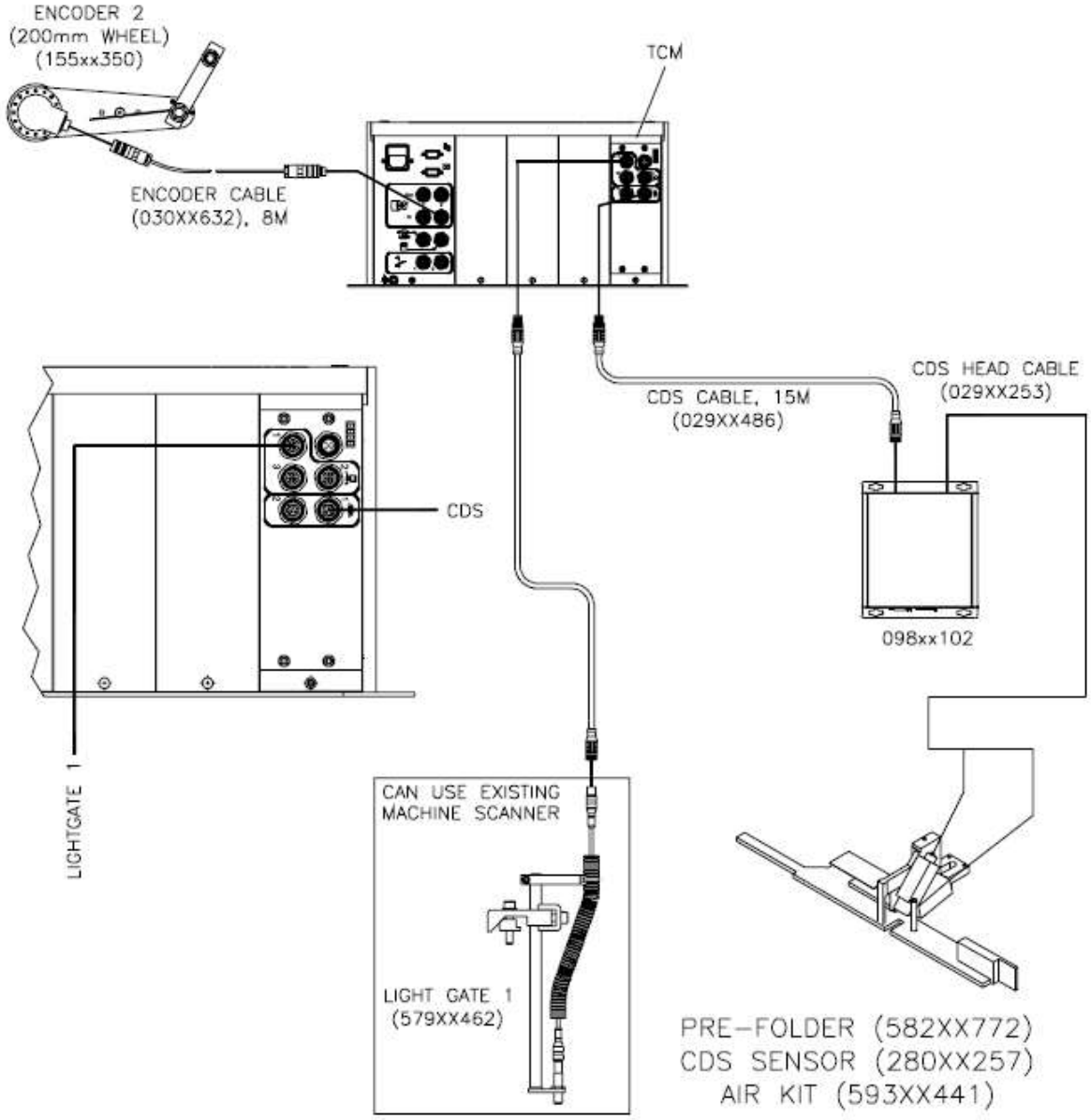


Figure 4-6. CDS Connection Layout

CDS Control Box Pinouts

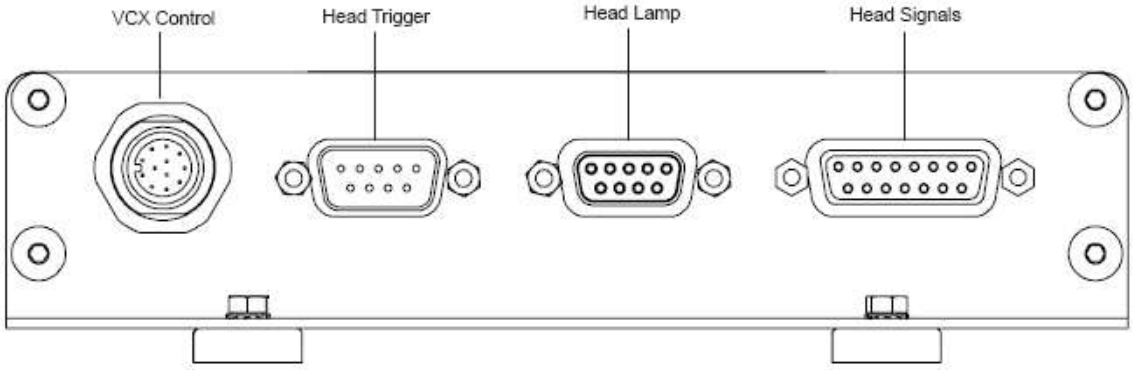
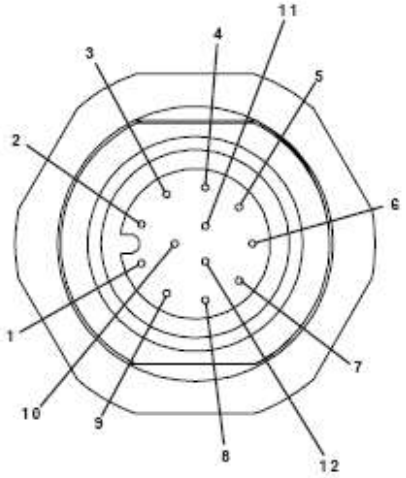


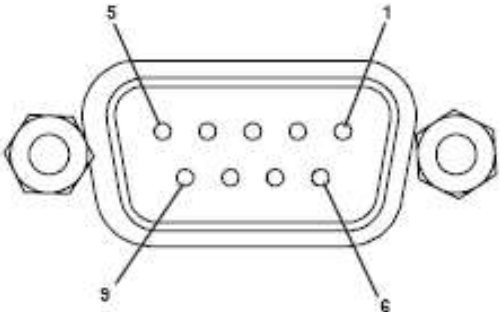
Figure 4-7. CDS Control Box Pinouts

VCX Control



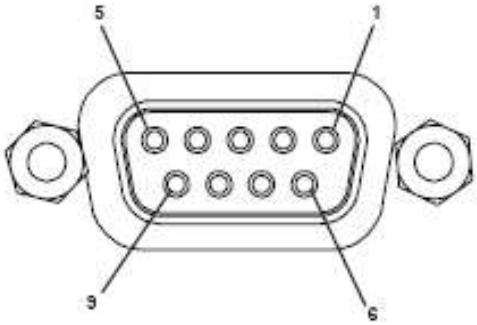
Pin#	Description
1	+ 24 VDC
2	(A) ENCODER IN
3	(1A) ENCODER IN
4	CAN LOW
5	CAN HIGH
6	GROUND
7	+ 24 VDC
8	SCANNER SYNC IN
9	RESULT OUT
10	FEED-STOP OUT
11	MACHINE-STOP OUT
12	GROUND

Head Trigger



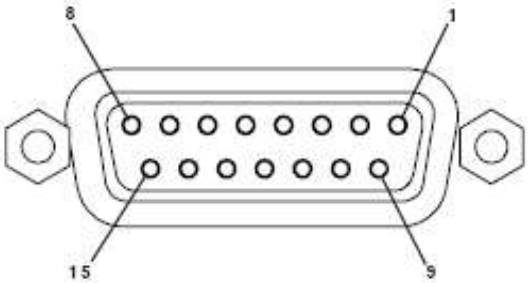
Pin#	Description
1	+ 5 VDC
2	EXTERNAL SCANNER DETECT
3	EXTERNAL SCANNER (NPN)
4	GROUND
5	GROUND
6	GROUND
7	PHOTODIODE
8	NO CONNECT
9	NO CONNECT

Head Lamp



Pin#	Description
1	+ 12 VDC (LAMP)
2	+ 12 VDC (LAMP)
3	FEEDBACK (LAMP)
4	FEEDBACK (LAMP)
5	GROUND
6	GROUND
7	GROUND
8	GROUND
9	GROUND

Head Signals



Pin#	Description
1	RED -GROUND
2	RED-IN
3	GREEN - GROUND
4	GREEN - IN
5	BLUE - GROUND
6	BLUE - IN
7	+ 15 VDC
8	CDS -GROUND
9	- 15 VDC
10	LED ONLY OUT
11	NO CONNECT
12	SENSOR CONNECT
13	CDS -GROUND
14	CDS -GROUND
15	CDS -GROUND

Operation - Startup

1. Press the On/Off button to power up the unit.

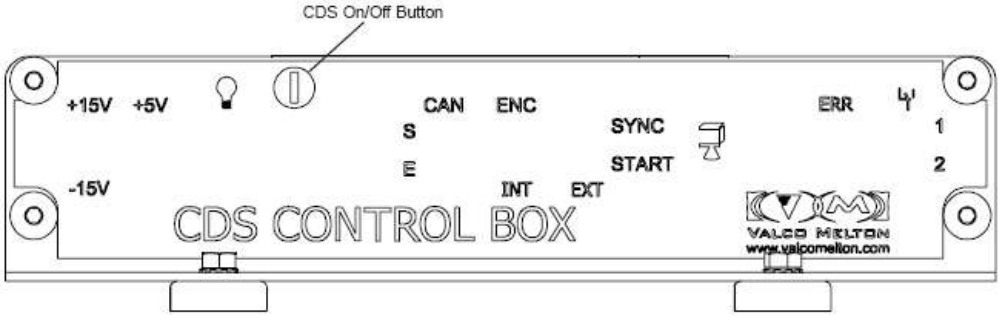


Figure 4-8. CDS Control Box Front Panel

The unit should already be configured properly on the.OT-120. If not, refer to the parameters in Appendix A.

White Value Calibration Procedure

The White Value Adjustment feature is only needed when the system is started at the time of installation, or after changing the halogen lamp in the CDS sensor. The purpose for the procedure is to establish a base point by which the system determines the true value of white.

To establish the White Value, you must first make certain the CDS sensor is very clean. Next, adjust the pre-folder properly so that the cartons are flowing through with no interference or skewing. Be sure that the glue flap runs through the pre-folder and is standing at a 90-degree angle to the gluer belt surface. You must select cartons that contain a background of pure white. The use of any color other than white will confuse the system.

Proceed by following the online instructions for running (4) boxes past the sensor. Upon successful completion, a message should appear indicating so.

There should be no need to sample the White Value again unless the lamp quality deteriorates to the point where normal sampling is difficult to achieve.

> The reading range selected must include approximately 5-6 mm of white clear space before the leading edge of the code picture.

Changing the Halogen Lamp

A Valco Technician should change the CDS lamp, as it requires a critical calibration procedure to insure that it is optimized for reading the full color spectrum.

Establishing a Baseline for the CDS Sensor

For each sensor, it is necessary to run a sample product so the system can “read” a sample code and establish the code as the baseline to which all jobs will be compared. Code can be any combination of narrow or wide bars. It can also be followed by 1-4 triangles.

To establish a baseline code for the CDS sensor, follow these steps:

1. Clean the CDS sensor, including the sensor lamp and the photocell.
2. With the sensor lamp turned off, jog a blank into the pre-folder. You will see two red dots.
3. Align the code picture between the two red dots. (The dots do nothing but give you a target. They have nothing to do with the actual code reading.)
4. Ensure that the box runs freely through the pre-folder without dragging or hanging up.

> The glue flap should be presented to the CDS camera at a right angle and should run consistently. It is critical that the box runs freely. Otherwise, the speed changes or angle changes will cause errors in sample or production reading.

5. Turn the sensor lamp ON and switch the MCU control to the run mode.
6. Press the the icon for the CDS color-code-reader camera. This gives you a large picture of the glue flap and as boxes pass you see a display of the code. The picture should be “clean”, with pixels between the bars.

> After cartons have been run, a message states that the operation was successful and recommends that you now sample for the code.

7. Ensure that the folding section is empty and that the ejector is turned on.
8. Using one blank, sample the code reader.

Establishing a Baseline for the CDS Sensor - Continued

> It is important to sample with a carton that has been checked for good quality because all of the remaining cartons will be compared to the master carton. The ejector will eject the sampled carton.

9. Mark the sampled carton as your master carton and save it.

> Once a sample has been made with the folding section empty and the ejector turned on, the sensor will learn the distance to photocell 1.

Code-Reading Hints

- When you change pallets (loads), send a few of the new cartons through the gluer while running the previous load. This will give you an indication of how well the new load will run.
- You may have to resample the code picture even though it is the same code and product. Ensure that the new sample is of good quality, and keep the new sample for your records.•When you change jobs, you may have to re-define the reading area. The unit does not automatically know where you want it to look for the code. Measure and input the dimensions for the reading area.
- If you have difficulties with the OT-120 touchscreen, such as the display locking up on the Code Reader, turn the sensor off and on again. If this does not correct the problem, reboot the system. This eliminates the banner-type messages that appear.
- Removing cartons from the folding section will result in an error message. Run the gluer empty for a minute or so to reset the system.
- If you have to widen tolerances beyond what is really practical, it probably means that the carton is not running through the pre-folder very well. Ensure that the carton flows freely through the pre-folder before sampling.

Encoder Installation

> For Encoder connections, refer to Section 3 - Basic Features.

Mechanical Installation of Encoder

An encoder must be installed in order for the control to determine the speed of the parent machine. For best results, 100 pulses per inch (25.4 mm) of product travel should be supplied to the VC3500. If less than 100 pulses per inch (25.4 mm) are supplied, poor resolution may result in pattern placement errors. If more than 100 pulses per inch (25.4 mm) are supplied, the maximum specified speed of 2000 feet/min (610 m/min) must be reduced.

There are two primary types of encoders:

- Wheel-driven encoder
- Gear-driven encoder

Wheel-Driven Encoder

If using a wheel-driven encoder (Figure 5-6), a VDD-1000 encoder with a 10-inch measuring wheel is recommended.

To install a wheel-driven encoder, follow these steps:

1. Mount the encoder's bracket to the frame of the parent machine.
2. Ensure that the wheel of the encoder rides securely against the belt and does not slip.
3. In the level-4 menu screen, set ratio compensation to 100 pulses.

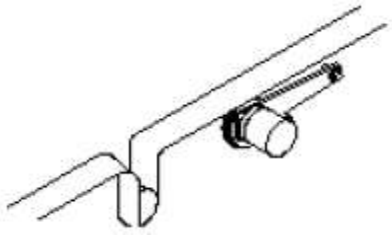


Figure 4-9. Example of a Wheel-Driven Encoder

Gear-Driven Encoder

The following formula can be used to determine the correct combination of gear teeth and encoder for approximately 100 pulse per inch (25.4 mm):

$$\frac{\text{Teeth-S}}{\text{Teeth-E}} \times \frac{\text{Counts}}{\text{Travel}} = \text{Pulses per inch (25.4 mm) of travel}$$

Teeth-S = Number of teeth on the line-shaft driver gear

Teeth-E = Number of teeth on the encoder driven gear

Counts = Number of encoder pulses per revolution

Travel = Product travel in inches (or millimeters divided by 25.4) per revolution of the drive shaft

Example:

Using a 92-tooth split line shaft gear (driver), a 24-tooth encoder driven gear, a 500-pulse encoder, and 18 inches (or 457 millimeters divided by 25.4) of travel per drive shaft revolution.

$$\frac{92}{24} \times \frac{500}{18} = 106.48$$

Therefore, the ratio compensation setting should be 106.5.

To install a gear-driven encoder (Figure 4-10), follow these steps:

1. Install the driver gear on the line shaft. Tighten the set-screws.
2. Position and install the encoder so that it is square with the driver gear.
3. Raise or lower the encoder to tighten the belt against the driver gear. (Ensure that the two sides of the belt are not pressed together under the wheel.) Due to the low torque required, the belt should not be extremely tight.

> At least 7-9 teeth should engage in the line shaft driver gear. It may be necessary to fabricate an adjustable bracket to connect the encoder base to the parent machine frame.

Gear-Driven Encoder - Continued

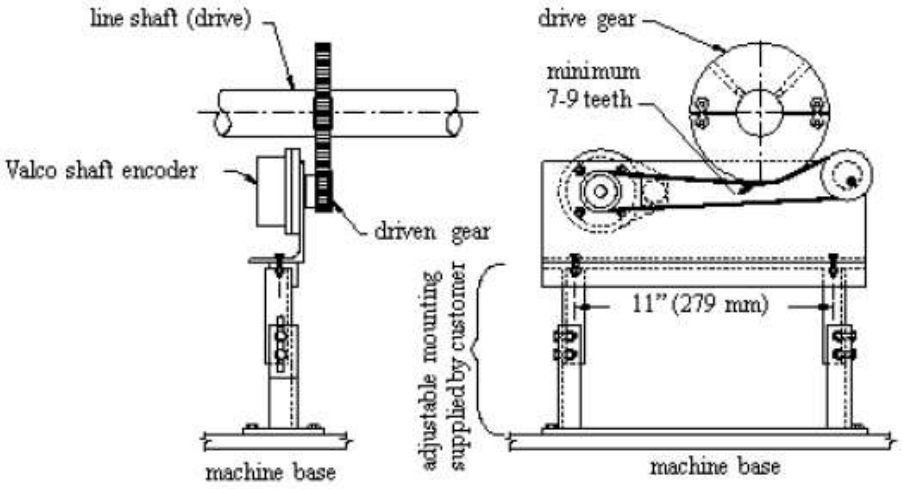


Figure 4-10. Typical Installation of a Gear-Driven Encoder

Section 5 - Operation

Power Up Sequence

Operation of the VCX System is managed through the OT-120 Control. The screen may look slightly different, depending on the revision of software that is installed on the OT-120.

The power up sequence is as follows:

1. Press the Power On Button on the bottom left of the OT-120 (see Figure 5-1).

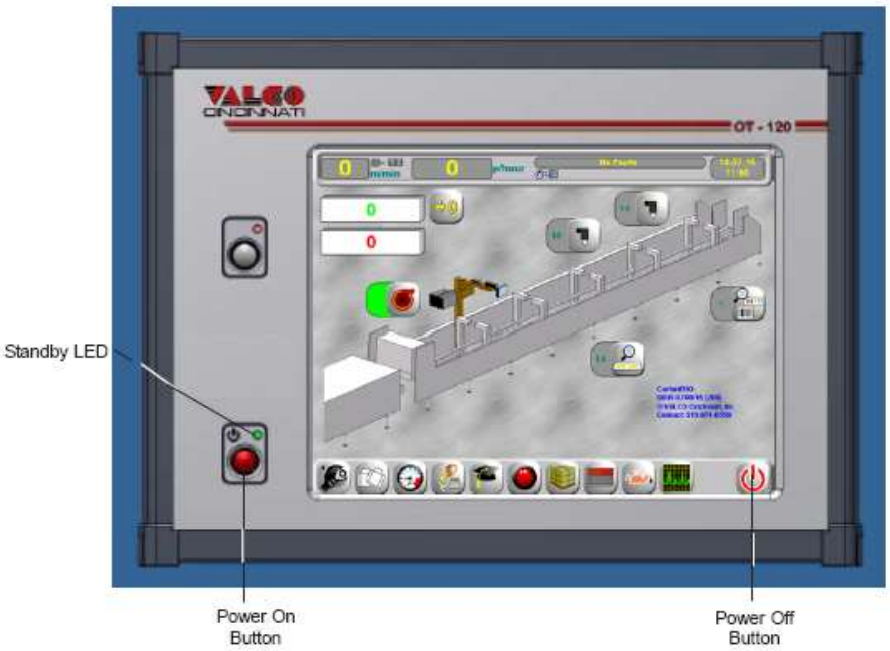


Figure 5-1. Turn on the OT-120 Unit

2. Plug in the VCX.
3. Flip the power switch on the back of the VCX Power Supply Module to the “On” position (see Figure 5-2).

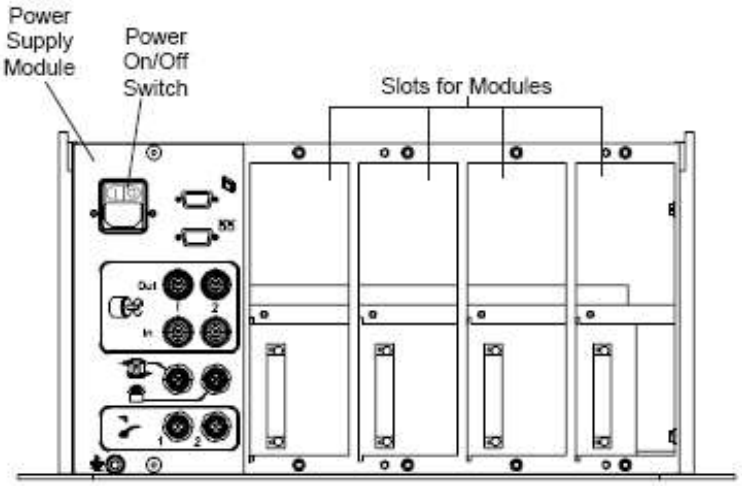


Figure 5-2. VCX Power Supply Module Power Switch

Power Up Sequence - Continued

4. The Standby LED on the OT-120 Control will turn orange as the unit warms up (see Figure 5-1).
5. The Standby LED on the OT-120 Control will turn green when the unit is at full power (see Figure 5-1).

> See the MC076 Manual for complete operation instructions using the OT-120 Control/CartonPRO Software with the VCX System

Power Down Sequence

The power down sequence is as follows:

1. Press the Power Off Button on the bottom right of the OT-120 screen (see Figure 5-1).
2. Confirm exit when the Dialog Box appears.
3. Wait until the standby LED on the OT-120 Control turns orange as the unit powers down (see Figure 5-1).
4. Flip the power switch on the back of the VCX Power Supply Module to the “Off” position (see Figure 5-2).

Notes regarding OT and TCM

Things to consider for OT and TCM:

The OT should detect if there are no Inspection channels enabled, but the Ejector is enabled. If this is true, the OT will set 3400.5F = 1 on the TCM. This will force all products to be ejected and counted as bad products. When the Ejector is then turned off, or if an Inspection channel is turned on, the OT will set 3400.5F = 0 on the TCM back for normal operation.

This is to prevent an operator from inadvertently turning off inspection while the Ejector is active.

Section 6 - Part Number List

How to Order Parts

To order parts, please contact your closest Valco office by mail, phone, or Email:

USA

Valco Cincinnati, Inc.
497 Circle Freeway Drive
Suite 490
Cincinnati, OH 45246
Tel: (513) 874-6550
Fax: (513) 874-3612
Email: sales@valcomelton.com
Web: http://www.valcocincinnatiinc.com

England

Valco Cincinnati Limited
Hortonwood 32
Telford, TFI 7YN, England
Tel: (+44) 1952-677911
Fax: (+44) 1952-677945
Email: sales@valco.co.uk
Web: http://www.valco.co.uk

Germany

Valco Cincinnati GmbH
Bonnerstrasse 349
40589 Dusseldorf-Benrath, Germany
Tel: +49 211 984 798-0
Fax: +49 211 984 798-20

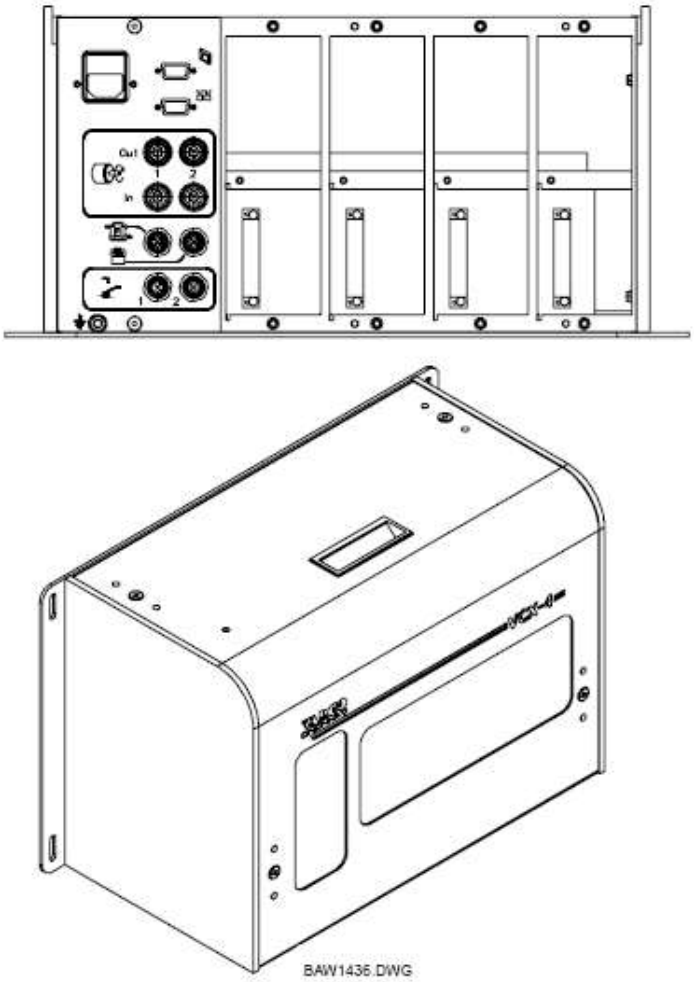
Spain

Melton S.L.U.
Pol. Industrial Agustinos
calle G, n. 34
31160 Orcoyen, Navarra, Spain
Tel: (34) 948-321-580
Fax: (34) 948-326-584

France

Valco Melton France
Technoparc des Hautes Faventines
32 Rue Jean Bertin
26000 Valence
Tel: +33 (0)4 75 78 13 73
Fax: +33 (0)4 75 55 74 20

VCX-4 Control Base (074xx042)

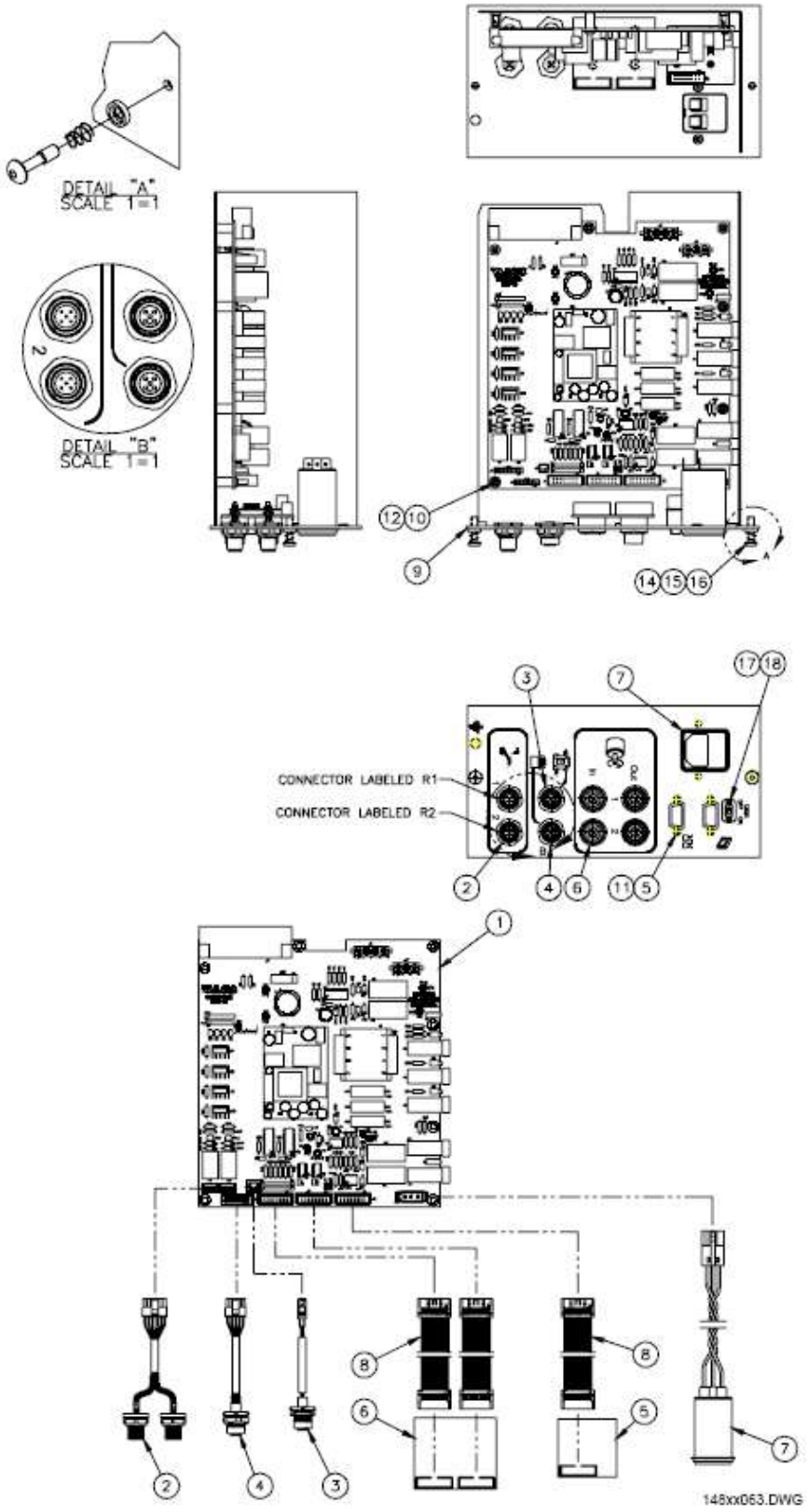


VCX-4 Control (074xx042) - Continued

Description	Part Number	Quantity
PLATE,END,LEFT	026XX200	1
PLATE,END,RIGHT	026XX201	1
MOUNTING RAIL TOP-4 MODULE	026XX208	3
MOUNTING RAIL FRONT-4 MODULE	026XX206	1
SCREW	784XX407	26
TERMINAL	091XX453	2
WASHER	784XX308	7
HEX NUT	798XX299	3
STUD,GROUNDING	091XX619	1
PCB ASSY TOP	151XX626	1
TRANSFORMER	551XX019	1
LOCK WASHER	784XX663	1
SCREW	784XX434	1
POWER SUPPLY MODULE,VCX	148XX063	1
NUT	793XX491	1
SCREW	884XX040	2
SCREW	784XX680	8
SCREW	798XX861	8
WIRE TERMINAL, RING	075XX079	2
WIRE TERMINAL	075XX217	2
MOUNTING RAIL BACK-4 MODULE	026XX207	1
PLATE,BOTTON COVER-4 MODULE	026XX205	1
PLATE,BACK-4 MODULE	026XX204	1
END CAP-LEFT	026XX203	1
END CAP-RIGHT	026XX202	1
WIRE	540XX051	31
LOCK WASHER	784XX375	2
COVER,CONTROL-4 MODULE	026XX209	1
FOAM RUBBER STRIP	023XX109	16.33
GASKET	023XX101	5
FLAT WASHER	884XX039	1
SCREW	784XX653	6
INSTALLATION KIT ASSY,VCX	091XX624	1
GASKET,TRANSFORMER	746XX174	1

It is not necessary to place a module in every slot of the VCX Control base. A blank module cover (026xx211) is used to cover each empty slot.

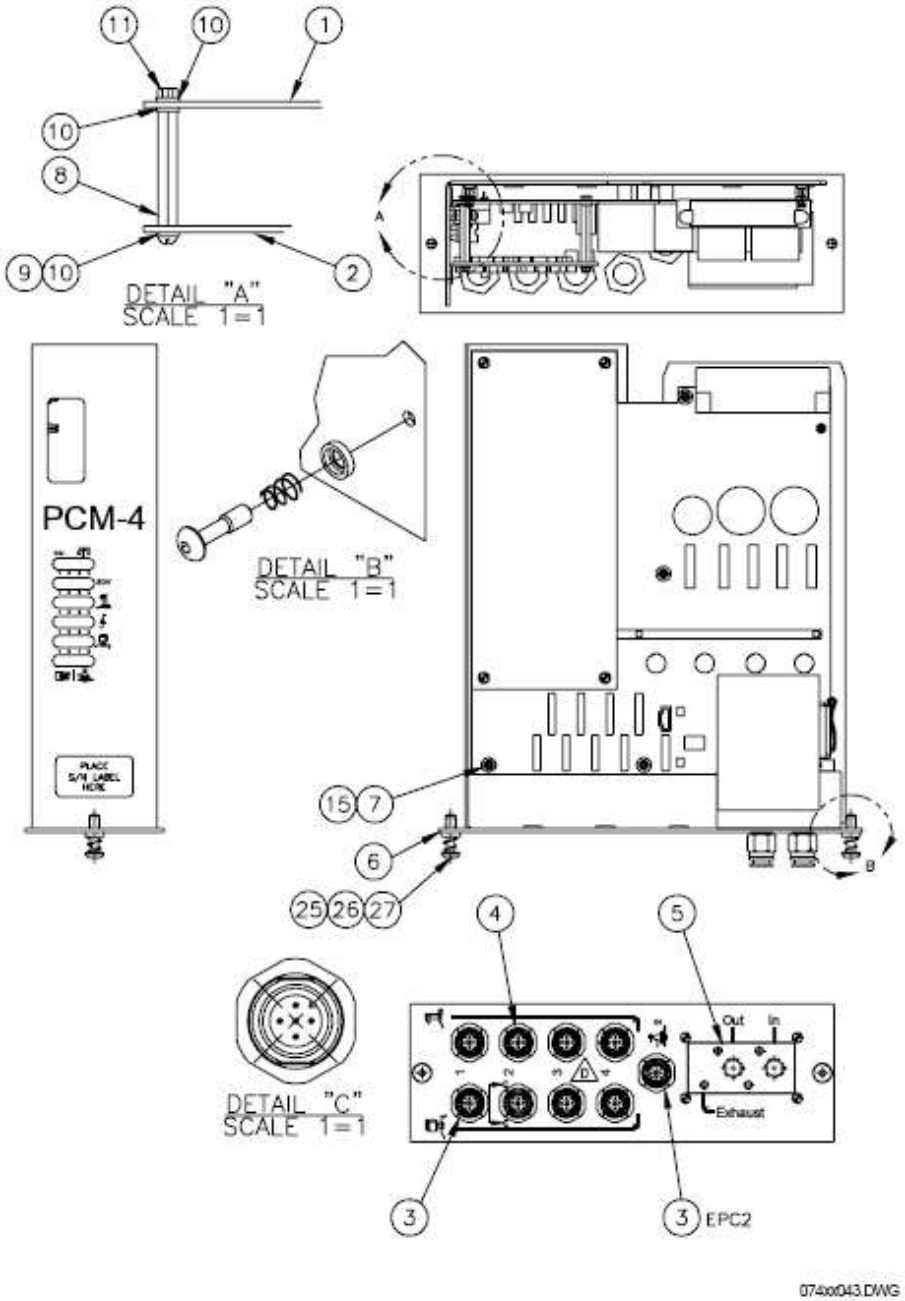
Power Supply Module (148xx063)



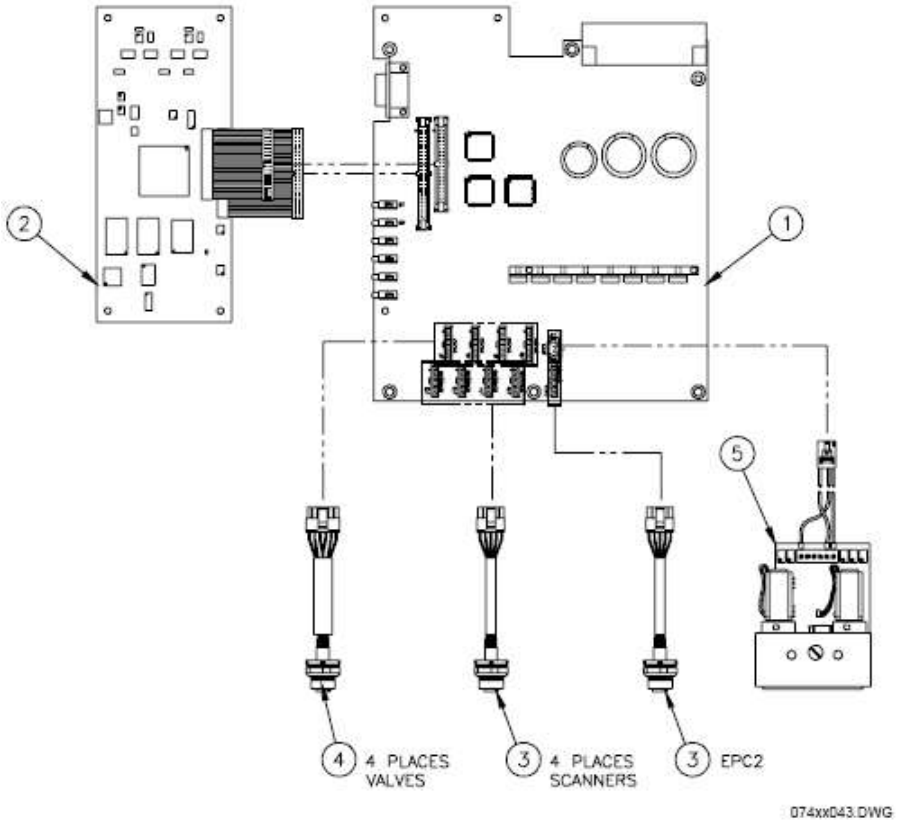
Power Supply Module (148xx063) - Continued

Item	Description	Part Number	Quantity
1	PCB SUBA POWER-SUPPLY VCX	152XX655	1
2	CABLE ASSY,RELAY CONTACTS,VCX	029XX399	1
3	CABLE ASSY,PUMP CONN,VCX	029XX398	1
4	CABLE ASSY	029XX397	1
5	PCB ASSY CONN OT/CAN VCX	152XX656	1
6	PCB ASSY CONN	152XX621	1
7	POWER ENTRY MODULE ASSY	086XX074	1
8	RIBBON CABLE ASSY	033XX105	3
9	MODULE FRAME PSM	026XX274	1
10	SCREW	784XX985	5
11	SCREW	091XX267	4
12	WASHER	784XX308	5
14	SCREW	783XX221	2
15	TAPERED COMPRESSION SPRING	783XX222	2
16	SCREW BEZEL	783XX223	2
17	COVER PLATE, SWITCH	781XX555	1
18	SCREW	784XX358	2
19	CABLE TIE	067XX154	1
21	LABEL STOCK, SILVER	781XX780	1

Pattern Control Module with EPC (074xx043)

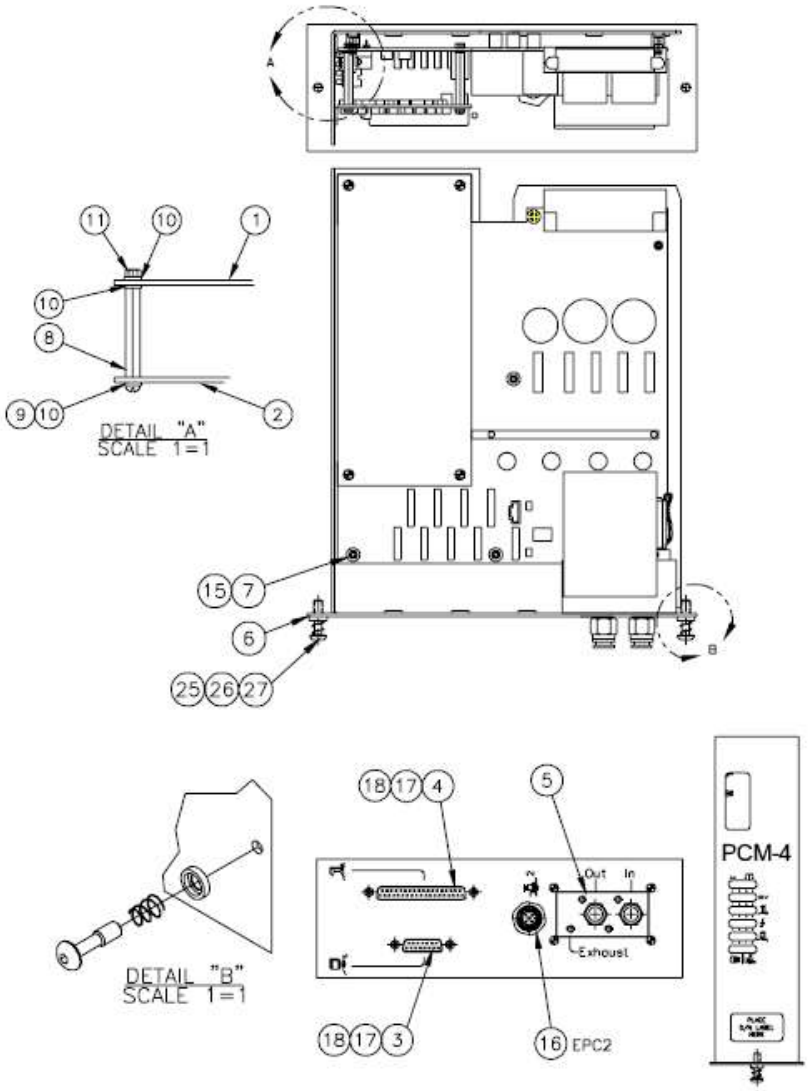


Pattern Control Module with EPC (074xx043) - Continued

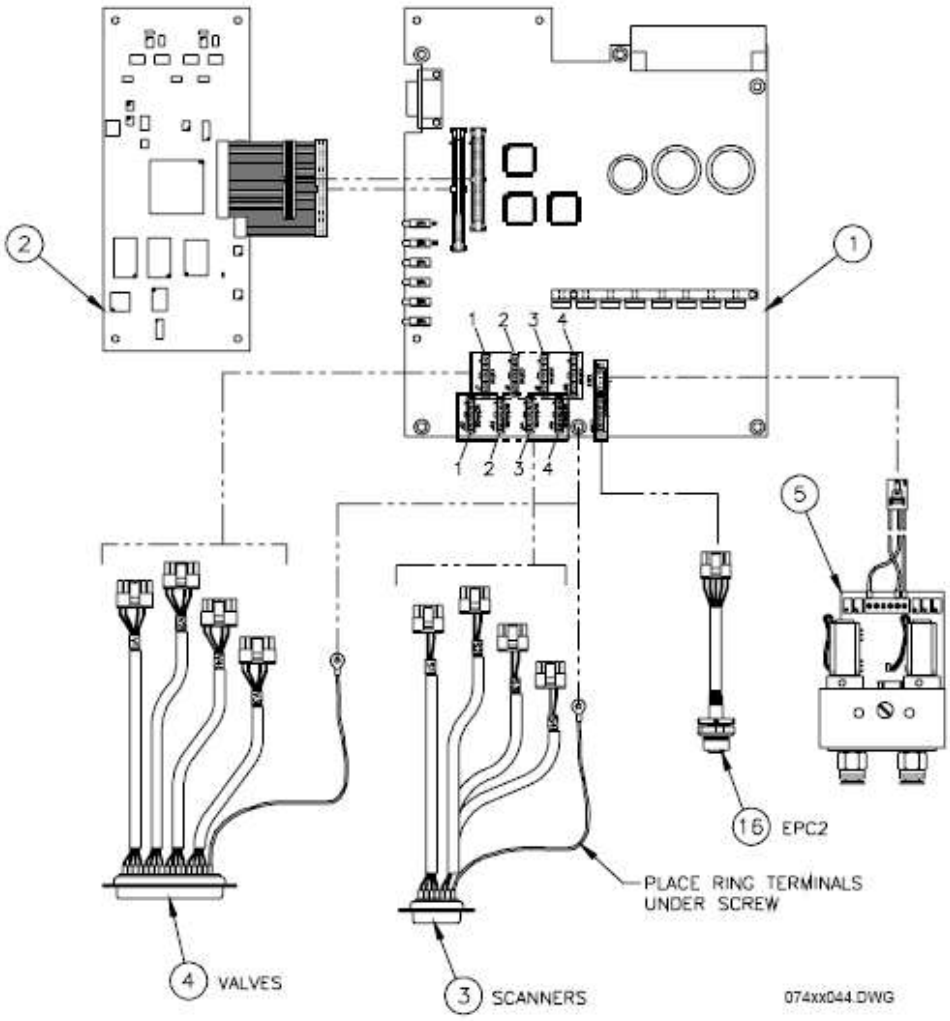


Item	Description	Part Number	Quantity
1	PCB Assembly, PCM-4, VCX	151xx619	1
2	PCB Assembly, CPU32MOD, VCX	152xx698	1
3	Cable Assembly, P M12 F T0 5P MCT	029xx397	5
4	Cable Assembly, P M12 F REV T0 6	029xx396	4
5	Manifold Assembly, MCP-4 0-10V	753xx436	1
6	Module Frame, PCM	026xx212	1
7	Screw	784xx985	5
8	Standoff	091xx615	4
9	Screw	784xx968	4
10	Lock Washer	784xx315	12
11	Hex Nut	798xx489	4
15	Lock Washer	784xx308	5
19	Fuse, 3.15A	085xx208	2
20	Tube End	799xx478	2
21	Static Shield Bag	781xx154	1
22	Software, PCM4-68376 CPU	119xx209	1
23	Software, PCM4, PLD, PWM Control	119xx216	2
24	Software, PCM4, PLD, IO Control	119xx217	1
25	Captive Screw	783xx221	2
26	Tapered Compression Spring	783xx222	2
27	Screw Bezel	783xx223	2

Pattern Control Module with EPC; Junction Box (E Box) Port (074xx044)



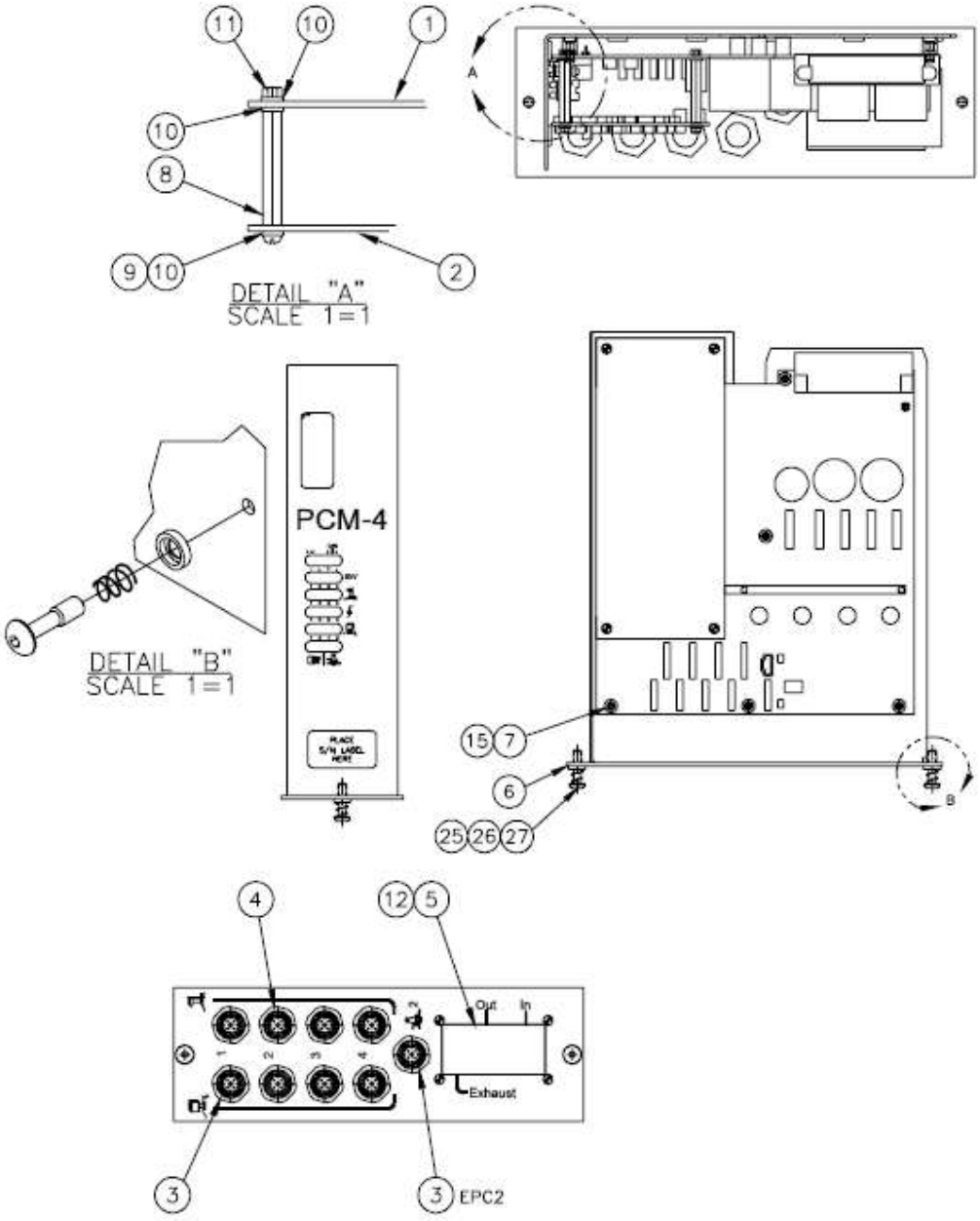
Pattern Control Module with EPC; Junction Box (E Box) Port (074xx044) - Continued



Pattern Control Module with EPC; Junction Box (E Box) Port (074xx044) - Continued

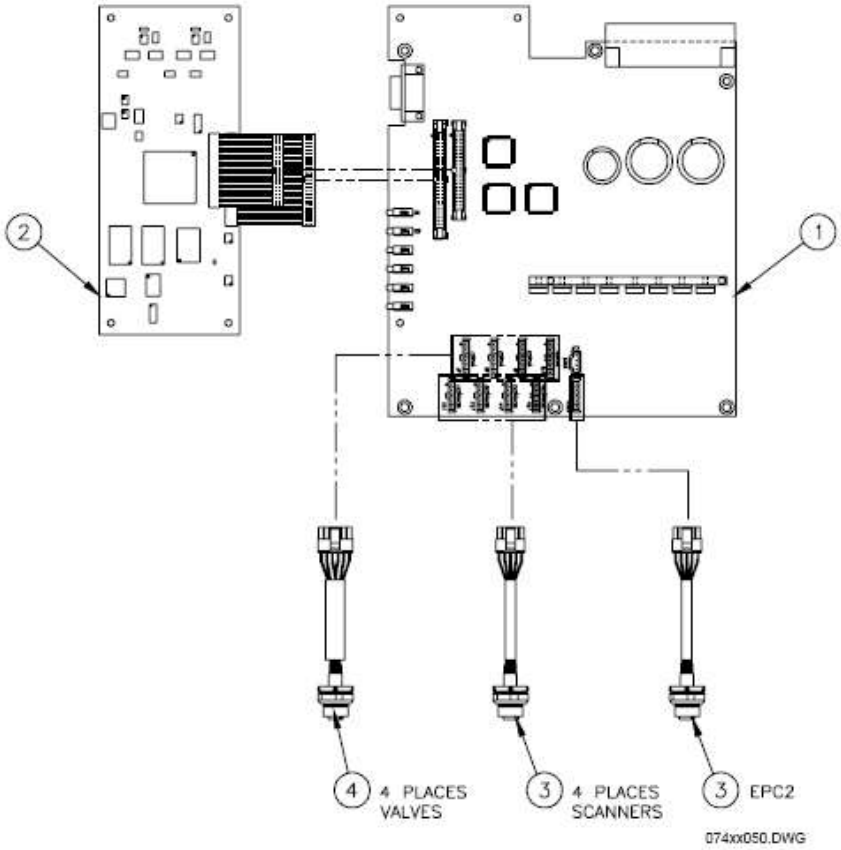
Item	Description	Part Number	Quantity
1	PCB Assembly, PCM4 Application	151xx619	1
2	PCB Assembly, CPU32MOD, VCX	151xx631	1
3	Cable Assembly, E-box Scanner	029xx414	1
4	Cable Assembly, E-box Valve	029xx415	1
5	Manifold Assembly, MCP-4 0-10V	753xx436	1
6	Module Frame, PCM, E-box	026xx214	1
7	Screw	784xx985	5
8	Standoff	091xx615	4
9	Screw	784xx968	4
10	Lock Washer	784xx315	12
11	Hex Nut	798xx489	4
15	Lock Washer	784xx308	5
16	Cable Assembly, 5P M12 F T0 5P MCT	029xx397	1
17	Screw	091xx267	4
18	Keep Nut	784xx320	4
19	Fuse, 3.15A	085xx208	2
20	Tube End6	799xx478	2
21	Static Shield Bag	781xx154	1
22	Software, PCM4-68376 CPU	119xx209	1
23	Software, PCM4, PLD, PWM Control	119xx216	2
24	Software, PCM4, PLD, IO Control	119xx217	1
25	Captive Screw	783xx221	2
26	Tapered Compression Ring	783xx222	2
27	Screw Bezel	783xx223	2

Pattern Control Module without EPC (074xx050)



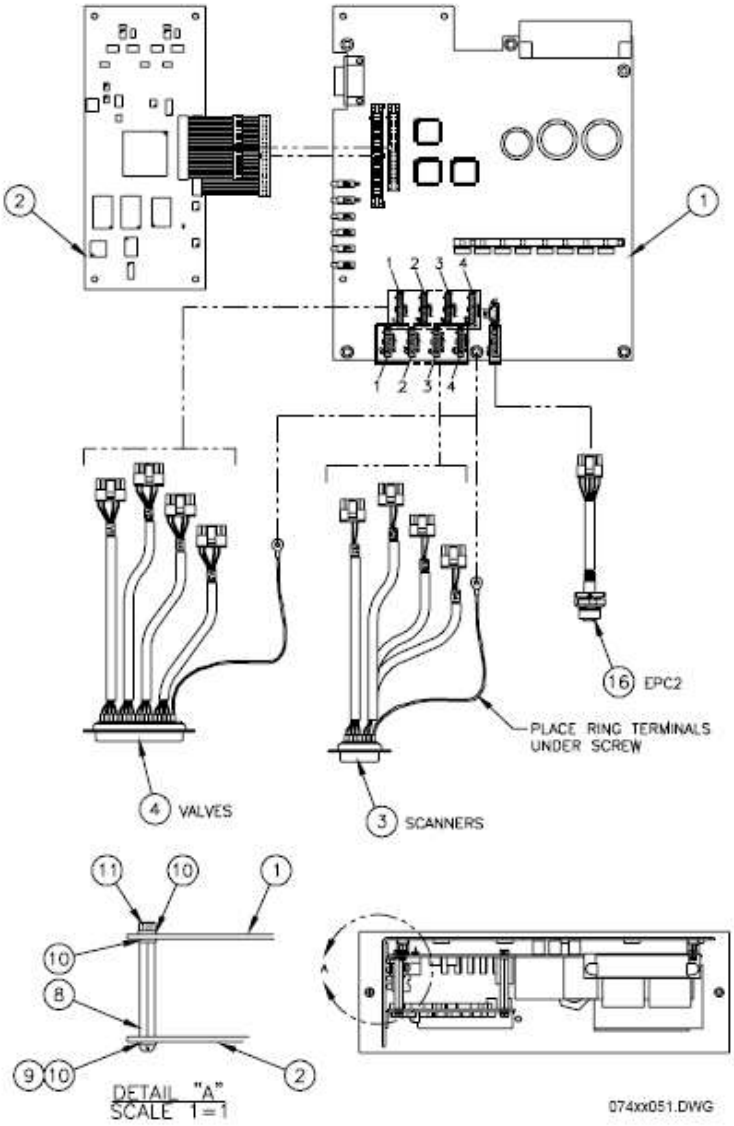
074xx050.DWG

Pattern Control Module without EPC (074xx050) - Continued

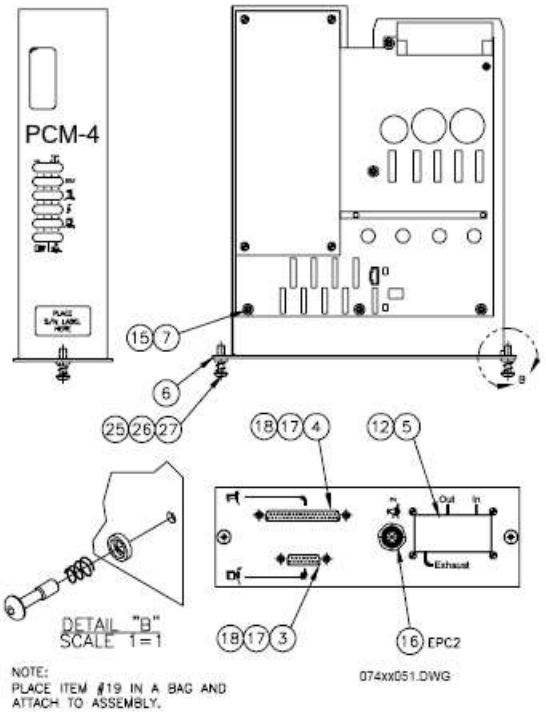


Item	Description	Part Number	Quantity
1	PCB Assembly, PCM4, VCX	151xx619	1
2	PCB Assembly, CPU32MOD, VCX	151xx631	1
3	Cable Assembly, 5P M12 F to 5P MCT	029xx397	5
4	Cable Assembly, 5P M12 F Rev to 6	029xx396	4
5	Cover Plate, No EPC	781xx298	1
6	Module Frame	026xx212	1
7	Screw	784xx985	5
8	Standoff	091xx615	4
9	Screw	784xx968	4
10	Lock Washer	784xx315	12
11	Hex Nut	798xx489	4
12	Screw	784xx661	4
15	Lock Washer	784xx308	5
19	Fuse, 3.15A, 250V	085xx208	2
21	Static Shield Bag	781xx154	1
22	Software, PCM4-68376 CPU	119xx209	1
23	Software, PCM4, PWM Control	119xx216	2
24	Software, PCM4, IO Control	119xx217	1
25	Captive Screw	783xx221	2
26	Tapered Compression Spring	783xx222	2
27	Screw Bezel	783xx223	2

Pattern Control Module without EPC; Junction Box (E Box) Port (074xx051)

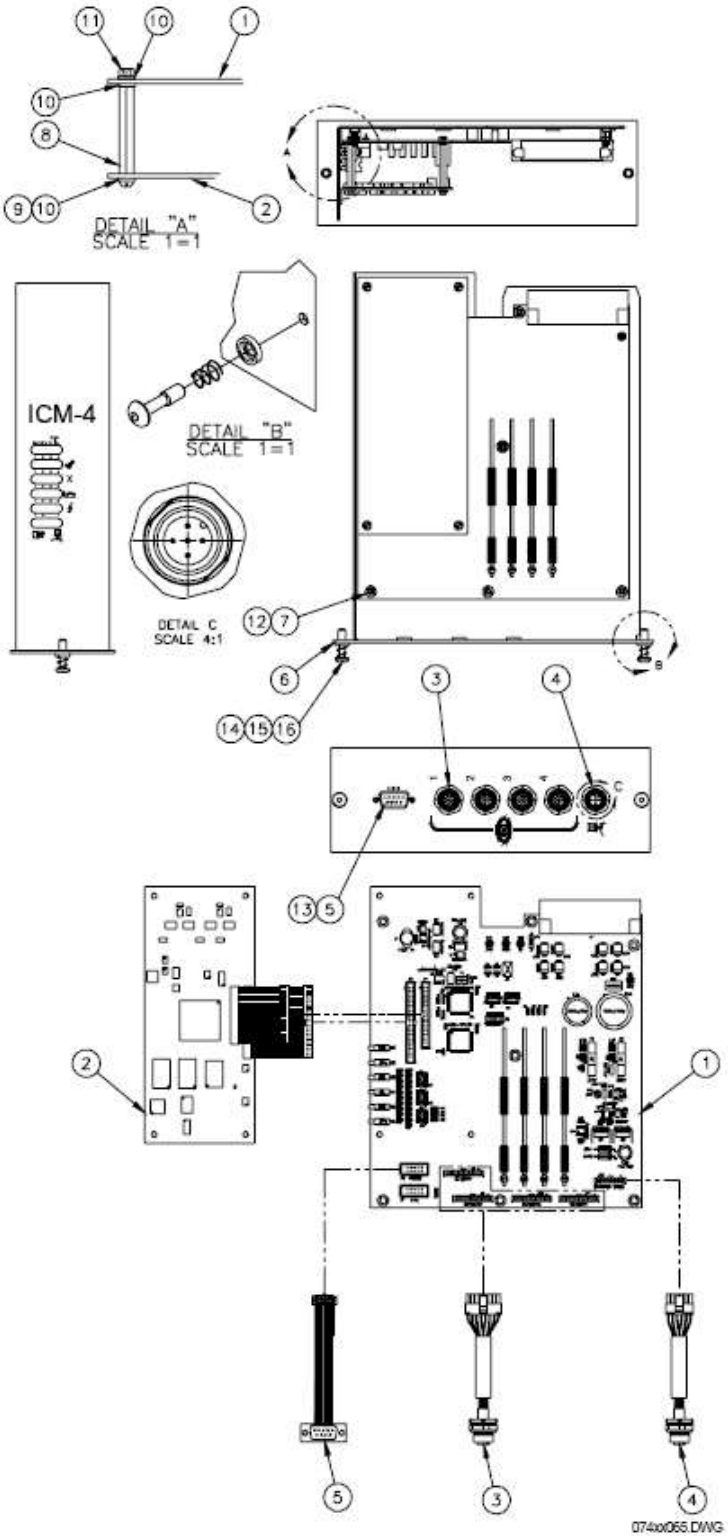


Pattern Control Module without EPC; Junction Box (E Box) Port (074xx051) - Continued



Item	Description	Part Number	Quantity
1	PCB Assembly, PCM$, Application	151xx619	1
2	PCB Assembly, CPU32MOD, VCX	151xx631	1
3	Cable Assembly, E-box Scanner	029xx414	1
4	Cable Assembly, E-box Valve	029xx415	1
5	Cover Plate, No EPC	781xx298	1
6	Module Frame, PCM, E-box	026xx214	1
7	Screw	784xx985	5
8	Standoff	091xx615	4
9	Screw	784xx968	4
10	Lock Washer	784xx315	12
11	Hex Nut	798xx489	4
12	Screw	784xx661	4
15	Lock Washer	784xx308	5
16	Cable Assembly, 5P M12 F T0 5P MCT	029xx397	1
17	Screw	091xx267	4
18	Keep Nut	784xx320	4
19	Fuse, 3.15A	085xx208	2
21	Static Shield Bag	781xx154	1
22	Software, PCM4-68376 CPU	119xx209	1
23	Software, PCM4, PLD, PWM Control	119xx216	2
24	Software, PCM4, PLD, IO Control	119xx217	1
25	Captive Screw	783xx221	2
26	Tapered Compression Ring	783xx222	2
27	Screw Bezel	783xx223	2

Inspection Control Module (074xx065)

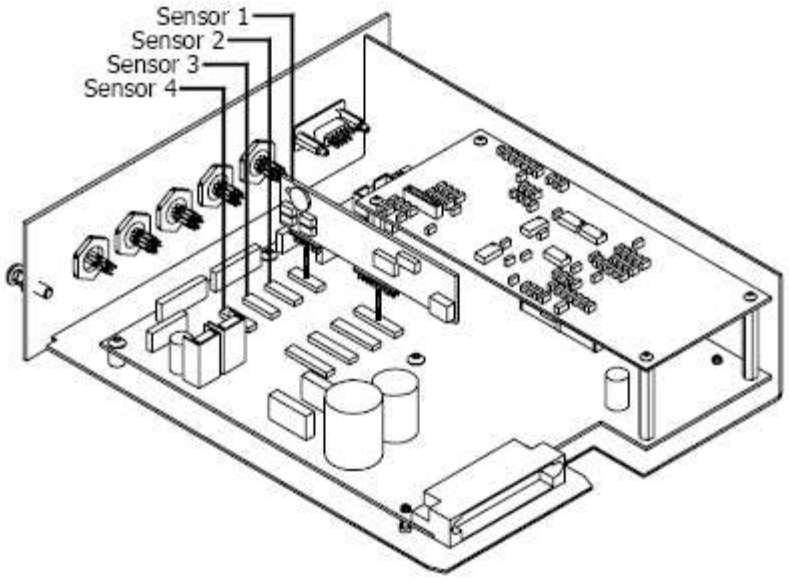


Inspection Control Module (074xx065) - Continued

Item	Description	Part Number	Quantity
1	PCB,ASSY,INSPECTION,4CH,VCX	151XX620	1
2	PCB,SUB-ASSY,CPU32,TURBO,VCX	152XX698	1
3	CABLE ASSY	029XX426	4
4	CABLE ASSY	029XX396	1
5	RIBBON CABLE ASSY	033XX166	1
6	MODULE-FRAME,INSPECTION	026XX227	1
7	SCREW	784XX985	5
8	STANDOFF	091XX615	4
9	SCREW	784XX968	4
10	LOCK WASHER	784XX315	12
11	NUT,HEX	798XX489	4
12	LOCK WASHER	784XX308	5
13	SCREW	091XX267	2
14	CAPTIVE SCREW	783XX221	2
15	TAPERED COMPRESSION SPRING	783XX222	2
16	SCREW BEZEL	783XX223	2
17	SOFTWARE, ICMT4, 25MHZ CPU	119XX261	1
18	SOFTWARE,VPIA1ICM,LATTICE CPLD	119XX230	1
19	SOFTWARE,VPIA2ICM,LATTICE CPLD	119XX231	1

Adapter Modules

Different sensor adapter modules are available for use in the Inspection Control Module. These modules slide in as shown below:

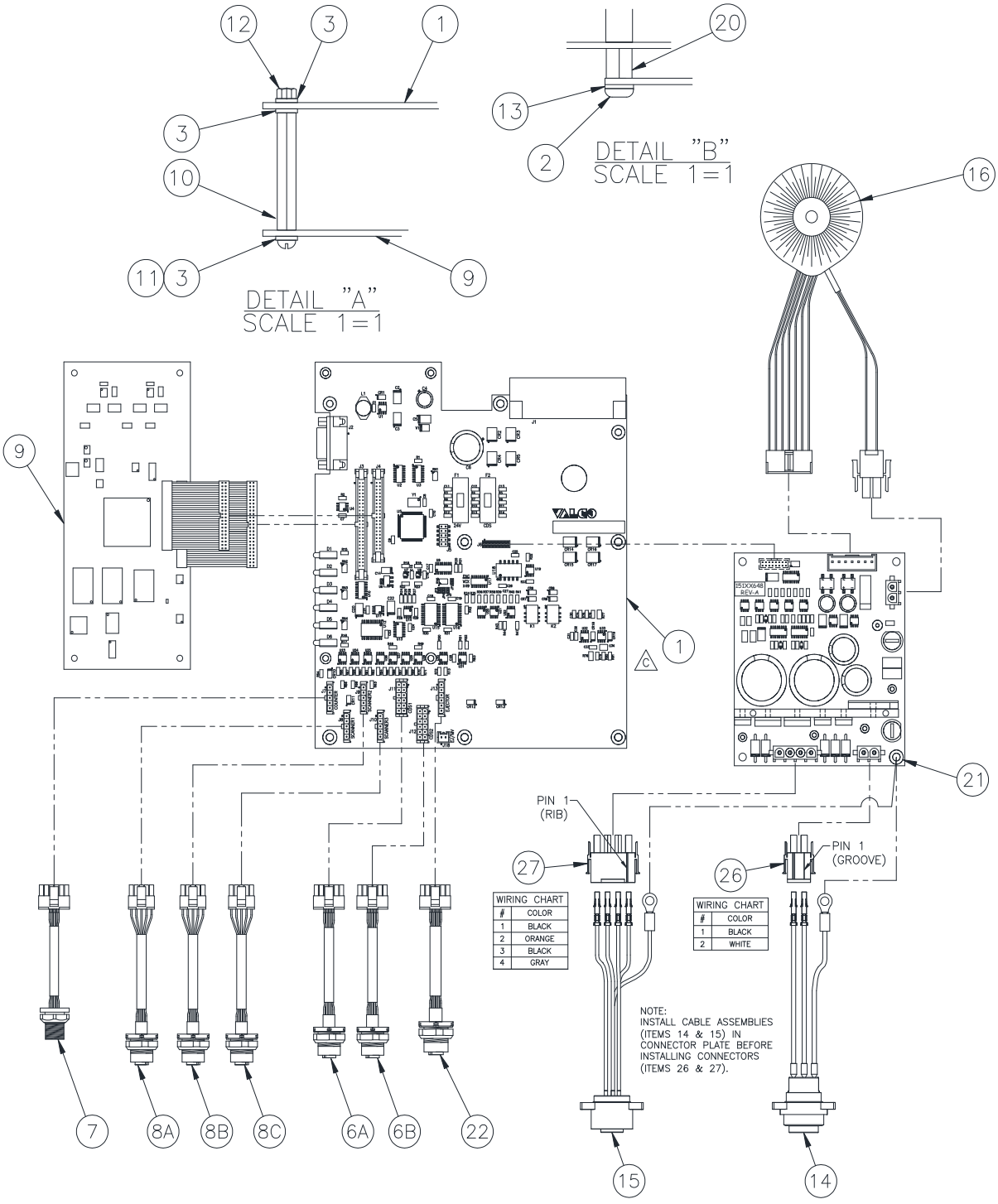


BAWadapters.DWG

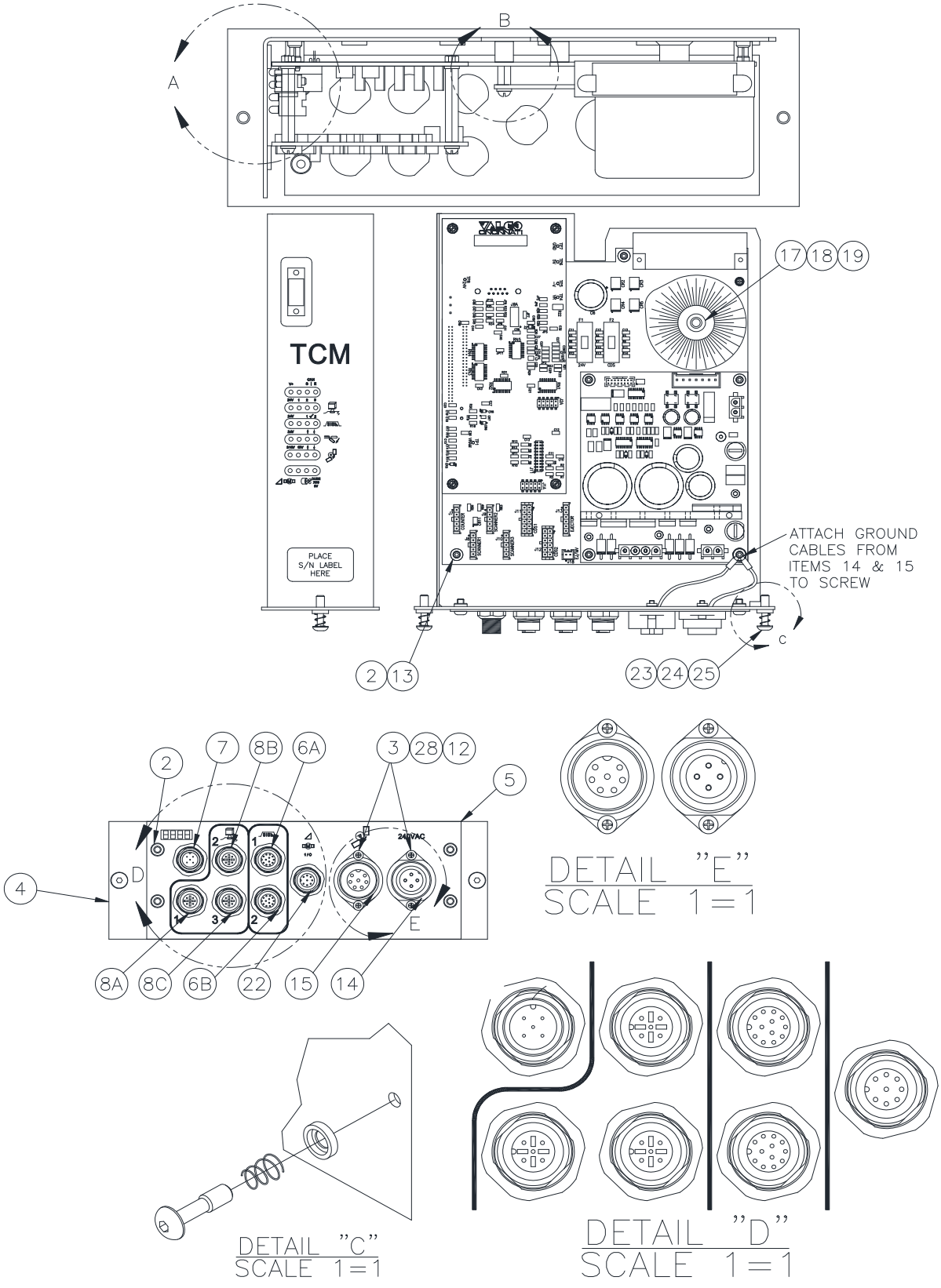
The modules available are:

AS 601	151xx501
AS 301	151xx512
AS CGS	151xx460
Digital	151xx539
Microwave	151xx507

Tracking Control Module - TCMEJ (074xx049)



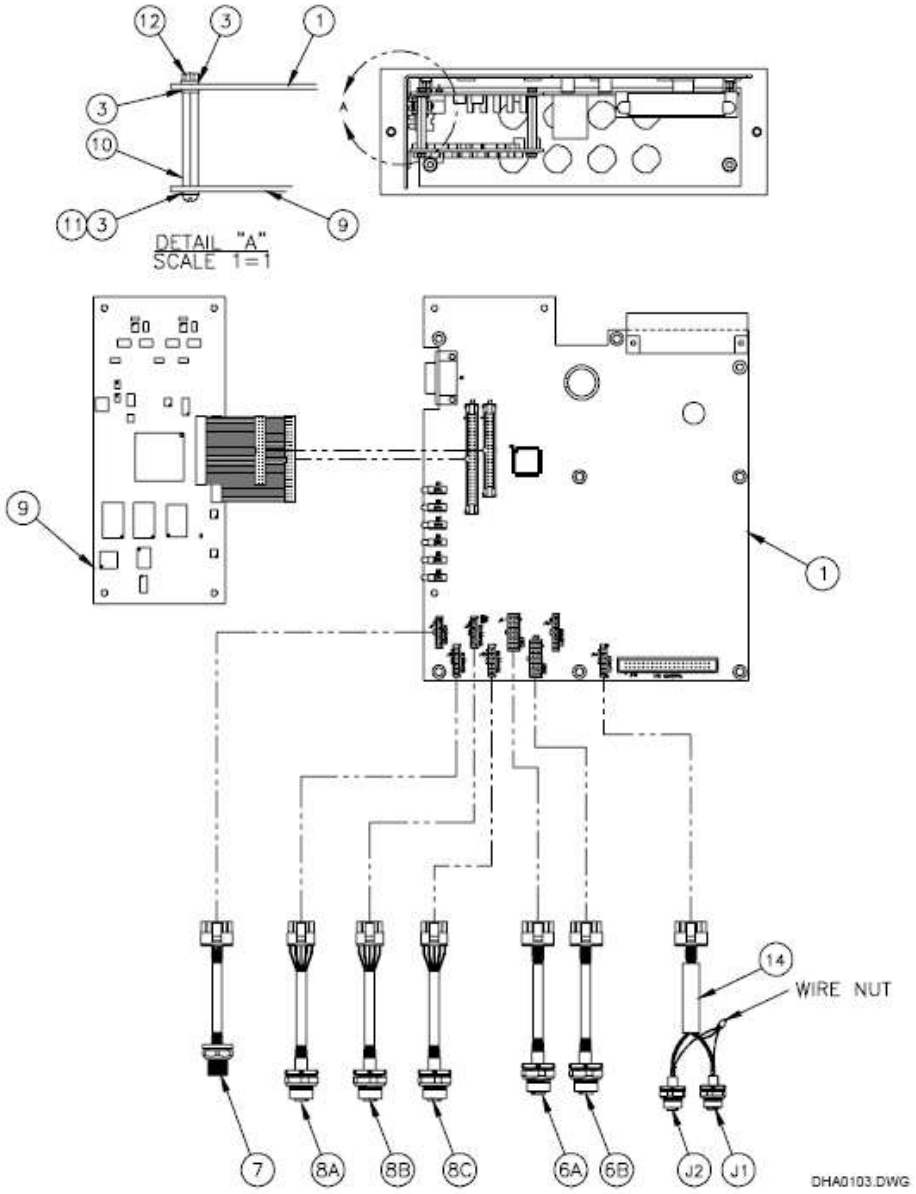
Tracking Control Module - TCM-EJ (074xx049) - Continued



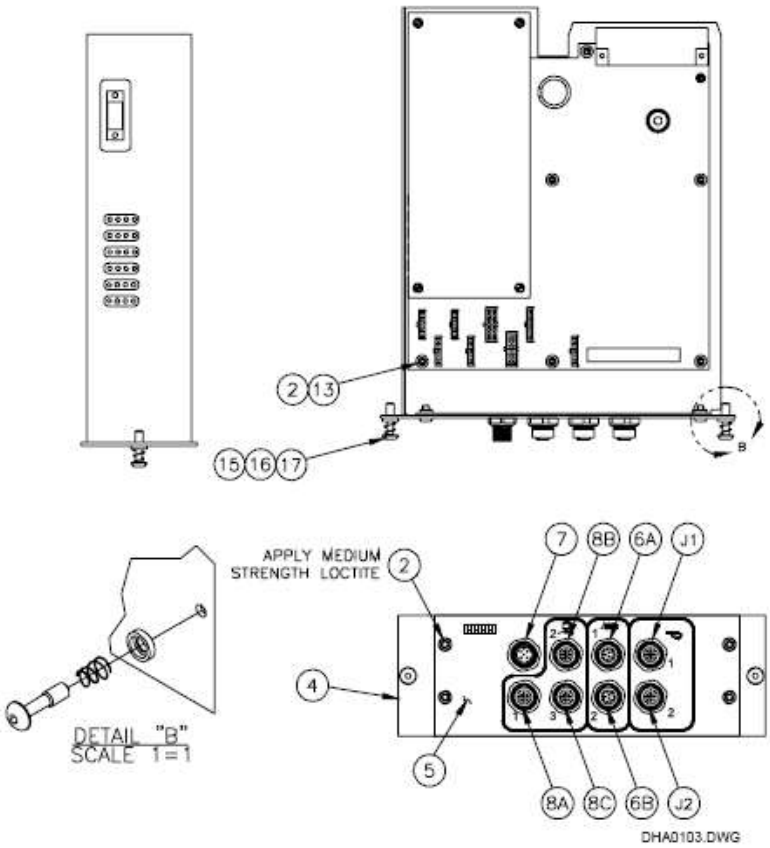
Tracking Control Module - TCM-EJ (074xx049) - Continued

Item	Description	Part Number	Quantity
1	PCB ASSY TRACK-CNTRL EJECT VCX	151XX638	1
2	BHCS M4 X 6 SS	784XX985	10
3	WASHER LOCK M3 EXT-TOOTH	784XX315	14
4	FRAME, MODULE: TRACKING MOD.	026XX262	1
5	PLATE, REAR CONNECTOR MTG.	026XX263	1
6	CABLE ASSY 12P-M12/12P-MF 4-IN	029XX420	2
7	CABLE ASSY 5P-M12/5P-MF 4-IN	029XX421	1
8	CABLE ASSY,5P M12 F T0 5P MCT	029XX397	3
9	PCB SUBA CPU32-MOD TURBO VCX	152XX698	1
10	STANDOFF;M/F,M3 X 30MM,5MM HX	091XX615	4
11	SCREW PAN HEAD M3 X 8MM,S.S.	784XX968	6
12	NUT HEX M3 ZP-STL	798XX489	10
13	WASHER LOCK EXT-TOOTH M4 STEEL	784XX308	6
14	CABLE ASSY,POWER IN,4.0"LONG	029XX424	1
15	CABLE ASSY,EJECT OUT,4.0"LONG	029XX423	1
16	TRANSFORMER,EJECTOR,TCM	551XX018	1
17	FLAT WASHER M6 ZINC	798XX302	1
18	LOCK WASHER M6 STL	784XX375	1
19	SHCS M6 X 45 SS	798XX170	1
20	STANDOFF; M/L, 4MM X 8MM	091XX622	4
21	PCB ASSY EJECTOR-CONTROL VCX	151XX648	1
22	CABLE ASSY,6P F M12 STD KEY	029XX425	1
23	CAPTIVE SCREW,M5	783XX221	2
24	TAPERED COMPRESSION SPRING	783XX222	2
25	SCREW BEZEL	783XX223	2
26	CONNECTOR,2 POS,.084" PLUG	070XX553	1
27	CONNECTOR,4 POS,.084" PLUG	070XX555	1
28	PHS M3 X 10 SS	784XX390	4
29	SOFTWARE, TCMX-68376 CPU	119XX223	1
30	SOFTWARE,VPIATCM,LATTICE CPLD	119XX232	1

Tracking Control Module - TCMF (074xx048)

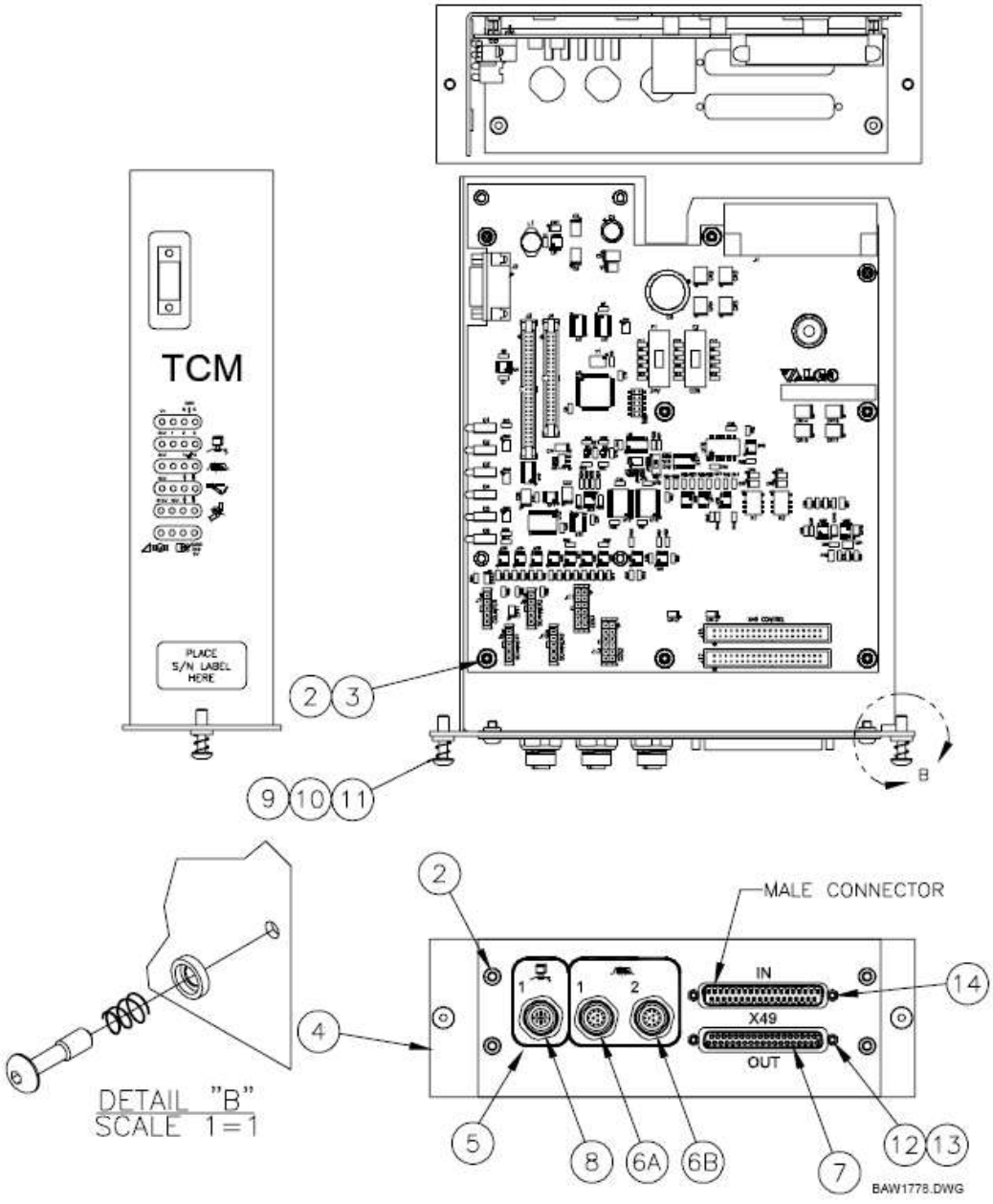


Tracking Control Module - TCM-F (074xx048) - Continued

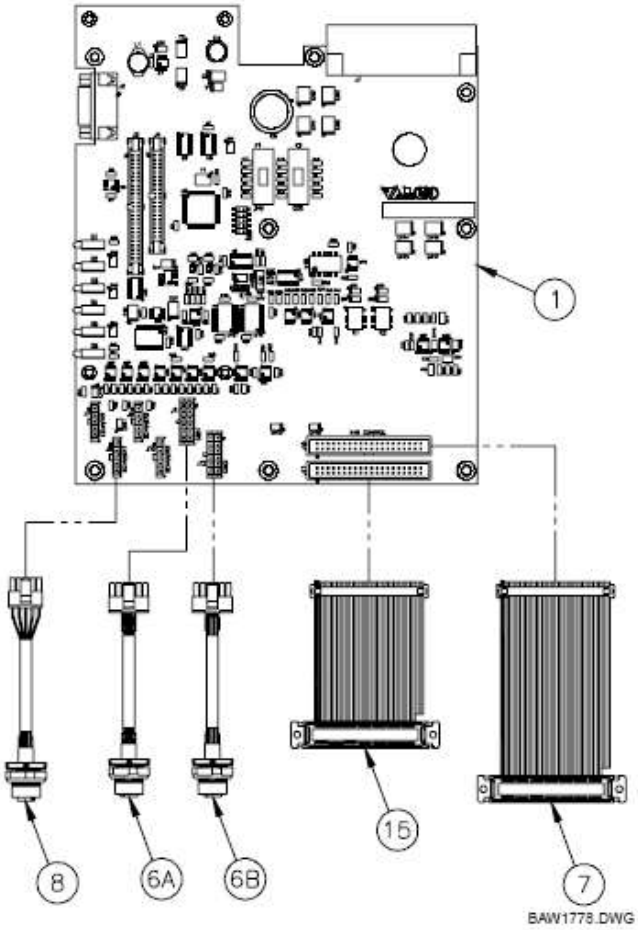


Item	Description	Part Number	Quantity
1	PCB Assembly, Track Cont.-Ejector	TSW0777	1
2	BHSC Screw	784xx985	10
3	Lock Washer, M3	784xx315	12
4	Module, Frame	BAW1390	1
5	Plate Rear	PDM0168	1
6	Cable Assembly, 12P M F12 STD KEY	029xx420	2
7	Cable Assembly, 5P M M5 STD KEY	029xx421	1
8	Cable Assembly, 5P M12 F to 5P MCT	029xx397	3
9	PCB Assembly, CPU32MOD, VCX	TSW0745	1
10	Standoff, M/F, M3 X 30MM,5MM HX	091xx615	4
11	Pan Head Screw, M3 X 8MM, S.S.	784xx968	4
12	Hex Nut, M3, Zinc	798xx489	4
13	Lock Washer, M4, ZINC	784xx308	6
14	Cable Assembly, Flipper Eject	029xx419	1
15	Captive Screw, M5	783xx221	2
16	Tapered Compression Spring	783xx222	2
17	Screw Bezel	783xx223	2

Tracking Control Module - TCMCube/49 (074xx047)



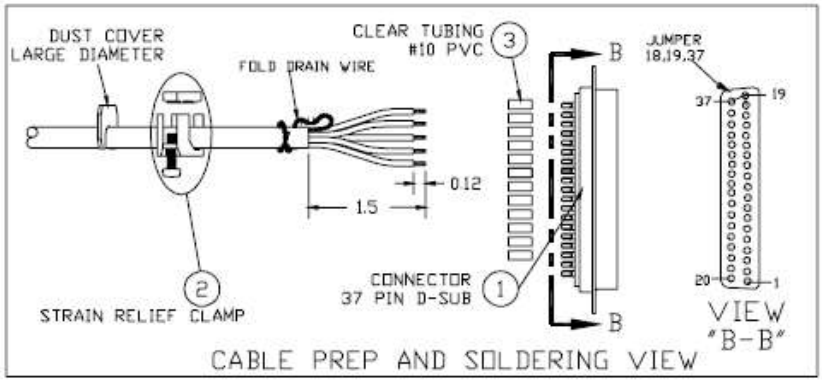
Tracking Control Module - TCMCube/49 (074xx047) - Continued

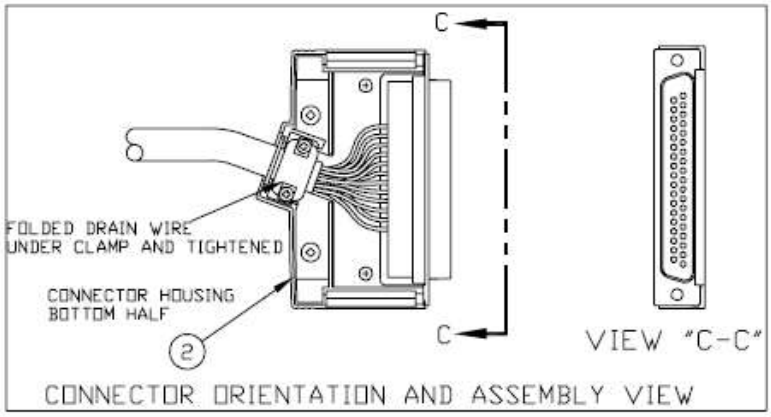


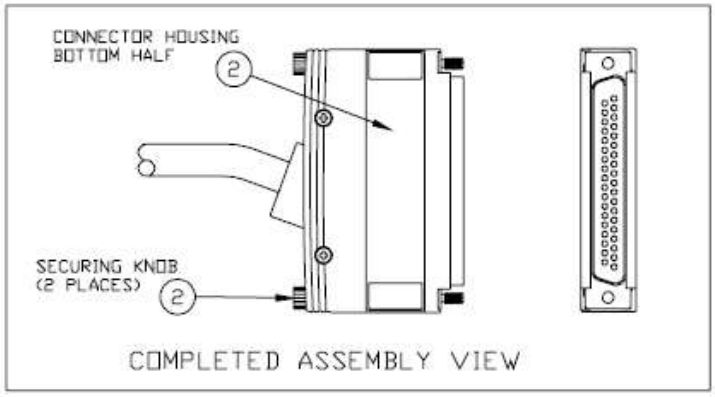
Tracking Control Module - TCMCube/49 (074xx047) - Continued

Item	Description	Part Number	Quantity
1	PCB ASSY, TRACKING,X49,VCX	151XX659	1
2	SCREW	784XX985	10
3	LOCK WASHER	784XX308	6
4	FRAME, MODULE: TRACKING MOD.	026XX262	1
5	PLATE, REAR CONNECTOR MTG.	026XX265	1
6	CABLE ASSY	029XX420	2
7	RIBBON CABLE ASSY	033XX177	1
8	CABLE ASSY	029XX397	1
9	CAPTIVE SCREW	783XX221	2
10	TAPERED COMPRESSION SPRING	783XX222	2
11	SCREW BEZEL	783XX223	2
12	SCREW	091XX267	4
13	LOCK WASHER	784XX315	4
14	KEP NUT	784XX320	2
15	RIBBON CABLE ASSY	033XX178	1
99	SOFTWARE,VPIATCM,LATTICE CPLD	119XX232	1

Junction Box (029xx439)



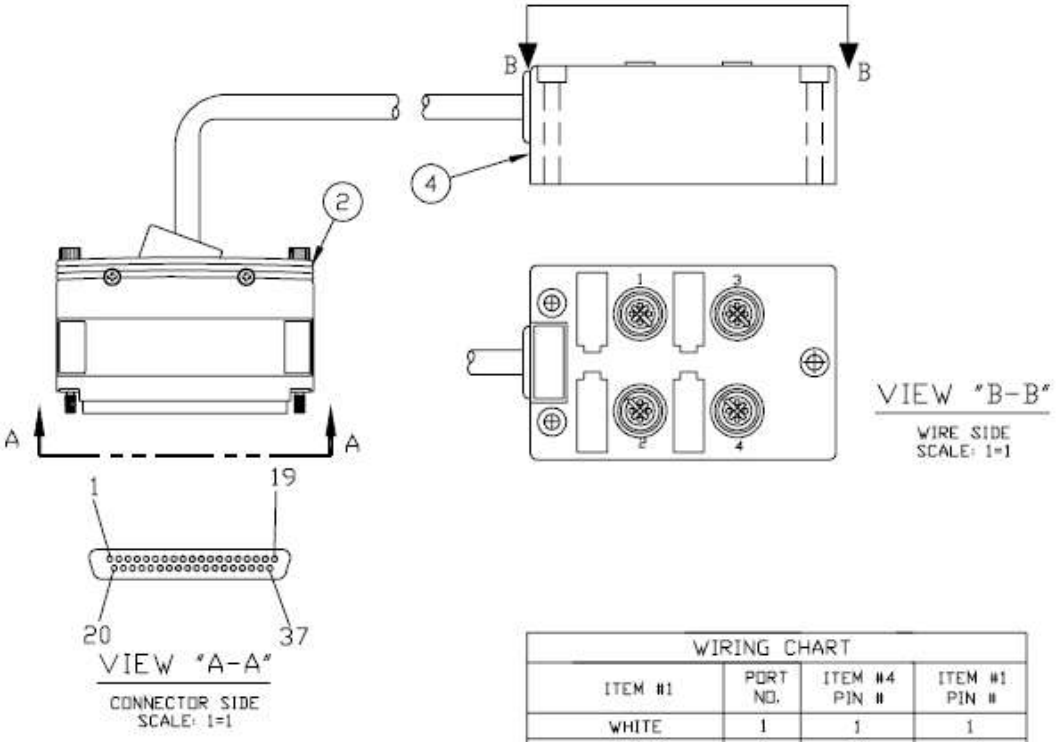




CABLE LENGTH CHART	
PART NUMBER	CABLE LENGTH
029XX457	2 M
029XX439	5 M

029xx439.DWG

Junction Box (029xx439) - Continued

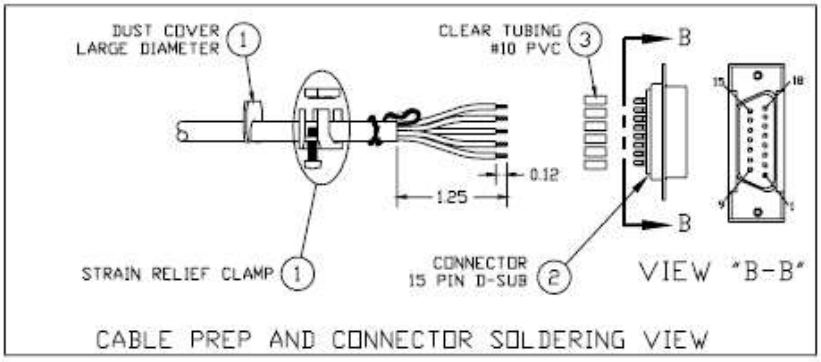


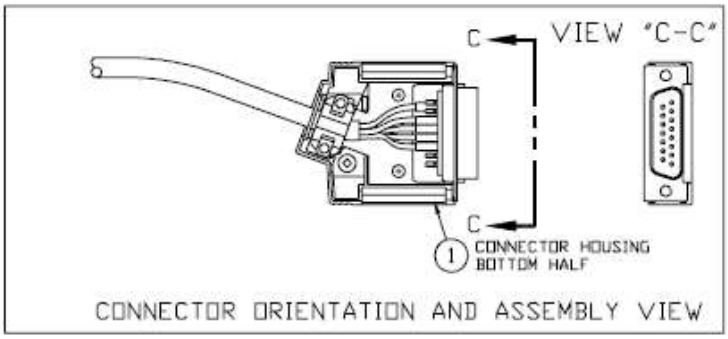
WIRING CHART			
ITEM #1	PORT NO.	ITEM #4 PIN #	ITEM #1 PIN #
WHITE	1	1	1
BLACK	1	2	4
GREEN	1	3	21
RED	1	4	22
ORANGE	2	1	5
BLUE	2	2	8
BROWN	2	3	6
YELLOW	2	4	7
VIOLET	3	1	13
YELLOW/BROWN	3	2	16
PINK	3	3	14
TAN	3	4	15
BROWN/GREEN	4	1	9
WHITE/GREEN	4	2	12
WHITE/YELLOW	4	3	29
RED/BLUE	4	4	30
GRAY	1,2,3,4	5	18,19,37
DRAIN/SHIELD	N/A	N/A	HOUSING

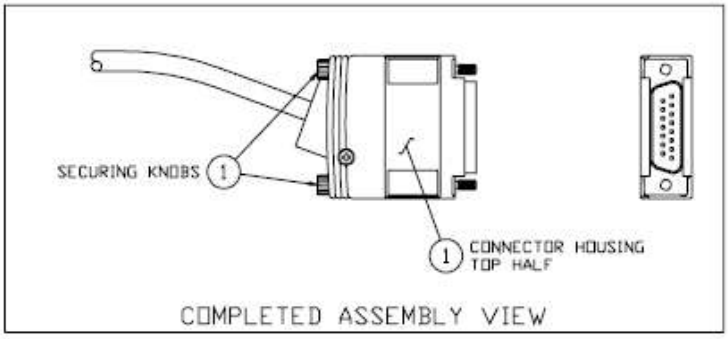
029xx439.DWG

Item	Description	Part Number	Quantity
1	Connector, D-sub, Male	061xx398	1
2	Housing, Cable Conn., D-sub, 37P	061xx406	1
3	Tubing	755xx028	4
4	Junction Box, 4 Valves, 5M	029xx441	1
5	Tubing	094xx001	3
6	Socket Head Cap Screw, M4 X 35	798xx062	3

Junction Box (029xx440)



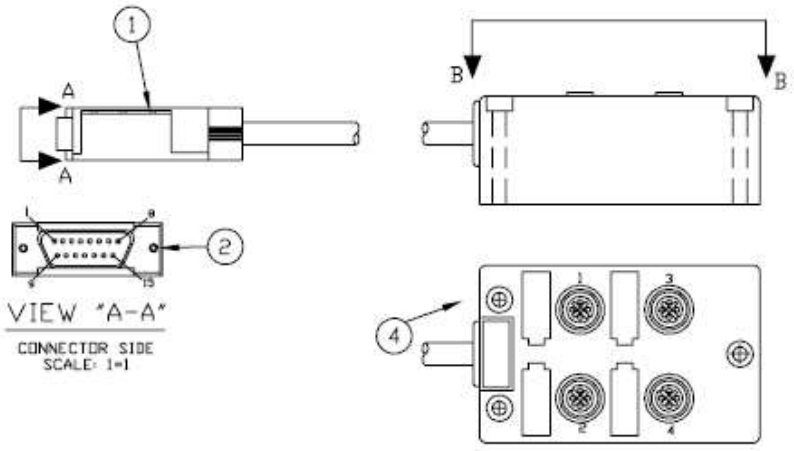




CABLE LENGTH CHART	
PART NUMBER	CABLE LENGTH
029XX456	2 M
029XX440	5 M

029xx440.DWG

Junction Box (029xx440) - Continued



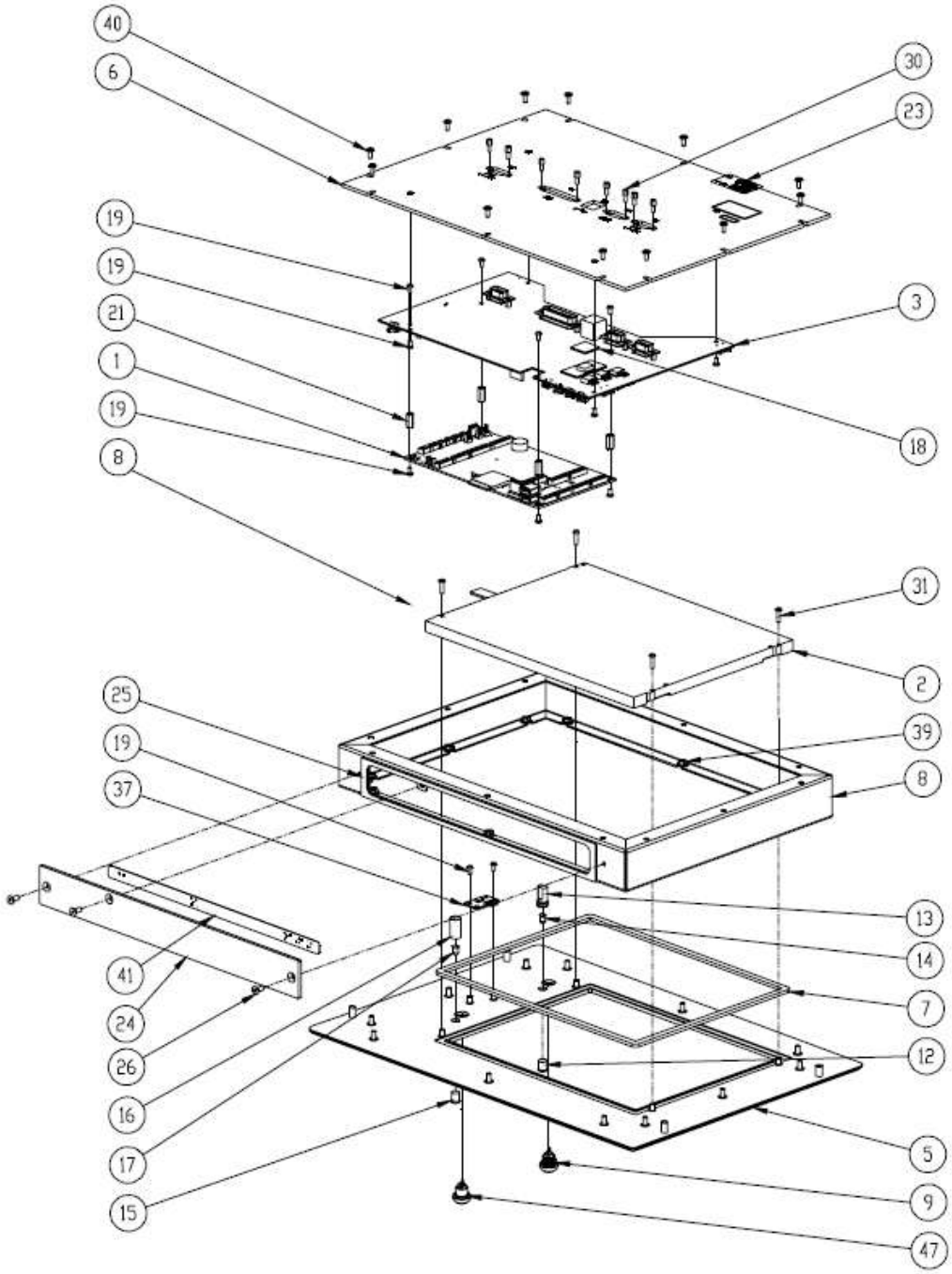
VIEW "B-B"
WIRE SIDE
SCALE: 1=1

WIRING CHART			
ITEM #4 WIRE COLOR	PORT NO.	ITEM #4 PIN #	ITEM #2 PIN #
BROWN	1/2/3/4	1	1
GRAY/PINK	1	2	2
WHITE	1	4	3
RED/BLUE	2	2	4
GREEN	2	4	5
WHITE/GREEN	3	2	6
YELLOW	3	4	7
BROWN/GREEN	4	2	8
GRAY	4	4	9
BLUE	1/2/3/4	3	15
GREEN/YELLOW	1/2/3/4	5	12
DRAIN	1/2/3/4	HOUSING	HOUSING

029xx440.DWG

Item	Description	Part Number	Quantity
1	Housing, D-sub, 15P, Cable	061xx288	1
2	Connector, D-sub, 15M	061xx289	1
3	Tubing	755xx028	2
4	Junction Box, 4 Scanners, 5M	029xx442	1
5	Socket Head Cap Screw, M4 X 25 SS	784xx108	3

Panel Mount OT-120 (138xx019)

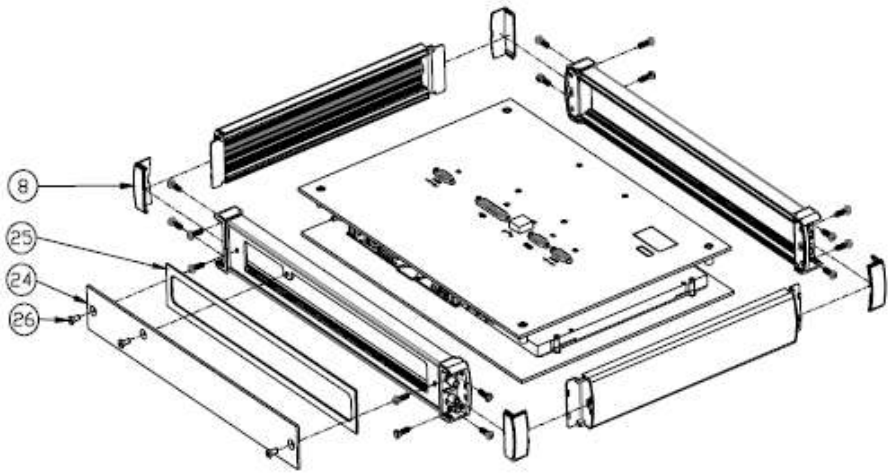


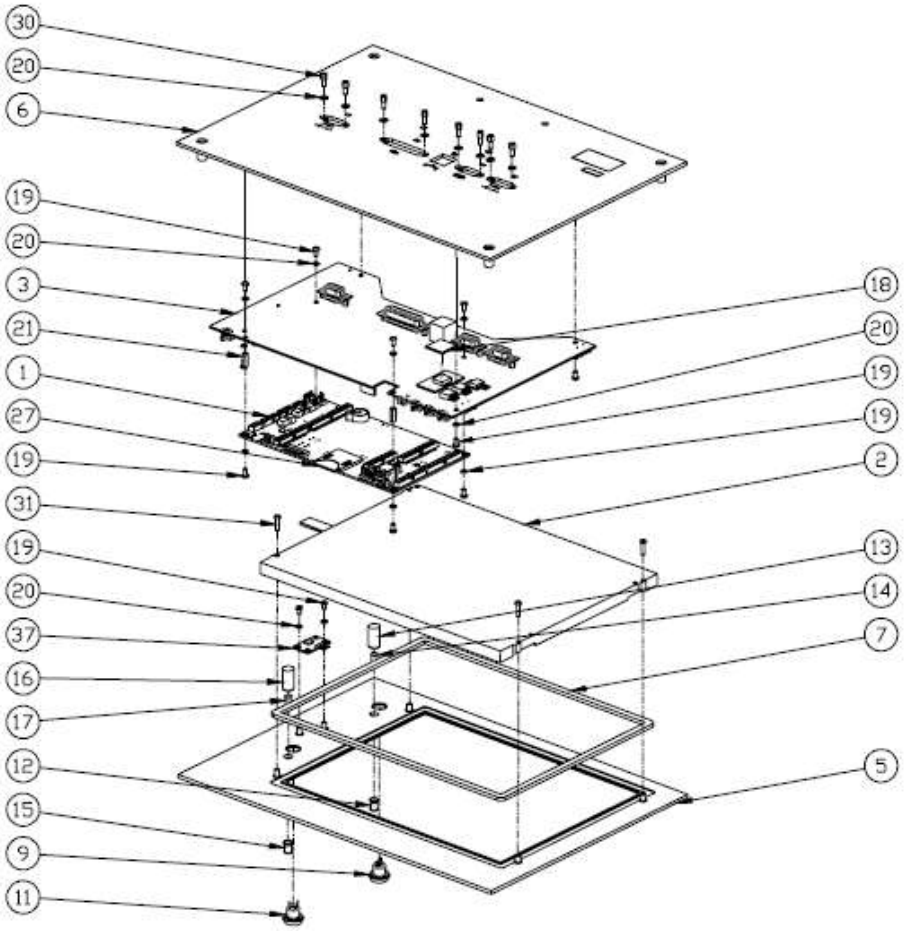
Item	Description	Part Number	Quantity
1	SBC,OMAP3703,800MHZ,512M DDR	151XX704	1
2	DISPLAY/TOUCH ASSY,OT-120	138XX022	1
3	PCB ASSY INTERF VT/DSP OT-120	151XX705	1
4	CABLE, LVDS, 20PIN, 18" LONG	029XX690	1
5	PLATE ASSEMBLY - OT-120	026XX379	1

Panel Mount OT-120 (138xx019) - Continued

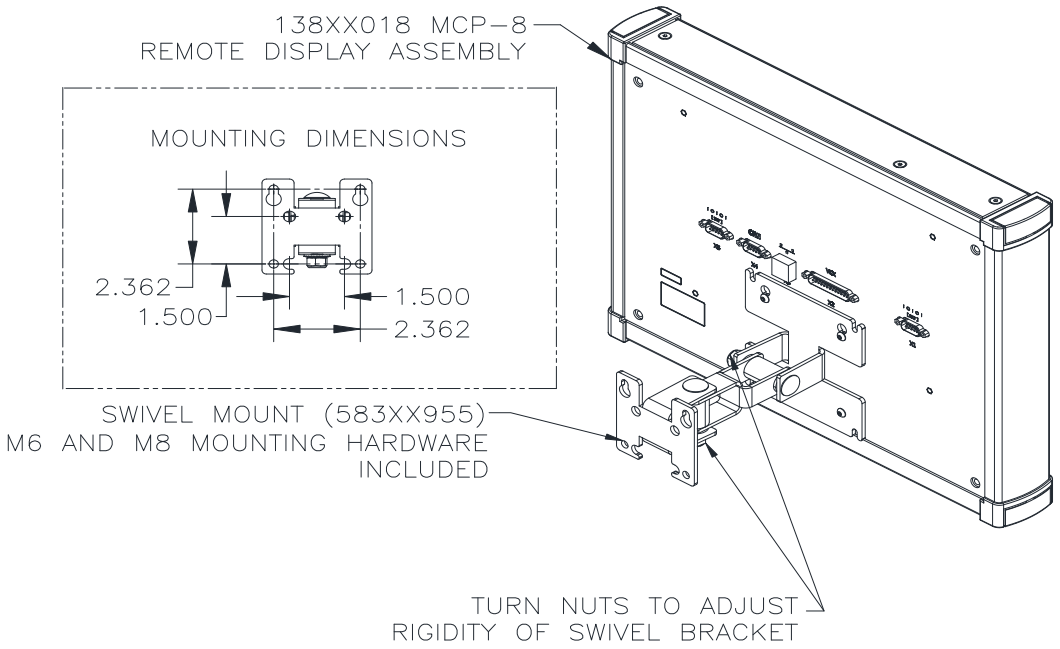
Item	Description	Part Number	Quantity
6	PLATE ASSEMBLY - OT-120	026XX380	1
7	GASKET,OT-120 TOUCHSCREEN	746XX157	1
8	ENCLOSURE ASSEMBLY - OT-120	026XX381	1
9	CABLE ASSY, OT, SWITCH	029XX713	1
12	LENS, LED, CLEAR, 5MM	105XX341	1
13	CABLE, LED, 6", 3P, WHT/BLK/R	029XX717	1
14	LED,RED/GRN,5MM,C/C,PCB	107XX045	1
15	LENS, LED, AMBER, 5MM	107XX076	1
16	CABLE: LED, 8", 2P, WHT/BLK	106XX016	1
17	LED YEL 5MM 0.1-PITCH PCB	107XX006	1
18	THERM PAD 406X203X1.0MM PINK	101XX037	0.006
19	BHCS M3 X 6 SS	784XX541	14
20	LOCK WASHER M3	784XX360	12
21	STANDOFF HEX F/F M3 12MM AL	091XX782	4
22	SOFTWARE,LICENSE WINDOWS CE	119XX154	1
23	LABEL STOCK, SILVER	781XX780	1
24	COVER, TOP - OT-120	026XX382	1
25	GASKET, ACCESS COVER - OT-120	746XX250	1
26	FHSS M4 X 10 SS	784XX190	3
27	MEMORY CARD SD 512MB SLC	118XX204	1
30	SCREW,JACK,HEX,4-40,12MM	091XX267	8
31	SHCS M3 X 10MM SEMS TYPE	784XX899	4
37	PCB SUBA ADAPT FLEX OT-120	152XX712	1
38	SHCS M3 X 12, SS	784XX598	4
39	FLANGE NUT M4 STEEL	884XX373	12
40	BHCS M3 X 8 W/FLANGE SS	884XX374	12
41	LABEL - OT-120, SWITCHES	782XX521	1
42	OT120 SET-UP INSTRUCTION SHEET	IS0283	1
43	FLAT WASHER M6 ZINC	798XX302	4
44	HEX NUT M6 ZINC	798XX301	4
45	MANUAL, CARTON PRO OT-120	MC101CD	1
46	VCX OT-120 CONTROL SYS. MANUAL	MC091CD	1
47	CABLE ASSY, OT, SWITCH, GREY	029XX723	1
48	CABLE ASSY, BACKLIGHT, OT-120	029XX768	1
49	SOFTWARE, CARTON PRO	119XX267	1
50	SOFTWARE, FLEX PRO 2	119XX268	1
51	SOFTWARE, ENVELOPE PRO 2	119XX270	1
52	FLAT WASHER M3 SS	798XX753	4

Standard OT-120 (138xx018)





Standard OT-120 (138xx018) - Continued

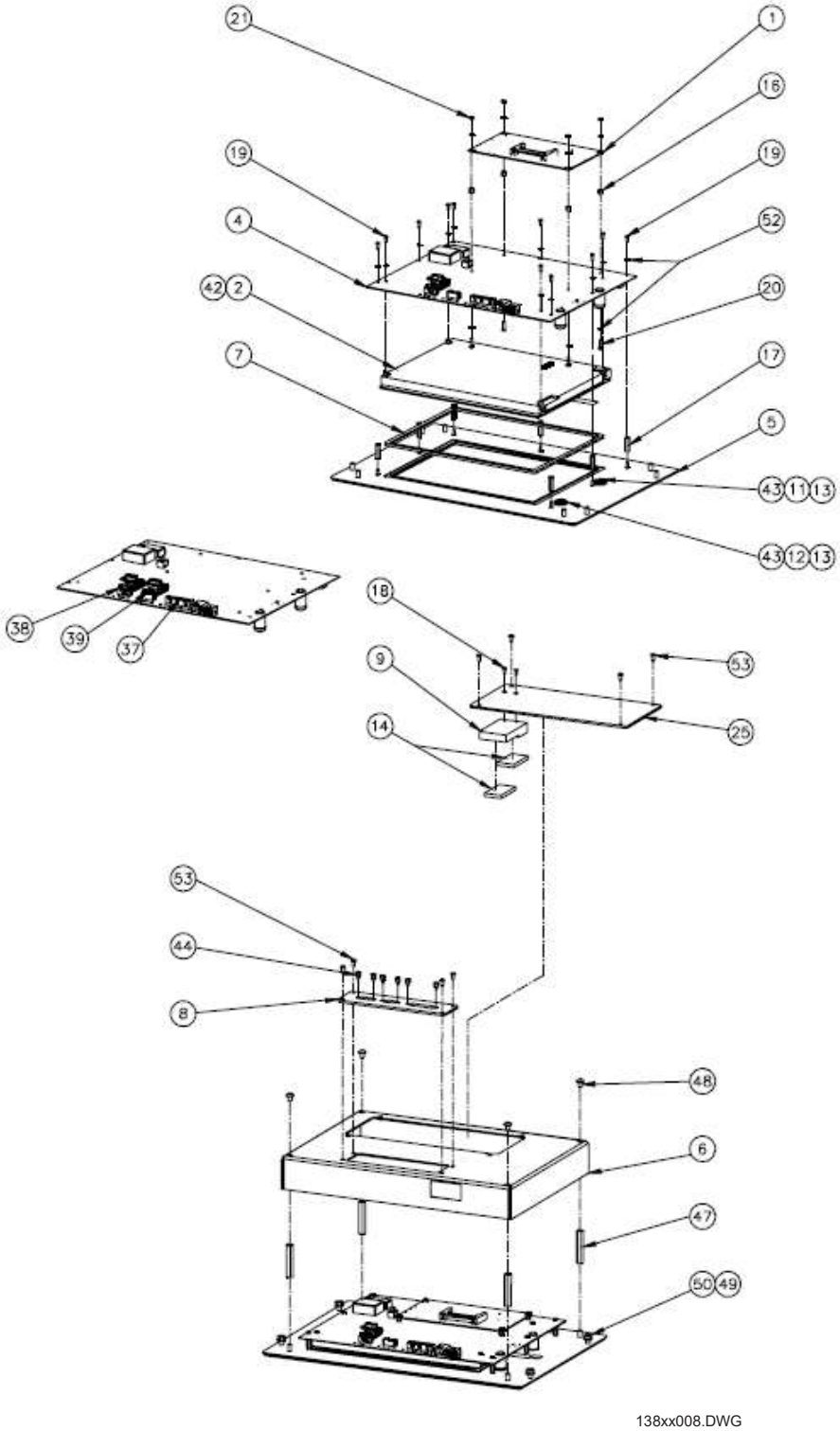


Item	Description	Part Number	Quantity
1	SBC,OMAP3703,800MHZ,512M DDR	151XX704	1
2	DISPLAY/TOUCH ASSY,OT-120	138XX022	1
3	PCB ASSY INTERF VT/DSP OT-120	151XX705	1
4	CABLE, LVDS, 20PIN, 18" LONG	029XX690	1
5	PLATE ASSEMBLY, OT-120	026XX371	1
6	PLATE ASSEMBLY, OT-120	026XX372	1
7	GASKET,OT-120 TOUCHSCREEN	746XX157	1
8	ENCLOSURE MODIFICATION, OT-120	026XX370	1
9	CABLE ASSY, OT, SWITCH	029XX713	1
10	LABEL - OT-120, SWITCHES	782XX521	1
11	CABLE ASSY, OT, SWITCH, GREY	029XX723	1
12	LENS, LED, CLEAR, 5MM	105XX341	1
13	CABLE, LED, 6", 3P, WHT/BLK/R	029XX717	1
14	LED,RED/GRN,5MM,C/C,PCB	107XX045	1
15	LENS, LED, AMBER, 5MM	107XX076	1
16	CABLE: LED, 8", 2P, WHT/BLK	106XX016	1
17	LED YEL 5MM 0.1-PITCH PCB	107XX006	1
18	THERM PAD 406X203X1.0MM PINK	101XX037	0.006
19	BHCS M3 X 6 SS	784XX541	12
20	LOCK WASHER M3	784XX360	12
21	STANDOFF HEX F/F M3 12MM AL	091XX782	4
22	SOFTWARE,LICENSE WINDOWS CE	119XX154	1
23	LABEL STOCK, SILVER	781XX780	1
24	COVER, TOP, OT-120	026XX373	1
25	GASKET, COVER, OT-120	746XX249	1

Standard OT-120 (138xx018) - Continued

Item	Description	Part Number	Quantity
26	FHSS M4 X 10 SS	784XX190	3
27	MEMORY CARD SD 512MB SLC	118XX204	1
30	SCREW,JACK,HEX,4-40,12MM	091XX267	8
31	SHCS M3 X 10MM SEMS TYPE	784XX899	6
32	SOFTWARE, CARTON PRO	119XX267	1
33	SOFTWARE, FLEX PRO 2	119XX268	1
34	SLW M4 ZINC	798XX382	4
37	PCB SUBA ADAPT FLEX OT-120	152XX712	1
39	MANUAL, CARTON PRO OT-120,USB	MC101CD	1
40	VCX OT-120 CNTRL SYS. MANL,USB	MC091CD	1
41	MONITOR MOUNT ASSEMBLY	583XX955	1
44	WASHER LOCK EXT-TOOTH M4 STEEL	784XX308	4
46	ILLUSTRATION DRAWING	999XA138-03	1
47	OT120 SET-UP INSTRUCTION SHEET	IS0283	1
48	CABLE ASSY, BACKLIGHT, OT-120	029XX768	1
53	BOX #22	730XX039	1
54	FOAM PAD SAW CUT 22 X 8 X 2"	730XX034	1
55	FOAM PAD SAW CUT 22 X 8 X 1"	730XX035	1
56	FOAM SET, OT-120 CONTROL	730XX066	1
57	SOFTWARE, ENVELOPE PRO 2	119XX270	1
58	FLAT WASHER M3 SS	798XX753	4
59	SHCS M4 X 10 STAINLESS	784XX423	4

Panel Mount OT-120 - previous version (138xx008)

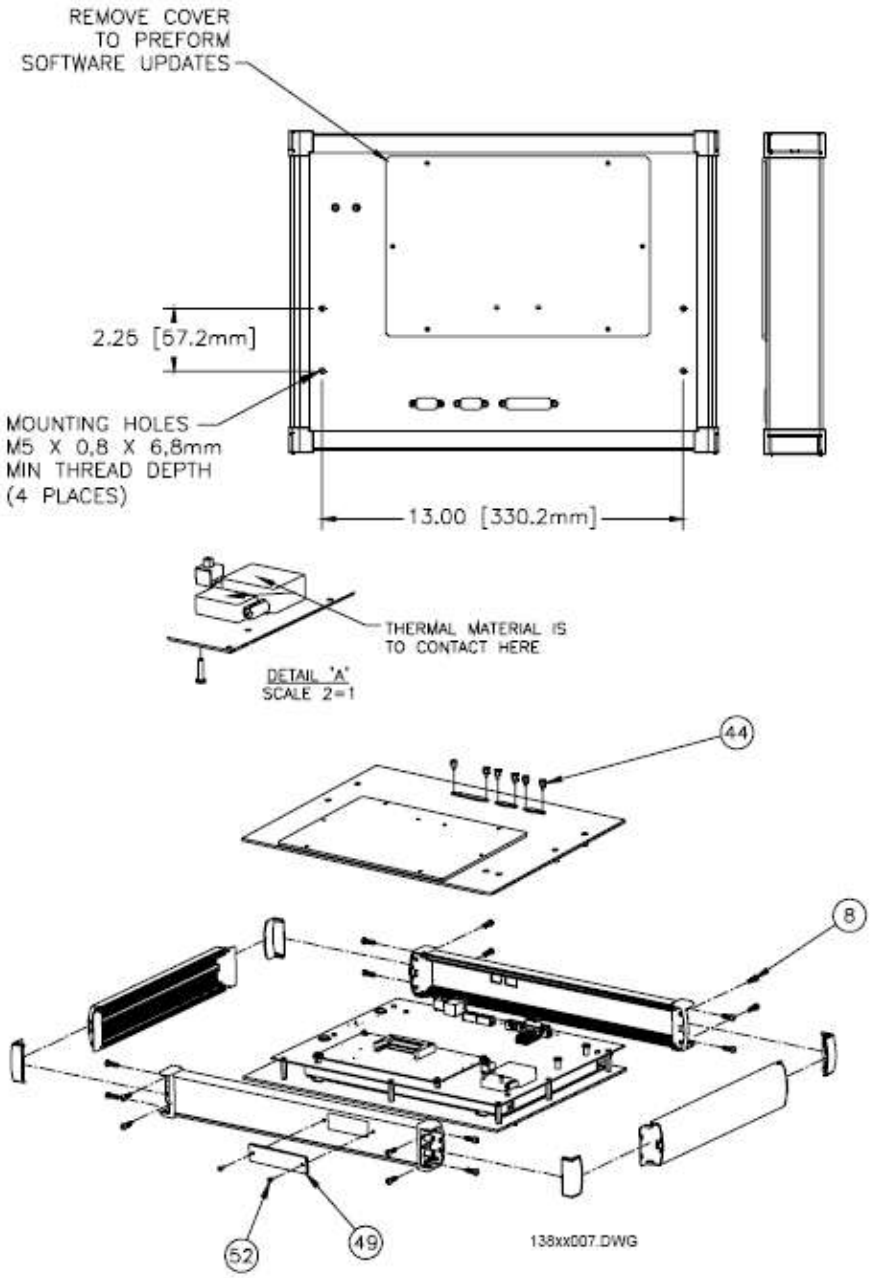


138xx008.DWG

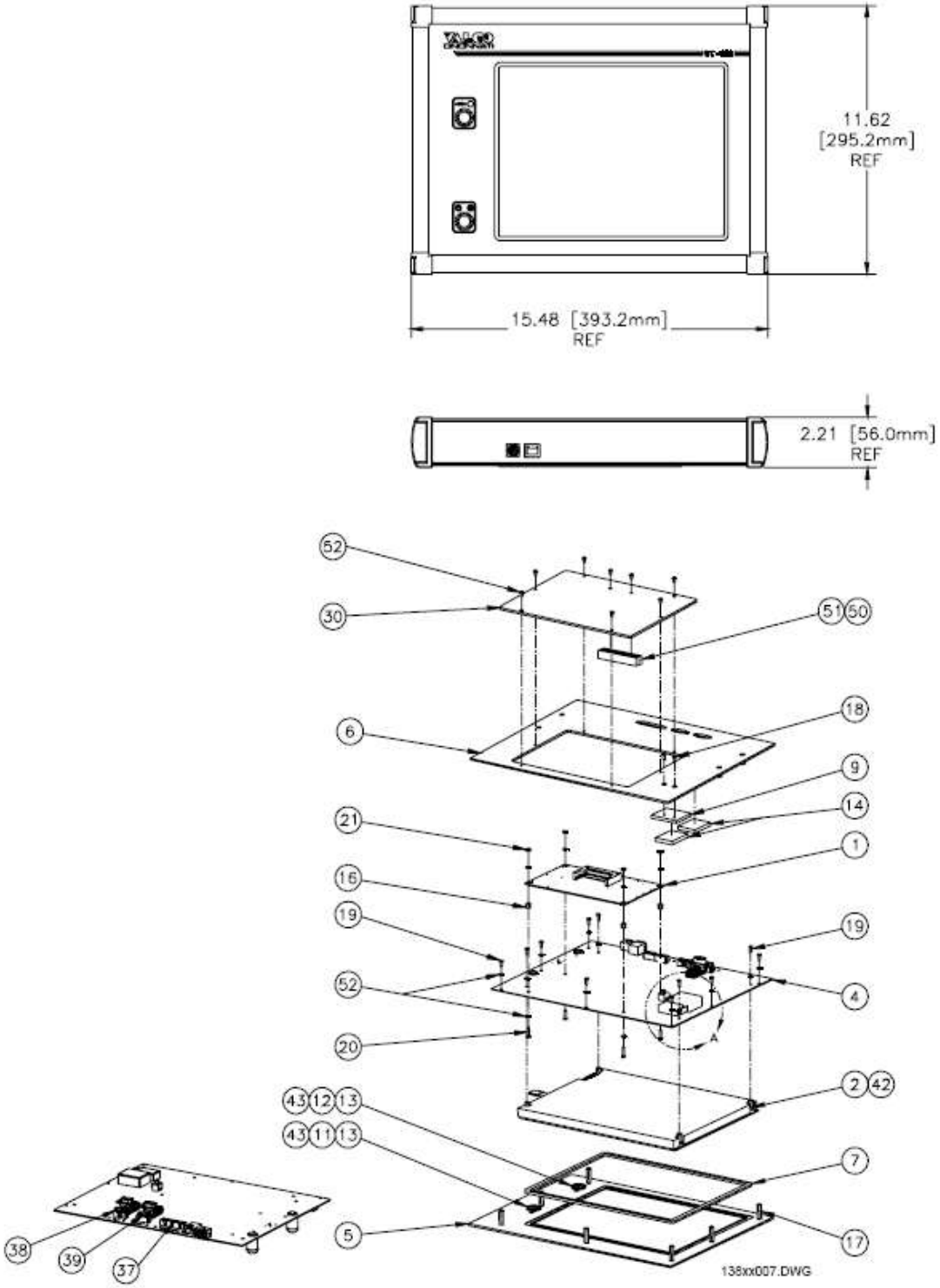
Panel Mount OT-120 - previous version (138xx008) - Continued

Item	Description	Part Number	Quantity
1	PCB Assembly, VGX2594	151xx607	1
2	Touchpanel/Display Assembly, OT-120	138xx005	1
4	PCB Assembly, Interface, OT-120	151xx654	1
5	Plate Assembly	026xx226	1
6	Cover, OT-120 Panel Mount	026xx246	1
7	Gasket, OT-120 Touchscreen	746xx157	1
9	Block Heat Sink, OT-120	026xx244	1
11	Lens, 5MM-LED, Amber, Round, Panel	107xx059	1
12	Lens, 5MM-LED, Clear, Round, Panel	107xx058	1
13	Gasket, Switch Seal, "OT'S"	746xx115	2
14	Thermal Pad, 200Mil Thick 8" X 6	101xx021	0.063
16	Standoff, 6MM, Hex	091xx562	4
17	Standoff, F-F, M3 X 22MM LG	884xx041	7
19	PHM Screw M3 X 8 Zinc	784xx259	11
20	BHC Screw M3 X 14MM LG S.S.	784xx653	4
21	Hex Nut, M3, Zinc	798xx489	4
37	Ribbon Cable Assembly, 25D/26S, 4"	033xx168	1
38	Ribbon Cable Assembly, 9D/10S, 4"	033xx167	1
39	Ribbon Cable Assembly, 9D/10S,4"	033xx166	1
40	Software, License, Windows CE	119xx154	1
42	Film, Anti-reflective, 9.74"X7.32	138xx006	1
43	Lightpipe, Clear, Round, 0.36" Long	107xx060	2
44	Screw, Jack, Hex, 4-40, 12MM	091xx267	6
45	Adapter, Compact Flash Card	315xx041	1
46	Compact Flash Card, 512MB	315xx044	1
47	Standoff, F-F, M6 X 50MM	091xx620	4
48	Button Head Cap Screw, M6 X 8	784xx656	4
49	Flat Washer, M6, Zinc	798xx302	4
50	Hex Nut, M6, Zinc	798xx301	4
52	Lock Washer, M3	784xx315	15
53	BHC Screw, M4 X 8 SS	784xx996	4
54	Cover Plate, OT120, USB Port	026xx237	1
55	BHC Screw, M3 X 6 SS	784xx541	2
56	Support Block, Gasket	026xx245	1
57	Gasket; 1/4 X 3/4 Neoprene	763xx344	3
58	Software, OT-120 CartonPro	119xx213	1

Standard OT-120 - previous version (138xx007)



Standard OT-120 - previous version (138xx007) - Continued

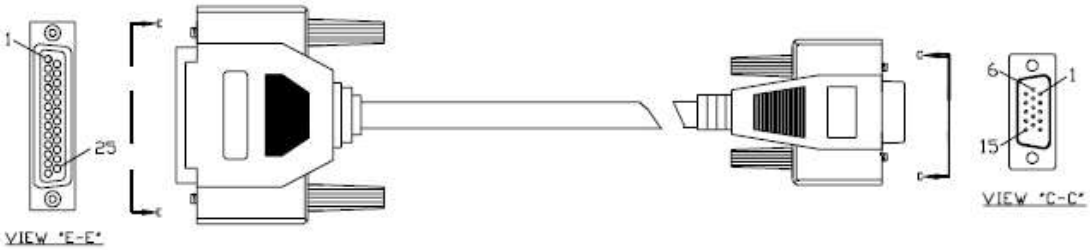


Standard OT-120 - previous version (138xx007) - Continued

Item	Description	Part Number	Quantity
1	PCB Assembly, VGX2594	151xx607	1
2	Touchpanel/Display Assembly, OT-120	138xx005	1
4	PCB Assembly, Interface, OT-120	151xx654	1
5	Front Mounting Plate	026xx181	1
6	Rear Plate	026xx239	1
7	Gasket, OT-120 Touchscreen	746xx157	1
8	Modification, Enclosure Frame	026xx217	1
9	Plate, Heat Transfer Spacer	026xx218	1
11	Lens, 5MM-LED, Amber, Round, Panel	107xx059	1
12	Lens, 5MM-LED, Clear, Round, Panel	107xx058	1
13	Gasket, Switch Seal, "OT'S"`	746xx115	2
14	Thermal Pad, 200Mil Thick, 8" X 6	101xx021	0.063
16	Standoff, 6MM, Hex	091xx562	4
17	Standoff, F-F, M3 X 22MM Large	884xx041	7
18	Screw, Flat Head, M3 X 8MM	884xx042	2
19	PHM Screw, M3 X 8 Zinc	784xx259	11
20	PHM Screw, M3 X 0,4 X 12	784xx579	4
21	Hex Nut, M3 Zinc	798xx489	4
22	Lock Washer, M3	784xx315	15
30	Cover Plate, OT-120, Rear Panel	026xx240	1
37	Ribbon Cable Assembly, 25D/26S, 4"	033xx168	1
38	Ribbon Cable Assembly, 9D/10S, 4"	033xx167	1
39	Ribbon Cable Assembly, 9D/10S, 4"	033xx166	1
40	Software, License, Windows CE	119xx154	1
42	Film, Anti-reflective, 9.74"X7.32	138xx006	1
43	Lightpipe, Clear, Round, 0.36" Long	107xx060	2
44	Screw, Jack, Hex, 4-40,12MM	091xx267	6
45	Adapter, Compact Flash Card	315xx041	1
46	Compact Flash Card, 512MB	315xx044	1
47	BHC Screw, M3 X 14MM LG S.S.	784xx653	4
48	SHC Screw, M5 X 14MM, S.S.	798xx194	4
49	Cover Plate, OT-120, USB Port	026xx237	1
50	Support Block, Flash Card	026xx238	1
51	Gasket, 1/4 X 1/2	796xx519	3
52	BHC Screw, M3 X 6 SS	784xx541	10
53	Software, OT-120, CartonPro	119xx213	1

Cables

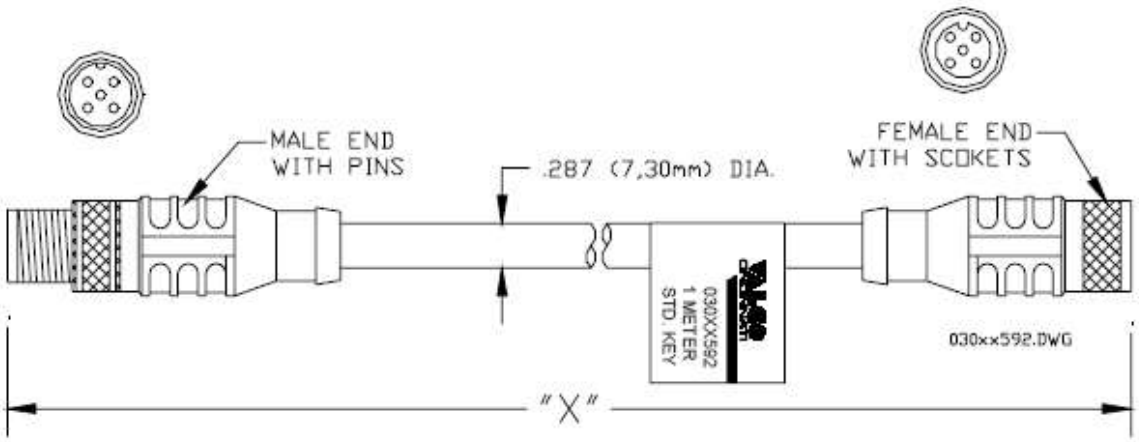
OT-120 Cables



WIRE CONNECTION CHART			
DB-25F (PIN #)	SIGNAL	WIRE COLOR	DB-15M (PIN #)
10	STBY - SW+	VIOLET	4
9	STBY - SW-	BLACK	3
17	REM - STAT	WHITE/YELLOW	5
22	STAT - GND	RED/BLUE	10
18	STBY_LED - COM	WHITE	9
23,24,25	GND	BROWN, GREEN, YELLOW	11,12,13
11,12,13	+24V	GREEN/WHITE, GREY, PINK	6,7,8
19	CAN LOW	GREEN/BROWN	1
20	CAN HIGH	BLUE	2
21	STBY_LED - RED	RED	14
7	STBY_LED - GRN	BROWN/YELLOW	15
CONNECTOR SHELL	SHIELD	SHIELD	CONNECTOR SHELL

Description	Part Number
OT-120 Cable, 2m	029xx331
OT-120 Cable, 5m	029xx126
OT-120 Cable, 10m	029xx147
OT-120 Cable, 15m	029xx159
OT-120 Cable, 20m	029xx160

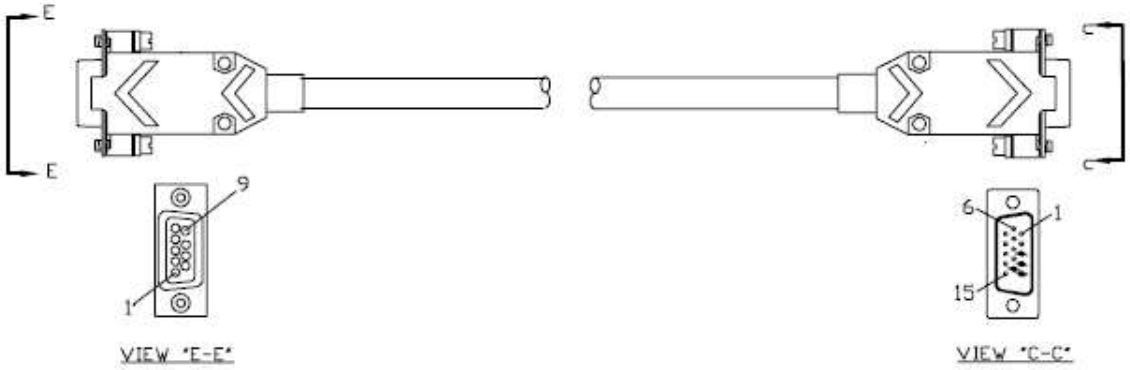
Scanner Cables



P/N	"X"
030XX592	1 METER
030XX593	2 METER
030XX891	3 METER
030XX594	4 METER
030XX873	5 METER
030XX555	6 METER
030XX892	7 METER
030XX595	8 METER
030XX738	10 METER
030XX739	15 METER
030XX740	20 METER

PIN NO.	WIRE COLOR
1	BROWN
2	WHITE
3	BLUE
4	BLACK
5	GREY

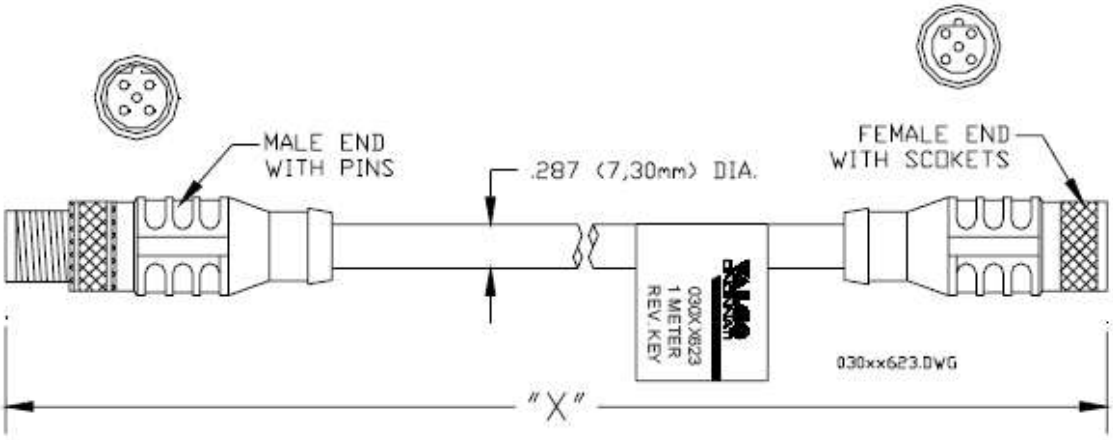
Link Cables



WIRE CONNECTION CHART			
DB-9M (PIN #)	SIGNAL	WIRE COLOR	DB-15M (PIN #)
8	REM_OUT	BROWN	5
2	CAN_LO	BLUE	1
7	CAN_H	WHITE	2
4	0V	BLACK	13

Description	Part Number
Link Cable, 3m	029xx418
Link Cable, 6m	029xx417

Valve Cables



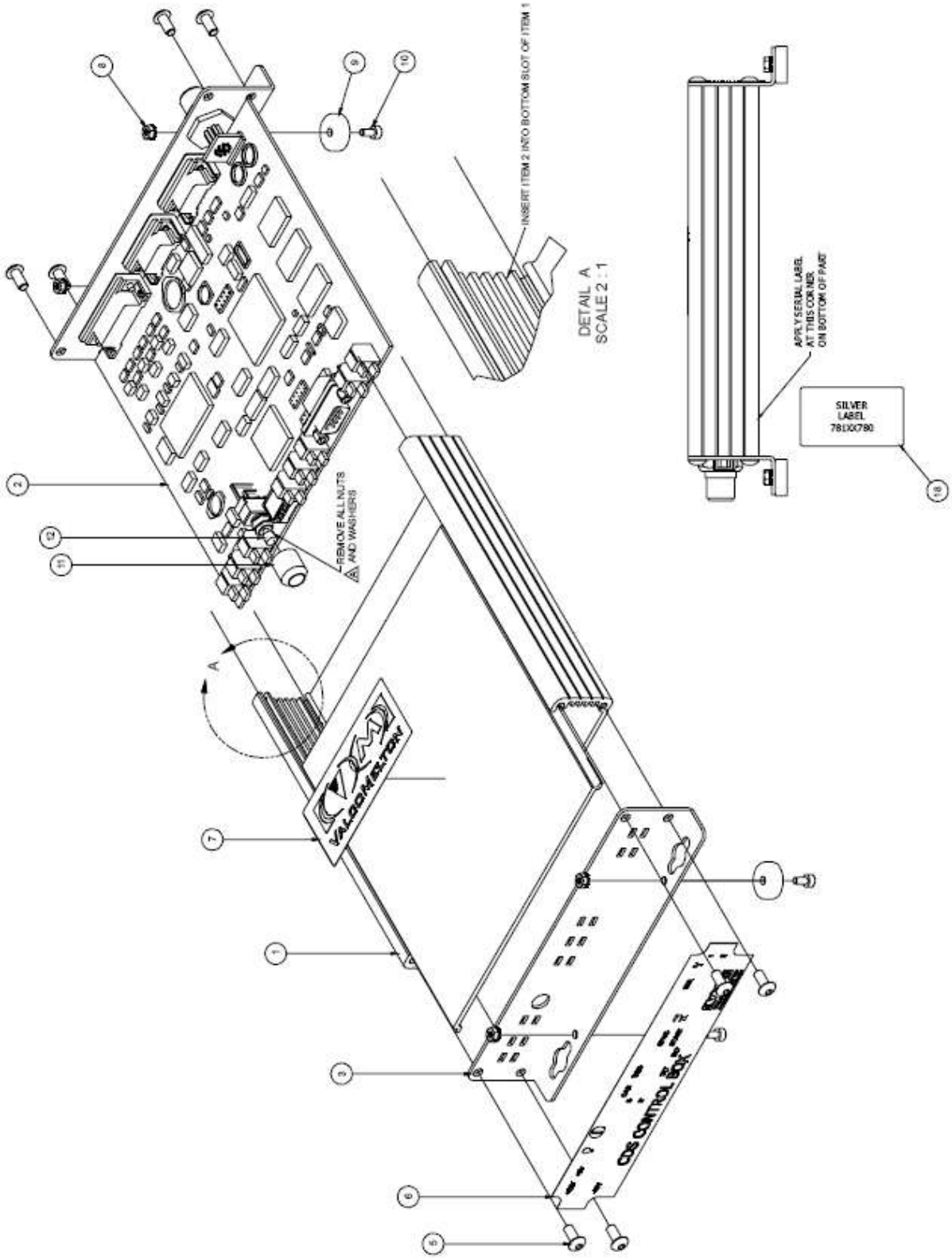
P/N	"X"
030XX623	1 METER
030XX624	2 METER
030XX889	3 METER
030XX625	4 METER
030XX874	5 METER
030XX877	6 METER
030XX890	7 METER
030XX626	8 METER
030XX741	10 METER
030XX742	15 METER
030XX743	20 METER

PIN NO.	WIRE COLOR
1	BROWN
2	WHITE
3	BLUE
4	BLACK
5	GREY

CDS Color-Code Reader

Description	Part Number
Color-code sensor CDS, mounted with sensor	SB3000
	SB3200
	SB3300
	SB300041
Guide metal sheet and 2 IS screws (M5 x 20)	SB340011
Head electronic box with mounting plate	SB3100

CDS Control Box (098xx102-01)



CDS Control Box (098xx102-01) - Continued

ITEM	DESCRIPTION	PART #	QTY
1	ENCLOSURE MODIFICATION	026XX284	1
2	PCB ASSY PROCESSOR CDS SENSOR	152XX662	1
3	PLATE, FRONT DISPLAY	026XX285	1
5	SCREW	798XX485	8
6	LABEL, CDS CONTROL BOX	782XX298	1
7	LABEL, VALCO MELTON LOGO	794XX917	1
8	NUT	884XX219	4
9	MAGNET-MOUNTING	783XX239	4
10	SCREW	784XX049	4
11	COLLAR, SWITCH HOUSING	884XX220	1
12	CAP,PB-SWITCH	480XX234	1
13	SOFTWARE BOOT-LOADER CAN-CPU	119XX128	1
14	SOFTWARE,CDS BOX-MC68376 CPU	119XX224	1
15	SOFTWARE, CDS BOX-ALTERA FPGA	119XX233	1
16	BOX-RETENTION PACKAGING	730XX017	1
17	INSERT, RETENTION PACK, MEDIUM	730XX018	1
18	LABEL STOCK, SILVER	781XX780	1

Section 7 - Button Configurations

Password Access Configuration

To access the Password Access Configuration Dialog, do the following:

1. From the Main Menu Screen, press the General Setup Button. The General Setup Screen appears (see Figure 8-1).

Figure 8-1. General Setup Screen - Password Access Configuration Dialog

2. On the General Setup Screen, press the Password Access Configuration Dialog.
3. The Password Access Configuration Dialog Screen will appear (see Figure 8-2).

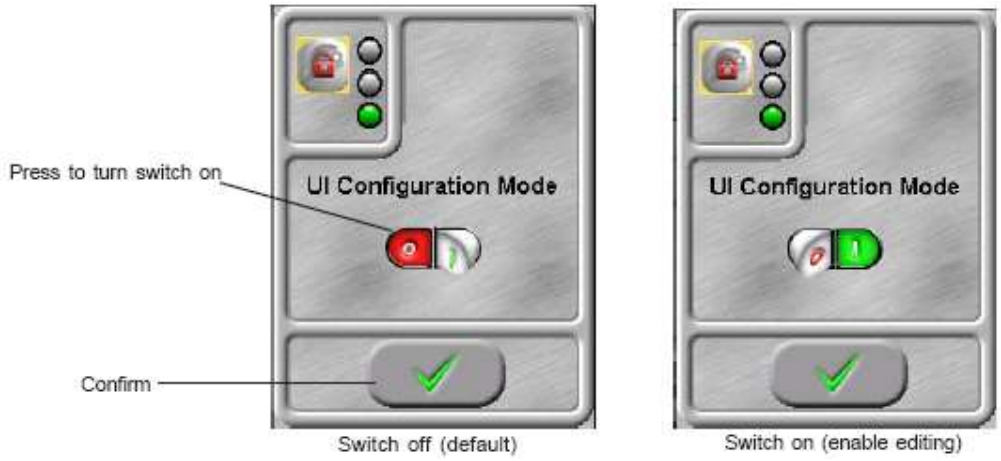


Figure 8-2. Password Access Configuration Dialog Screen

Password Access Configuration - Continued

4. The switch in the selection window will be off (default setting). Pressing the switch will turn it on, enabling the Icon Configuration function.
5. Press Confirm to close the dialog. The system will now allow Icon configuration.
6. To configure an Icon, press on that Icon. An Icon configuration dialog will open (example shown is for the Pressure Icon).

Figure 8-3. Icon Configuration Dialog for Pressure Icon

A. Options for the five password levels (0, 1, 2, 3) include:

Enable - Icon visible and active.
Disable - Icon visible, but inactive.
Hide - Icon not shown, and inactive

B. In the example shown, (Figure 8-26), the Pressure Icon is enabled for all levels except “0,” which is displayed, but inactive.

7. Pressing an alternate password option-selection button will change the configuration.
8. When configuration is complete, press “Confirm” to save the new configurations and close the dialog window.
9. Pressing “Cancel” closes the window without saving the configuration changes.

Appendix A - Parameters

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3000		Software Version	VAR	VSTR	RO	Complete software version and copyright information	© VALCO Cincinnati, Inc.		
3001		Device Configuration	RECORD						Generate Device Specific Source/Header Files
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Sensor inputs	VAR	U16	RO	Number of monitoring sensors per device in the range of [0-32]	1	1	1
	2	Transducer Outputs	VAR	U16	RW	Number of transducer outputs per device in the range [1-8]	0	0	0
	3	Job Storage	VAR	U16	RO	Number of jobs that can be stored in the job memory of the device	1	1	1
	4	Scanner Inputs	VAR	U16	RW	Number of scanner inputs per device in the range [1-6]	2	1	2
	5	Valve Outputs	VAR	U16	RW	Number of valve outputs per device in the range [1-32]	0	0	0
	6	Encoder Inputs	VAR	U16	RO	Number of encoder inputs per device in the range [1-8]	2	1	2
3002		Operation Status	VAR	U32	RWW	Operation status channel; Size = 32 bits; 0 = Off, 1 = On; Bit0 = Channel1, Bit31 = Channel32	0		
3003		Error Status	VAR	U32	RO	Error Status channel; Size = 32 bits; 0 = Disabled or Error, 1 = Enabled; Bit0 = Channel1, Bit31 = Channel32	255		
3004		Update Status 1	VAR	U32	RWR	Update status 1; Size = 32 bits; 0 =No Change, 1 =Changed; For Bit definitions see page ' Definitions'	0		
3005		Update Status 2	VAR	U32	RWR	Update status 2; Size = 32 bits; 0 =No Change, 1 =Changed; Reserved for future use	0		
300D		Aux. Output Status	VAR	U16	RW	Size = 16 bits; 0 = Off 1 = On, Bit0 = Output1, Bit15 = Output16	0		

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
300E		Status/Code for Last Message	VAR	U32	RWR	Size = 4 Bytes; Bytes 0-1 = Error/Message, Byte2 = Error Code, Byte3 = ErrorStatus	0	0	
300F		Add. Info for Last Message	VAR	U32	RO	Size = 4 Bytes; Bytes 0-3 = Additional Information for last Error/Message	0	0	
3301		Parameter Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	9		
	1	Direction Recognition	VAR	U8	RW		0	0	2
	2	Repeat Length	VAR	U16	RW	Distance the machine travels per encoder revolution in [1/10mm]	2540	1	32000
	3	Pulses per Revolution	VAR	U16	RW	Number of pulses per revolution	1000	1	32000
	5	Average Speed Mode	VAR	U16	RW	0=Direct, 1=Avg Calculation fore Transducer only, 2=Avg. Calculation for Valves and Transducer	0	0	2
	6	Average Counter	VAR	U16	RW	Number of average count	5	2	99
	7	Average Timeout	VAR	U16	RW	Timeout between calculations	60	10	1000
	8	Average Factor	VAR	U16	RW	Manipulation factor for Average result	100	2	250
	9	Prescale Factor	VAR	U16	RW	Division Factor for Prerscaler	8	1	8
3302		Parameter Encoder 2	RECORD			Encoder 2			
3400			RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	154		
	4	Counter Job Total	VAR	U32	RW		0		
	5	Counter Job Error	VAR	U32	RW		0		
	6	Counter Job Scrap	VAR	U32	RW		0		
	7	Consecutive Fault Alarm - Mode	VAR	U16	RW	5 = Latched Output 6 = Latched Output, Vmin dependent 7 = Momentary Output, Vmin dep. 8 = Momentatry Output	7	5	8

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	8	Consecutive Fault Alarm - Output 1	VAR	U16	RW	0 = No Output 1 = Relay 1 2 = Relay 2 3 = Buzzer	2	0	3
	B	Consecutive Fault Alarm - Activation Time	VAR	U16	RW	Only used in Mode 2, 7 and 8	20	0	255
	11	Alarm Light - Mode	VAR	U16	RW	1 = Latched Output (until next good) 2 = Latched Output, Vmin dependent 3 = Momentary Output, Vmin dep. 4 = Momentatry Output	1	1	4
	13	Alarm 3 - Output 2	VAR	U16	RW	See Alarm Reference for details	0	0	9
	14	Alarm Light - Maximum Time	VAR	U16	RW	Used in Mode 3+4 only	20	0	255
	15	Alarm Light - Minimum Time	VAR	U16	RW	Used in Mode 3+4 only	10	0	255
	16	Alarm Buzzer - Mode	VAR	U16	RW	1 = Latched Output (until next good) 2 = Latched Output, Vmin dependent 3 = Momentary Output, Vmin dep. 4 = Momentatry Output	4	1	4
	18	Alarm 4 - Output 2	VAR	U16	RW	See Alarm Reference for details	0	0	9
	19	Alarm Buzzer - Maximum Time	VAR	U16	RW	Used in Mode 3+4 only	20	0	255
	1A	Alarm Buzzer - Minimum Time	VAR	U16	RW	Used in Mode 3+4 only	10	0	255
	27	Markingvalve - Delay	VAR	U16	RW		0	0	65535
	29	Markingvalve - Length	VAR	U16	RW		0	0	65535
	5F	Mark.valve / Ejector - Setup Mode	VAR	U16	RW	0 = Disabled 1 = All products are marked / ejected. 2 = No products are marked / ejected. 3 = Only Bad products are marked/ ejected . All alarm functions are disabled in Mode 1-3.	0	0	3
	63	Counter Status	VAR	U16	RW	0=Counting, 1=Reset	0	0	1
	77	Jam - Mode Inspection	VAR	U16	RW	0=Off, 1=On - Alarm has to be confirmed, 2=On - Alarm releases automatically	3	0	8

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	78	Jam - Output 1 Inspection	VAR	U16	RW	See Alarm Reference for details	1	0	9
	79	Jam - Output 2 Inspection	VAR	U16	RW	See Alarm Reference for details	0	0	9
	7A	Tracking Shift Ratio	VAR	U16	RW	Percentage of learned box length at light gate 1 that tracking window is shifted forward.	50	1	250
	82	Lt Gate 1 Minimum Product Length	VAR	U16	RW		400	0	2500
	87	Fault Suppression Mode	VAR	U16	RW	0 = Disabled (No faults suppressed), 1 = Tracking fault popups msg supp, 2 = Tracking faults suppressed.	0	0	2
	88	Aux Tracking Offset	VAR	I16	RW	Aux Tracking Offset Dist from Marking Valve [1/10mm]	0	-32767	32767
	89	Aux Tracking Pulse	VAR	U16	RW	Aux Tracking Pulse Length	1000	200	65535
	8A	Aux Tracking Output	VAR	U16	RW	See Alarm Reference for details	0	0	9
3501		Parameter Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Debounce Filter Timeout	VAR	U16	RW		127	0	4000
	2	Minimum Product Length	VAR	U16	RW		150	0	2500
	3	Scanner Offset	VAR	U16	RW		0	0	2500
	4	Jam Distance	VAR	U16	RW		0	0	65535
	5	Jam Enable	VAR	U16	RW		1	0	1
	6	Invert Start Signal	VAR	U16	RW		0	0	1

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3601		Parameter CDS Sensor 1	RECORD			CDS Sensor 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	121		255
	1	Trigger Selection	VAR	U8	RW	Input devices to use 0=Disabled, 1=Photo Diode, 3=External Scanner 1, 5=External Scanner 2, 7 = all devices, 2 = 1 + Measurement window, 4 = 3 + Measurement window, 6 = 5 + Measurement window 8 = 7 + measurement window	1	0	8
	2	Push Button Response	VAR	BOOL	RW	0 = Disable push button, 1 = enable push button	1	0	1
	3	Red Threshold	VAR	U8	RW	The point at which the red color component will be recognized as having a value	8	0	255
	4	Green Threshold	VAR	U8	RW	The point at which the green color component will be recognized as having a value	8	0	255
	5	Blue Threshold	VAR	U8	RW	The point at which the blue color component will be recognized as having a value	8	0	255
	6	Red Gain	VAR	U8	RW	The 64-step linear db adjustment for the red component programmable gain amplifier (V-V varies nonlinearly)	0	0	63
	7	Green Gain	VAR	U8	RW	The 64-step linear db adjustment for the green component programmable gain amplifier (V-V varies nonlinearly)	0	0	63
	8	Blue Gain	VAR	U8	RW	The 64-step linear db adjustment for the blue component programmable gain amplifier (V-V varies nonlinearly)	0	0	512
	9	Red Offset	VAR	I16	RW	The 512-step offset for the red component (0 = 0 mv, 255 = +350 mv; 256 = 0 mv, 512 = -350 mv)	0	0	512

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	A	Green Offset	VAR	I16	RW	The 512-step offset for the red component (0 = 0 mv, 255 = +350 mv; 256 = 0 mv, 512 = -350 mv)	0	0	512
	B	Blue Offset	VAR	I16	RW	The 512-step offset for the red component (0 = 0 mv, 255 = +350 mv; 256 = 0 mv, 512 = -350 mv)	0	0	512
	C	Learning Mode	VAR	U8	RW	Put the CDS in a mode to learn a master pattern	0	0	255
	D	Sensor Type	VAR	U16	RW	See Sensor Reference for Details	10	0	10
	E	Red Component Tolerance	VAR	U8	RW	Get/set red color tolerance as percentage	20	1	50
	F	Green Component Tolerance	VAR	U8	RW	Get/set green color tolerance as percentage	20	1	50
	10	Blue Component Tolerance	VAR	U8	RW	Get/set blue color tolerance as percentage	20	1	50
	11	Narrow Bar Tolerance	VAR	U16	RW	Get/set narrow width tolerance	15	3	100
	12	Wide Bar Tolerance	VAR	U16	RW	Get/set wide width tolerance	15	3	100
	13	Gap Tolerance	VAR	U16	RW	Get/set spacing (gap) tolerance	15	3	20
	14	Total Flap Length Tolerance	VAR	U16	RW	Get/set total flap length tolerance	30	20	100
	15	Longitudinal Print Tolerance	VAR	U16	RW	Get/set longitudal print tolerance (distance from flap edge to first bar)	15	3	40
	16	Bar & Gap Tolerance	VAR	U16	RW	Get/set allowable distance for bar & gap	15	3	10
	17	Gap Tolerance Doubled	VAR	BOOL	RW	Double the allowable distance for gap tolerance	0	0	1
	18	Counter 1	VAR	U32	RW	Counter 1. Has different puposes based on Sensortype	0		
	19	Type Counter 1	VAR	U16	RW	Type Counter 1. Define the type of counter 1 based on Sensortype.	0		
	1A	Counter 2	VAR	U32	RW	Counter 2. Has different puposes based on Sensortype	0		
	1B	Type Counter 2	VAR	U16	RW	Type Counter 2. Define the type of counter 1 based on Sensortype.	0		

DS-CDS									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	1C	Counter 3	VAR	U32	RW	Counter 3. Has different puposes based on Sensortype	0		
	1D	Type Counter 3	VAR	U16	RW	Type Counter 3. Define the type of counter 1 based on Sensortype.	0		
	1E	Counter 4	VAR	U32	RW	Counter 4. Has different puposes based on Sensortype	0		
	1F	Type Counter 4	VAR	U16	RW	Type Counter 4. Define the type of counter 1 based on Sensortype.	0		
	20	Counter 5	VAR	U32	RW	Counter 5. Has different puposes based on Sensortype	0		
	21	Type Counter 5	VAR	U16	RW	Type Counter 5. Define the type of counter 1 based on Sensortype.	0		
	22	Counter 6	VAR	U32	RW	Counter 6. Has different puposes based on Sensortype	0		
	23	Type Counter 6	VAR	U16	RW	Type Counter 6. Define the type of counter 6 based on Sensortype.	0		
	24	Counter 7	VAR	U32	RW	Counter 7. Has different puposes based on Sensortype	0		
	25	Type Counter 7	VAR	U16	RW	Type Counter 7. Define the type of counter 7 based on Sensortype.	0		
	26	Counter 8	VAR	U32	RW	Counter 8. Has different puposes based on Sensortype	0		
	27	Type Counter 8	VAR	U16	RW	Type Counter 8. Define the type of counter 8 based on Sensortype.	0		
	28	Counter 9	VAR	U32	RW	Counter 9. Has different puposes based on Sensortype	0		
	29	Type Counter 9	VAR	U16	RW	Type Counter 9. Define the type of counter 9 based on Sensortype.	0		
	2A	Counter 10	VAR	U32	RW	Counter 10. Has different puposes based on Sensortype	0		
	2B	Type Counter 10	VAR	U16	RW	Type Counter 10. Define the type of counter 10 based on Sensortype.	0		
	2C	Counter 11	VAR	U32	RW	Counter 11. Has different puposes based on Sensortype	0		
	2D	Type Counter 11	VAR	U16	RW	Type Counter 11. Define the type of counter 1 based on Sensortype.	0		

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	2E	Counter 12	VAR	U32	RW	Counter 12. Has different puposes based on Sensortype	0		
	2F	Type Counter 12	VAR	U16	RW	Type Counter 12. Define the type of counter 1 based on Sensortype.	0		
	30	Counter 13	VAR	U32	RW	Counter 13. Has different puposes based on Sensortype	0		
	31	Type Counter 13	VAR	U16	RW	Type Counter 13. Define the type of counter 1 based on Sensortype.	0		
	32	Counter 14	VAR	U32	RW	Counter 14. Has different puposes based on Sensortype	0		
	33	Type Counter 14	VAR	U16	RW	Type Counter 14. Define the type of counter 1 based on Sensortype.	0		
	34	Counter 15	VAR	U32	RW	Counter 15. Has different puposes based on Sensortype	0		
	35	Type Counter 15	VAR	U16	RW	Type Counter 15. Define the type of counter 1 based on Sensortype.	0		
	36	Counter 16	VAR	U32	RW	Counter 16. Has different puposes based on Sensortype	0		
	37	Type Counter 16	VAR	U16	RW	Type Counter 16. Define the type of counter 6 based on Sensortype.	0		
	38	Counter 17	VAR	U32	RW	Counter 17. Has different puposes based on Sensortype	0		
	39	Type Counter 17	VAR	U16	RW	Type Counter 17. Define the type of counter 7 based on Sensortype.	0		
	3A	Counter 18	VAR	U32	RW	Counter 18. Has different puposes based on Sensortype	0		
	3B	Type Counter 18	VAR	U16	RW	Type Counter 18. Define the type of counter 8 based on Sensortype.	0		
	3C	Counter 19	VAR	U32	RW	Counter 19. Has different puposes based on Sensortype	0		
	3D	Type Counter 19	VAR	U16	RW	Type Counter 19. Define the type of counter 9 based on Sensortype.	0		
	3E	Counter 20	VAR	U32	RW	Counter 20. Has different puposes based on Sensortype	0		
	3F	Type Counter 20	VAR	U16	RW	Type Counter 20. Define the type of counter 10 based on Sensortype.	0		

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	40	Load Edge Min	VAR	U8	RW	Number of input changes needed before detecting an edge	4	2	6
	41	Start Measurement Window	VAR	U16	RW	Beginning distance for barcode inspection (MEAS_STRT register on PLD)	0	0	65535
	42	End Measurement Window	VAR	U16	RW	Ending distance for barcode inspection (MEAS_END register on PLD)	0	0	65535
	43	Perform White Calibration	VAR	BOOL	RW	Perform white calibration on AD9822 if set	0	0	1
	44	Number Cutouts	VAR	U8	RW	Number of notches on flap (0-2)	0	0	2
	45	Number Triangles	VAR	U8	RW	Number of triangles (diecuts) on box (0-4)	0	0	4
	46	Learned or Manually Entered Box Length	VAR	U16	RW	Learned box length or manually written box length	0	0	65535
	47	Perform Black Calibration	VAR	BOOL	RW	Perform black calibration on AD9822 if set	0	0	1
	48	Minimum Bar Length	VAR	U16	RW	Minimum Zone (bar) length recongized by CDS	3	1	65535
	49	Lateral Print Tolerance	VAR	U16	RW	Get/set lateral print tolerance in pulses (+/- in pulses of actual distance from opposite edge of 45 degree angle to midpoint hypontenuse side)	15	3	40
	4A	CDS test bitmask	VAR	U32	RW	Define which CDS Analysis tests to perform: 0x0 - none; 0x1 - Flap length; 0x2 Longitdual print inspection; 0x4 1st bar + 1st gap(NOT USED); 0x8 - Bar type; 0x10 - Zone width; 0x20 Edge to Bar Dist; 0x40 - Red color component; 0x80 - Green color component; 0x100 blue colior component; 0x200 - Number of bars; 0x400 Lateral print inspection; 0x800 Bar to Bar inspection(NOTUSED); 0x7FF all tests currently defined bits 11-31 reserved	2047	0	
	4B	Narrow zone Max Size (For Binary Code Conversion Only)	VAR	U16	RW	The maximum size of a narrow zone so that zones can be classified as narrow or wide depending on the code being used (EMS, BOBST,or independent)	15	5	100
	4C	Edge-2-Bar Inspection Tolerance	VAR	U16	RW	Get/set bar-2-bar inspection tolerance (distance from flap edge to first bar)	15	3	40

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	4D	First cutout starting position	VAR	U16	RW	Get/Set first cutout starting position	0	0	65535
	4E	First cutout ending position	VAR	U16	RW	Get/Set first cutout ending position	0	0	65535
	4F	Second cutout starting position	VAR	U16	RW	Get/Set second cutout starting position	0	0	65535
	50	Second cutout ending position	VAR	U16	RW	Get/Set second cutout ending position	0	0	65535
	51	Min Red Value in Pattern	VAR	U8	RO	The minimum red value in pattern as stored in FPGA PMIN_R register	0	0	255
	52	Min Green Value in Pattern	VAR	U8	RO	The minimum green value in pattern as stored in FPGA PMIN_G register	0	0	255
	53	Min Blue Value in Pattern	VAR	U8	RO	The minimum blue value in pattern as stored in FPGA PMIN_B register	0	0	255
	54	Max Red Value in Pattern	VAR	U8	RO	The maximum red value in pattern as stored in FPGA PMAX_R register	0	0	255
	55	Max Green Value in Pattern	VAR	U8	RO	The maximum green value in pattern as stored in FPGA PMAX_G register	0	0	255
	56	Max Blue Value in Pattern	VAR	U8	RO	The maximum red value in pattern as stored in FPGA PMAX_B register	0	0	255
	57	Min Red Value in Pattern	VAR	U8	RO	The minimum red value in pattern as stored in FPGA PMIN_R register	0	0	255
	58	Min Green Value in Pattern	VAR	U8	RO	The minimum green value in pattern as stored in FPGA PMIN_G register	0	0	255
	59	Min Blue Value in Pattern	VAR	U8	RO	The minimum blue value in pattern as stored in FPGA PMIN_B register	0	0	255
	5A	Max Red Value in Pattern	VAR	U8	RO	The maximum red value in pattern as stored in FPGA PMAX_R register	0	0	255
	5B	Max Green Value in Pattern	VAR	U8	RO	The maximum green value in pattern as stored in FPGA PMAX_G register	0	0	255
	5C	Max Blue Value in Pattern	VAR	U8	RO	The maximum red value in pattern as stored in FPGA PMAX_B register	0	0	255
	5D	Scanner to Sensor	VAR	I16	RW	Distance Scanner to Sensor in [1/10mm]	165	-32767	32767
	5E	Minimum Speed	VAR	U16	RW	Speed Threshold for gluing operation in [m/min]	20		
	5F	Sensor to Markingvalve	VAR	U32	RW		40000		

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	60	Switch Consecutive Faults Alarm	VAR	U16	RW	0=Off, On=1	0	0	1
	61	Alarm 2 Enable	VAR	U16	RW	0=Off, On=2	0	0	1
	62	Alarm 3 (Light) Enable	VAR	U16	RW	0=Off, On=3	0	0	1
	63	Alarm 4 (Buzzer) Enable	VAR	U16	RW	0=Off, On=4	0	0	1
	64	Scanner Ton Comp	VAR	U16	RW	Ton compensation of scanner	10	0	255
	65	Learn Counter	VAR	U16	RW	Number of productes used during learn Procedure	1	1	10
	66	Number of Consecutive Faults	VAR	U16	RW	Number of Consecutive Faults	5	1	100
	67	Threshold mode	VAR	U8	RW	Threshold mode; mode 1 = Light Colored, mode 2 = Standard Contrast, mode 3 = Dirty Background	2	1	3
	68	Threshold mode 1 (Light Colored) Color Red value	VAR	U16	RW	Threshold mode 1 (Light Colored) Color Red value	5	1	255
	69	Threshold mode 1 (Light Colored) Color Green value	VAR	U16	RW	Threshold mode 1 (Light Colored) Color Green value	5	1	255
	6A	Threshold mode 1 (Light Colored) Color Blue value	VAR	U16	RW	Threshold mode 1 (Light Colored) Color Blue value	5	1	255
	6B	Threshold mode 2 (Standard Contrast) Color Red value	VAR	U16	RW	Threshold mode 2 (Standard Contrast) Color Red value	8	1	255
	6C	Threshold mode 2 (Standard Contrast) Color Green value	VAR	U16	RW	Threshold mode 2 (Standard Contrast) Color Green value	8	1	255
	6D	Threshold mode 2 (Standard Contrast) Color Blue value	VAR	U16	RW	Threshold mode 2 (Standard Contrast) Color Blue value	8	1	255

DS-CDS									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	6E	Threshold mode 3 (Dirty Background) Color Red value	VAR	U16	RW	Threshold mode 3 (Dirty Background) Color Red value	25	1	255
	6F	Threshold mode 3 (Dirty Background) Color Green value	VAR	U16	RW	Threshold mode 3 (Dirty Background) Color Green value	25	1	255
	70	Threshold mode 3 (Dirty Background) Color Blue value	VAR	U16	RW	Threshold mode 3 (Dirty Background) Color Blue value	25	1	255
	71	Auto Measurement Window	VAR	BOOL	RW	Automatically find large gaps before/after code and set measurement window to start/end in the middle	0	0	1
	72	Reverse Binary Code	VAR	BOOL	RW	Determine whether 1st bar is LSB(0) or MSB(1)	0	0	1
	73	Invert Binary Code	VAR	BOOL	RW	Determine whether narrow bar = 0 wide bar = 1 (0), or narrow bar = 1 wide = 0 (1).	0	0	1
	74	White Adjustment Gain	VAR	U8	RW	The 64-step linear db adjustment for the red component programmable gain amplifier (V-V varies nonlinearly)	5	0	63
	75	Individual Color Test Enable	VAR	U32	RW	Each bit is representing a bar. Setting the bit to 0 will disable the color check for the coresponding bar.	0	0	
	76	Individual Bar Test Enable	VAR	U32	RW	Each bit is representing a bar. Setting the bit to 0 will disable all checks for the coresponding bar.	0	0	
	77	Enable StringObject Master/Current	VAR	U16	RW	0=Off, On=1	1	0	1
	78	Trigger Threshold for RGB Channel	VAR	U16	RW	Trigger Threshold for RGB Channel	100	5	500
	79	Clear Tracking when Master is Set	VAR	U16	RW	Clear Tracking Pointer when Master Code is set (Only applies when 3601.77=1)	0	0	1

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3604		Current Zone Data	RECORD			Current Zone Data			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	73		255
	1	Total Number of Zones	VAR	U32	RW	Total Number of Zones (Bars & Gaps)	0	0	32
	2	Leading Zone 1 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	3	Leading Zone 1 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	4	Leading Zone 2 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	5	Leading Zone 2 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	6	Leading Zone 3 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	7	Leading Zone 3 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	8	Leading Zone 4 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	9	Leading Zone 4 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	A	Leading Zone 5 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	B	Leading Zone 5 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	C	Leading Zone 6 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	D	Leading Zone 6 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	E	Leading Zone 7 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	F	Leading Zone 7 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	

DS-CDS									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	10	Leading Zone 8 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	11	Leading Zone 8 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	12	Leading Zone 9 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	13	Leading Zone 9 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	14	Leading Zone 10 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	15	Leading Zone 10 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	16	Leading Zone 11 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	17	Leading Zone 11 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	18	Leading Zone 12 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	19	Leading Zone 12 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	1A	Leading Zone 13 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	1B	Leading Zone 13 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	1C	Leading Zone 14 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	1D	Leading Zone 14 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	1E	Leading Zone 15 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	1F	Leading Zone 15 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	20	Leading Zone 16 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	

DS-CDS									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	21	Leading Zone 16 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	22	Leading Zone 17 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	23	Leading Zone 17 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	24	Leading Zone 18 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	25	Leading Zone 18 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	26	Leading Zone 19 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	27	Leading Zone 19 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	28	Leading Zone 20 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	29	Leading Zone 20 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	2A	Leading Zone 21 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	2B	Leading Zone 21 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	2C	Leading Zone 22 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	2D	Leading Zone 22 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	2E	Leading Zone 23 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	2F	Leading Zone 23 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	30	Leading Zone 24 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	31	Leading Zone 24 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	32	Leading Zone 25 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	

DS-CDS									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	33	Leading Zone 25 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	34	Leading Zone 26 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	35	Leading Zone 26 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	36	Leading Zone 27 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	37	Leading Zone 27 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	38	Leading Zone 28 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	39	Leading Zone 28 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	3A	Leading Zone 29 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	3B	Leading Zone 29 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	3C	Leading Zone 30 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	3D	Leading Zone 30 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	3E	Leading Zone 31 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	3F	Leading Zone 31 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	40	Leading Zone 32 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0	0	
	41	Leading Zone 32 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0	0	
	42	Current Background Color	VAR	U32	RO	The current background color of product. (gap color)	0	0	
	43	Current Binary Code	VAR	U32	RO	The current binary code.	0	0	
	44	Last Error Code	VAR	U16	RO	Last product status. (Pass/Fail)	0	0	65535
	45	CDS Current Sensor to Markingvalve	VAR	U32	RO	Current distance from sensor to LGT1	0	0	

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	46	Light Bulb Operation Time	VAR	U32	RW	Light Bulb Operation Time	0	0	
	47	Light Bulb Reset Time	VAR	U32	RW	Light Bulb Reset Time (Stored as Timestamp)	0	0	
	48	Current Glue Flap Length	VAR	U32	RO	The current product length	0		
	49	Current Code Data	VAR	OSTR	RO	Current Code formatted as Hex String			
3608		Learned Zone Data	RECORD			Learned Zone Data			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	73		255
	1	Total Number of Zones	VAR	U32	RO	Total Number of Zones (Bars & Gaps)	0	0	32
	2	Leading Zone 1 Red and Blue Components	VAR	U32	RO	Red and Blue component values of leading zone	0		
	3	Leading Zone 1 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	4	Leading Zone 2 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	5	Leading Zone 2 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	6	Leading Zone 3 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	7	Leading Zone 3 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	8	Leading Zone 4 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	9	Leading Zone 4 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	A	Leading Zone 5 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	B	Leading Zone 5 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	C	Leading Zone 6 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	D	Leading Zone 6 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	E	Leading Zone 7 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	F	Leading Zone 7 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	10	Leading Zone 8 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	11	Leading Zone 8 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	12	Leading Zone 9 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	13	Leading Zone 9 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	14	Leading Zone 10 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	15	Leading Zone 10 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	16	Leading Zone 11 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	17	Leading Zone 11 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	18	Leading Zone 12 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	19	Leading Zone 12 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	1A	Leading Zone 13 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	1B	Leading Zone 13 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	1C	Leading Zone 14 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	1D	Leading Zone 14 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	1E	Leading Zone 15 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	1F	Leading Zone 15 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	20	Leading Zone 16 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	21	Leading Zone 16 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	22	Leading Zone 17 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	23	Leading Zone 17 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	24	Leading Zone 18 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	25	Leading Zone 18 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	26	Leading Zone 19 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	27	Leading Zone 19 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	28	Leading Zone 20 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	29	Leading Zone 20 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	2A	Leading Zone 21 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	2B	Leading Zone 21 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	2C	Leading Zone 22 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	2D	Leading Zone 22 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	2E	Leading Zone 23 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	2F	Leading Zone 23 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		

DS-CDS									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	30	Leading Zone 24 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	31	Leading Zone 24 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	32	Leading Zone 25 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	33	Leading Zone 25 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	34	Leading Zone 26 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	35	Leading Zone 26 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	36	Leading Zone 27 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	37	Leading Zone 27 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	38	Leading Zone 28 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	39	Leading Zone 28 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	3A	Leading Zone 29 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	3B	Leading Zone 29 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	3C	Leading Zone 30 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	3D	Leading Zone 30 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	3E	Leading Zone 31 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	3F	Leading Zone 31 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	40	Leading Zone 32 RGB Values	VAR	U32	RO	RGB Values with B bits 0-7, G bits 8-15, R bits 16-23, Reserved bits 24-31	0		
	41	Leading Zone 32 Length and Start Values	VAR	U32	RO	Values in MM_100 with Length in bits 16-31 and Start in bits 0-15	0		
	42	Learned Background Color	VAR	U32	RO	The learned background color of product. (gap color)	0		
	43	Learned Binary Code	VAR	U32	RO	The learned binary code.	0		
	44	Learned Glue Flap Length	VAR	U32	RO	The learned product length	0		
	49	Learned Code Data	VAR	OSTR	RW	Learned Code formatted as Hex String			
3802		Time / Data [3]	RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	7		
	1	Second	VAR	U16	RW	In the range [0-59]	0	0	59
	2	Minute	VAR	U16	RW	In the range [0-59]	0	0	59
	3	Hour	VAR	U16	RW	In the range [0-23]	0	0	23
	4	Weekday	VAR	U16	RW	In the range [0-6]; 0=Sunday	0	0	6
	5	Day	VAR	U16	RW	In the range [1-31]	1	1	31
	6	Month	VAR	U16	RW	In the range [0-11]; 0=January	0	0	11
3B01		Status Data Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	3		
	1	Current Speed	VAR	U16	RO	Current encoder speed of the encoder in [m/min] based on the ration compensation	0	0	3000
	2	Products Per Hour Rate	VAR	U32	RO		0	0	
	3	Products Per Minute Rate	VAR	U16	RO		0	0	65535
3B02		Status Data Encoder 2	RECORD			Encoder 2			

DS-CDS									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3D01		Status Data Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	7		
	2	Product Length [Pulses]	VAR	U32	RO	Number of pulses of last product	0		
	3	Product Length	VAR	U32	RO	Total scanner activations	0		
	7	Edge Pulses	VAR	U32	RO	Encoder Count on last Leading Edge	0		
3D02		Status Data Scanner 2	RECORD			Scanner 2			

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3000		Software Version	VAR	VSTR	RO	Complete software version and copyright information	© VALCO Cincinnati, Inc.		
3001		Device Configuration	RECORD						Generate Device Specific Source/Header Files
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Sensor inputs	VAR	U16	RO	Number of monitoring sensors per device in the range of [0-32]	4	1	4
	2	Transducer Outputs	VAR	U16	RW	Number of transducer outputs per device in the range [1-8]	0	0	0
	3	Job Storage	VAR	U16	RO	Number of jobs that can be stored in the job memory of the device	1	1	1
	4	Scanner Inputs	VAR	U16	RW	Number of scanner inputs per device in the range [1-6]	5	1	5
	5	Valve Outputs	VAR	U16	RW	Number of valve outputs per device in the range [1-32]	0	0	0
	6	Encoder Inputs	VAR	U16	RO	Number of encoder inputs per device in the range [1-8]	2	1	2
3002		Operation Status	VAR	U32	RWW	Operation status channel; Size = 32 bits; 0 = Off, 1 = On; Bit0 = Channel1, Bit31 = Channel32	0		
3003		Error Status	VAR	U32	RO	Error Status channel; Size = 32 bits; 0 = Disabled or Error, 1 = Enabled; Bit0 = Channel1, Bit31 = Channel32	255		
3004		Update Status 1	VAR	U32	RWR	Update status 1; Size = 32 bits; 0 =No Change, 1 =Changed; For Bit definitions see page ' Definitions'	0		
3005		Update Status 2	VAR	U32	RWR	Update status 2; Size = 32 bits; 0 =No Change, 1 =Changed; Reserved for future use	0		
3007		Scanner Input Status	VAR	U32	RO	Size = 32 bits; 0 = Not Active, 1 = Active, Bit0 = Scanner1, Bit31 = Scanner32	0		

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
300B		Sensor Result	VAR	U32	RW	Size = 32 bits; 0 = Good, 1 = Fault, Bit0 = Sensor1, Bit31 = Sensor32	0		
300D		Aux. Output Status	VAR	U16	RW	Size = 16 bits; 0 = Off 1 = On, Bit0 = Output1, Bit15 = Output16	0		
300E		Status/Code for Last Message	VAR	U32	RWR	Size = 4 Bytes; Bytes 0-1 = Error/Message, Byte2 = Error Code, Byte3 = ErrorStatus	0	0	
300F		Add. Info for Last Message	VAR	U32	RO	Size = 4 Bytes; Bytes 0-3 = Additional Information for last Error/Message	0	0	
3300		Parameter Encoder Common	RECORD			Encoder Common			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	3		
	1	Inspection Encoder Input	VAR	U16	RW	Inspection Encoder Selection	1	1	2
	2	Tracking Encoder Input	VAR	U16	RW	Tracking Encoder Selection	1	1	2
	3	Inspection/Tracking Ratio	VAR	U16	RW	Percentage of speed encoders can vary before an error occurs	50	1	100
3301		Parameter Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	9		
	1	Direction Recognition	VAR	U8	RW		0	0	2
	2	Repeat Length	VAR	U16	RW	Distance the machine travels per encoder revolution in [1/10mm]	2540	1	32000
	3	Pulses per Revolution	VAR	U16	RW	Number of pulses per revolution	1000	1	32000
	5	Average Speed Mode	VAR	U16	RW	0=Direct, 1=Avg Calculation fore Transducer only, 2=Avg. Calculation for Valves and Transducer	0	0	2
	6	Average Counter	VAR	U16	RW	Number of average count	5	2	99
	7	Average Timeout	VAR	U16	RW	Timeout between calculations	60	10	1000
	8	Average Factor	VAR	U16	RW	Manipulation factor for Average result	100	2	250
	9	Prescale Factor	VAR	U16	RW	Division Factor for Prerscaler	8	1	8
3302		Parameter Encoder 2	RECORD			Encoder 2			

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3400			RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	154		
	4	Counter Job Total	VAR	U32	RW		0		
	5	Counter Job Error	VAR	U32	RW		0		
	6	Counter Job Scrap	VAR	U32	RW		0		
	7	Consecutive Fault Alarm - Mode	VAR	U16	RW	5 = Latched Output 6 = Latched Output, Vmin dependent 7 = Momentary Output, Vmin dep. 8 = Momentatry Output	7	5	8
	8	Consecutive Fault Alarm - Output 1	VAR	U16	RW	0 = No Output 1 = Relay 1 2 = Relay 2 3 = Buzzer	2	0	3
	B	Consecutive Fault Alarm - Activation Time	VAR	U16	RW	Only used in Mode 2, 7 and 8	20	0	255
	11	Alarm Light - Mode	VAR	U16	RW	1 = Latched Output (until next good) 2 = Latched Output, Vmin dependent 3 = Momentary Output, Vmin dep. 4 = Momentatry Output	1	1	4
	13	Alarm 3 - Output 2	VAR	U16	RW	See Alarm Reference for details	0	0	9
	14	Alarm Light - Maximum Time	VAR	U16	RW	Used in Mode 3+4 only	20	0	255
	15	Alarm Light - Minimum Time	VAR	U16	RW	Used in Mode 3+4 only	10	0	255
	16	Alarm Buzzer - Mode	VAR	U16	RW	1 = Latched Output (until next good) 2 = Latched Output, Vmin dependent 3 = Momentary Output, Vmin dep. 4 = Momentatry Output	4	1	4
	18	Alarm 4 - Output 2	VAR	U16	RW	See Alarm Reference for details	0	0	9
	19	Alarm Buzzer - Maximum Time	VAR	U16	RW	Used in Mode 3+4 only	20	0	255
	1A	Alarm Buzzer - Minimum Time	VAR	U16	RW	Used in Mode 3+4 only	10	0	255
	1B	Markingvalve - Mode	VAR	U16	RW	Alarm mode marking valve	0	0	3
	1C	Markingvalve - Ton	VAR	U16	RW	Valve -On- Compensation Time	45	0	255

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	1D	Markingvalve - Toff	VAR	U16	RW	Valve -Off- Compensation Time	45	0	255
	1E	Markingvalve - Tmin	VAR	U16	RW	Valve Minimum Activation Time	15	0	255
	1F	Markingvalve - Type	VAR	U16	RW	See Valve Type Reference for details	0	0	49
	20	Markingvalve - Vmin	VAR	U16	RW	Minimum Speed	0	0	3000
	21	Markingvalve - Encoder	VAR	U16	RW		1	1	2
	22	Markingvalve - Output 1	VAR	U16	RW	See Alarm Reference for details	1	0	9
	23	Markingvalve - Output 2	VAR	U16	RW	See Alarm Reference for details	0	0	9
	24	Markingvalve - Scanner Mode	VAR	U16	RW	0=Disabled, 1=Enabled	0	0	1
	25	Mark.valve / Ejector - Dry Time	VAR	U16	RW	0=Drytime feature Disabled, >0 Drytime in seconds	0	0	999
	26	Markingvalve - Delay Mode	VAR	U16	RW	0=Manual, 1=Auto	0	0	1
	27	Markingvalve - Delay	VAR	U16	RW		0	0	65535
	28	Markingvalve - Length Mode	VAR	U16	RW	0=Manual, 1=Auto	0	0	1
	29	Markingvalve - Length	VAR	U16	RW		0	0	65535
	2A	Large Tolerance +/- Start	VAR	U16	RW		200	0	1000
	2B	Large Tolerance +/- End	VAR	U16	RW		200	0	1000
	2C	Large Tolerance - Gap	VAR	U16	RW		300	0	1000
	2D	Large Tolerance +/- Volume	VAR	U16	RW		60	0	100
	2E	Med. Tolerance +/- Start	VAR	U16	RW		150	0	1000
	2F	Med. Tolerance +/- End	VAR	U16	RW		150	0	1000
	30	Med. Tolerance - Gap	VAR	U16	RW		300	0	1000
	31	Med. Tolerance +/- Volume	VAR	U16	RW		60	0	100
	32	Small Tolerance +/- Start	VAR	U16	RW		100	0	1000
	33	Small Tolerance +/- End	VAR	U16	RW		100	0	1000
	34	Small Tolerance - Gap	VAR	U16	RW		300	0	1000

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	35	Small Tolerance +/- Volume	VAR	U16	RW		60	0	100
	36	User Tolerance + Start	VAR	U16	RW		50	0	1000
	37	User Tolerance - Start	VAR	U16	RW		50	0	1000
	38	User Tolerance + End	VAR	U16	RW		50	0	1000
	39	User Tolerance - End	VAR	U16	RW		50	0	1000
	3A	User Tolerance Gap	VAR	U16	RW		100	0	1000
	3B	User Tolerance + Volume	VAR	U16	RW		50	0	100
	3C	User Tolerance - Volume	VAR	U16	RW		50	0	100
	4B	Reference Learn Mode CGS	VAR	U16	RW	0=No Manual Reference (Automatic), 1=Manual Reference (Average), 2=Manual Reference (Profile), 3=Manual Reference (Maximum)	0	0	5
	5E	Mark.valve / Ejector - Dry Distance	VAR	U32	RW	0=All boxes are ejected after timeout, >0 Only products inside this distance are marked/ejected	0		
	63	Counter Status	VAR	U16	RW	0=Counting, 1=Reset	0	0	1
	64	Large Tolerance - Volume	VAR	U16	RW		60	0	100
	65	Med. Tolerance - Volume	VAR	U16	RW		60	0	100
	66	Small Tolerance - Volume	VAR	U16	RW		60	0	100
	67	Large Tolerance - Product Length	VAR	U16	RW		300	0	1000
	68	Med. Tolerance - Product Length	VAR	U16	RW		300	0	1000
	69	Small Tolerance - Product Length	VAR	U16	RW		300	0	1000
	70	Markvalve/Ejector Operation Status	VAR	U16	RW	0=Off No Purge, 1=On No Purge, 2=Off With Purge, 3=On With Purge	0	0	3
	77	Jam - Mode Inspection	VAR	U16	RW	0=Off, 1=On - Alarm has to be confirmed, 2=On - Alarm releases automatically	3	0	8

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	78	Jam - Output 1 Inspection	VAR	U16	RW	See Alarm Reference for details	1	0	9
	79	Jam - Output 2 Inspection	VAR	U16	RW	See Alarm Reference for details	0	0	9
	7A	Tracking Shift Ratio	VAR	U16	RW	Percentage of learned box length at light gate 1 that tracking window is shifted forward.	50	1	250
	82	Lt Gate 1 Minimum Product Length	VAR	U16	RW		400	0	2500
	87	Fault Suppression Mode	VAR	U16	RW	0 = Disabled (No faults suppressed), 1 = Tracking fault popups msg supp, 2 = Tracking faults suppressed.	0	0	2
	88	Aux Tracking Offset	VAR	I16	RW	Aux Tracking Offset Dist from Marking Valve [1/10mm]	0	-32767	32767
	89	Aux Tracking Pulse	VAR	U16	RW	Aux Tracking Pulse Length	1000	200	65535
	8A	Aux Tracking Output	VAR	U16	RW	See Alarm Reference for details	0	0	9
3401		Parameter Sensor 1	RECORD			Sensor 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	104		
	1	Delay 1	VAR	U16	RW	Distance from leading edge to start of glue line 1 in [1/10mm]	0		
	2	Length 1	VAR	U16	RW	Length of glue line 1 in [1/10mm]	0		
	3	Delay 2	VAR	U16	RW	…	0		
	4	Length 2	VAR	U16	RW	…	0		
	5	Delay 3	VAR	U16	RW	...	0		
	6	Length 3	VAR	U16	RW	...	0		
	7	Delay 4	VAR	U16	RW	...	0		
	8	Length 4	VAR	U16	RW	...	0		
	9	Delay 5	VAR	U16	RW	…	0		
	A	Length 5	VAR	U16	RW	…	0		
	B	Delay 6	VAR	U16	RW	…	0		
	C	Length 6	VAR	U16	RW	…	0		

DS-ICM4									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	D	Delay 7	VAR	U16	RW	Distance from leading edge to start of glue line 7 in [1/10mm]	0		
	E	Length 7	VAR	U16	RW	Length of glue line 7 in [1/10mm]	0		
	F	Reserved	VAR	U16	RW		0		
	10	Scanner to Sensor	VAR	I16	RW	Distance Scanner to Sensor in [1/10mm]	0	-32767	32767
	11	Scanner Lockout	VAR	U16	RW	Block out distances for multiple start signals in [1/10mm]	0		
	12	Repeat Factor	VAR	U16	RW	Repeat factor for glue pattern. The Patter will be repeated at the position of the last 'Delay' entry with 'Length' = 0	1		
	13	Gluing Mode	VAR	U16	RW	0=Standard, 1=Continuous 2=Stitch Mode, 3=Jogging Mode,4=Auto Glue, 5=Auto+Jog, 6=Continous+Stitch	0		
	14	Trigger Source	VAR	U16	RW	Assigned scanner in the range [1-MAX_TRIGGER_SOURCE]	1	1	7
	15	Encoder	VAR	U16	RW	Assigned encoder in the range [1-MAX_ENCODER]	1	1	2
	16	Offset Start	VAR	I16	RW	Correction Offset Start (Sensor specific)	0	-32767	32767
	17	Offset End	VAR	I16	RW	Correction Offset End (Sensor specific)	0	-32767	32767
	18	Threshold	VAR	U16	RW	Signal Threshold Level	30	1	100
	19	Minimum Speed	VAR	U16	RW	Speed Threshold for gluing operation in [m/min]	20		
	1A	Correction Factor	VAR	U16	RW	Encoder correction factor in [%]	100		
	1B	Jogging Speed	VAR	U16	RW	Threshold for Jogging Mode in [m/min]	50		
	1C	Dot Length Jogging	VAR	U16	RW	Dot length jogging mode in steps off 0.1ms in the range [1-250] (40 = 4.0ms)	40		
	1D	Dot Gap Jogging	VAR	U16	RW	Dot gap in jogging mode in [1/10mm]	2		
	1E	Stitch Gap	VAR	U16	RW	Stitch gap if stitch mode is activated in [1/10mm]	2		
	1F	Stitch Length	VAR	U16	RW	Stitch length if stitch mode is activated in [1/10mm]	2		
	20	Batch Counter	VAR	U16	RW	Counter to mask out start signals. 0 = Disabled	0		
	21	Autoglue Mode	VAR	U16	RW	0=Disabled, 1=Enabled	0		
	22	Learn Status	VAR	U16	RW	See Learn Mode Reference for details	0	0	255

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	24	Dimension 1	VAR	U16	RW	e.g. FS Mode: Flap Length MCP-4,PCM4: Delay of glue line 8	0		
	25	Dimension 2	VAR	U16	RW	e.g. FS Mode: Score To Score Dim. MCP-4,PCM4: Length of glue line 8	0		
	26	Dimension 3	VAR	U16	RW	e.g. FS Mode: Start Offset MCP-4,PCM4: Delay of glue line 9	0		
	27	Dimension 4	VAR	U16	RW	e.g. FS Mode: End Offset MCP-4,PCM4: Length of glue line 9	0		
	28	Dimension 5	VAR	U16	RW	e.g. FS Mode: Product Length MCP-4,PCM4: Delay of glue line 10	0		
	29	Dimension 6	VAR	U16	RW	e.g. FS Mode: Ext. Tab length Start MCP-4,PCM4: Length of glue line 10	0		
	2A	Dimension 7	VAR	U16	RW	e.g. FS Mode: Ext. Tab Length End	0		
	2F	Sensor Type	VAR	U16	RW	See Sensor Reference for details	0	0	11
	30	Tolerance Mode	VAR	U16	RW	1=Large, 2=Medium, 3=Small, 4=User	1	1	4
	31	Switch Volume	VAR	U16	RW	0=Off, On=1	1	0	1
	32	Unglued Area Mode	VAR	U16	RW	0=Inspect Unlued Areas, 1=Ignore Unglued Areas, 2=Ignore Unglued Areas	0	0	2
	33	Minimum Glue Length	VAR	U16	RW		100	10	1000
	34	Minimum Gap Length	VAR	U16	RW		250	0	1000
	35	Ejector Type	VAR	U16	RW	See Mark/Ejector Reference for details	0	0	5
	36	Sensor to Markingvalve	VAR	U32	RW		40000		
	37	Filter Mode	VAR	U16	RW	Filter for Volume Learn Procedure	0	0	4
	38	Reference Mode	VAR	U16	RW	0=No Reference value, 1=Continous, 2=One Time, 3=Reference Sensor (*N/A), 4=Differential, 5=Maximum	2	0	7
	39	Switch Consecutive Faults Alarm	VAR	U16	RW	0=Off, On=1	0	0	1
	3A	Alarm 2 Enable	VAR	U16	RW	0=Off, On=2	0	0	1
	3B	Alarm 3 (Light) Enable	VAR	U16	RW	0=Off, On=3	0	0	1
	3C	Alarm 4 (Buzzer) Enable	VAR	U16	RW	0=Off, On=4	0	0	1
	3D	Reference Sensor	VAR	U16	RW	0=No Reference Sensor	0	0	4

DS-ICM4									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	3E	Offset Reference Sensor	VAR	I16	RW		0	-32767	32767
	3F	Scanner Ton Comp	VAR	U16	RW	Ton compensation of scanner	10	0	255
	40	Learn Counter	VAR	U16	RW	Number of productes used during learn Procedure	1	1	10
	41	Extended Tab Length	VAR	U16	RW	Distance for special analyzing of Extended Tabs, If set to '0' the extended tab analysing is disabled	0	0	65535
	42	Counter 1	VAR	U32	RW	Counter 1. Has different puposes based on Sensortype	0		
	43	Type Counter 1	VAR	U16	RW	Type Counter 1. Define the type of counter 1 based on Sensortype.	0		
	44	Counter 2	VAR	U32	RW	Counter 2. Has different puposes based on Sensortype	0		
	45	Type Counter 2	VAR	U16	RW	Type Counter 2. Define the type of counter 1 based on Sensortype.	0		
	46	Counter 3	VAR	U32	RW	Counter 3. Has different puposes based on Sensortype	0		
	47	Type Counter 3	VAR	U16	RW	Type Counter 3. Define the type of counter 1 based on Sensortype.	0		
	48	Counter 4	VAR	U32	RW	Counter 4. Has different puposes based on Sensortype	0		
	49	Type Counter 4	VAR	U16	RW	Type Counter 4. Define the type of counter 1 based on Sensortype.	0		
	4A	Counter 5	VAR	U32	RW	Counter 5. Has different puposes based on Sensortype	0		
	4B	Type Counter 5	VAR	U16	RW	Type Counter 5. Define the type of counter 1 based on Sensortype.	0		
	4C	Counter 6	VAR	U32	RW	Counter 6. Has different puposes based on Sensortype	0		
	4D	Type Counter 6	VAR	U16	RW	Type Counter 6. Define the type of counter 6 based on Sensortype.	0		
	4E	Counter 7	VAR	U32	RW	Counter 7. Has different puposes based on Sensortype	0		
	4F	Type Counter 7	VAR	U16	RW	Type Counter 7. Define the type of counter 7 based on Sensortype.	0		
	50	Counter 8	VAR	U32	RW	Counter 8. Has different puposes based on Sensortype	0		
	51	Type Counter 8	VAR	U16	RW	Type Counter 8. Define the type of counter 8 based on Sensortype.	0		
	52	Counter 9	VAR	U32	RW	Counter 9. Has different puposes based on Sensortype	0		

DS-ICM4									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	53	Type Counter 9	VAR	U16	RW	Type Counter 9. Define the type of counter 9 based on Sensortype.	0		
	54	Counter 10	VAR	U32	RW	Counter 10. Has different puposes based on Sensortype	0		
	55	Type Counter 10	VAR	U16	RW	Type Counter 10. Define the type of counter 10 based on Sensortype.	0		
	56	Glue Evaluation Mode	VAR	U16	RW	Glue Evaluation Mode , 1=Coarse, 2= Medium, 3=Fine	3	1	3
	57	Product Length Switch	VAR	U16	RW	0=Off, 1=On w/Glue Insp, 2=On wout/Glue Insp	0	0	2
	58	Number of Consecutive Faults	VAR	U16	RW	Number of Consecutive Faults	5	1	100
	59	Symbology Mode	VAR	U16	RW	Symbology mode for Barcode scanner. Each bit represents a barcode type. If set to '1' it enables the detection for this code type. Bit0=UPC, Bit1=EAN, Bit2=Code39, Bit3=Code128, Bit4=CodeBar, Bit5=2o5, Bit 6=Pharma	0	0	65535
	5A	Number of Bars	VAR	U16	RW	Defines number of bars for specific code types	5	2	255
	5B	Number of 'GOOD' reads	VAR	U16	RW	Number of good reads for	2	1	10
	5C	Measurement Window -Start-	VAR	U16	RW	Start Measurement Window	0		
	5D	Measurement Window -Length-	VAR	U16	RW	Start Measurement Window	0		
	5E	Chan Tolerance + Start	VAR	U16	RW		50	0	1000
	5F	Chan Tolerance - Start	VAR	U16	RW		50	0	1000
	60	Chan Tolerance + End	VAR	U16	RW		50	0	1000
	61	Chan Tolerance - End	VAR	U16	RW		50	0	1000
	62	Chan Tolerance Gap	VAR	U16	RW		100	0	1000
	63	Chan Tolerance + Volume	VAR	U16	RW		50	0	100
	64	Chan Tolerance - Volume	VAR	U16	RW		50	0	100
	65	Chan Tolerance - Product Length	VAR	U16	RW		300	0	1000
	66	Unglued Area Method	VAR	U16	RW	1=Ignore Unglued Areas Outside Tolerance, 2=Ignore Unglued Areas 2mm Outside Tolerance	1	1	3

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	67	Digital2 Output Mode	VAR	U16	RW	0=Disabled, 1=Output on Make Ready, 2=Output on Counter Reset, 3=Output on Make Ready/Counter Reset	0	0	3
	68	Sc Lockout to Product Length	VAR	U16	RW	0=Disabled, 1=Uses Sc Lockout as Product Length	0	0	1
3402		Parameter Sensor 2	RECORD			Sensor 2			
3403		Parameter Sensor 3	RECORD			Sensor 3			
3404		Parameter Sensor 4	RECORD			Sensor 4			
3500		Parameter Scanner Common	RECORD			Scanner Common			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	1		
	1	Scanner Link Output	VAR	U16	RW		1	0	7
3501		Parameter Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Debounce Filter Timeout	VAR	U16	RW		127	0	4000
	2	Minimum Product Length	VAR	U16	RW		150	0	2500
	3	Scanner Offset	VAR	U16	RW		0	0	2500
	4	Jam Distance	VAR	U16	RW		0	0	65535
	5	Jam Enable	VAR	U16	RW		1	0	1
	6	Invert Start Signal	VAR	U16	RW		0	0	1
3502		Parameter Scanner 2	RECORD			Scanner 2			
3503		Parameter Scanner 3	RECORD			Scanner 3			
3504		Parameter Scanner 4	RECORD			Scanner 4			
3505		Parameter Scanner 5	RECORD			Scanner 5			
3802		Time / Data [3]	RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	7		
	1	Second	VAR	U16	RW	In the range [0-59]	0	0	59
	2	Minute	VAR	U16	RW	In the range [0-59]	0	0	59
	3	Hour	VAR	U16	RW	In the range [0-23]	0	0	23

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	4	Weekday	VAR	U16	RW	In the range [0-6]; 0=Sunday	0	0	6
	5	Day	VAR	U16	RW	In the range [1-31]	1	1	31
	6	Month	VAR	U16	RW	In the range [0-11]; 0=January	0	0	11
	7	Year	VAR	U16	RW	In the range [0-138]; 0=1900… 138=2038	105	104	138
3B01		Status Data Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	3		
	1	Current Speed	VAR	U16	RO	Current encoder speed of the encoder in [m/min] based on the ration compensation	0	0	3000
	2	Products Per Hour Rate	VAR	U32	RO		0	0	
	3	Products Per Minute Rate	VAR	U16	RO		0	0	65535
3B02		Status Data Encoder 2	RECORD			Encoder 2			
3C01		Status Data Sensor 1	RECORD			Sensor 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	52		
	1	Current Delay 1	VAR	U16	RO	Reading this sub index will force an update for ALL current length parameter	0	0	65535
	2	Current Length 1	VAR	U16	RO	Read sub Index 0x01 first to update data	0	0	65535
	3	Current Delay 2	VAR	U16	RO	See index 0x02	0	0	65535
	4	Current Length 2	VAR	U16	RO	See index 0x02	0	0	65535
	5	Current Delay 3	VAR	U16	RO	See index 0x02	0	0	65535
	6	Current Length 3	VAR	U16	RO	See index 0x02	0	0	65535
	7	Current Delay 4	VAR	U16	RO	See index 0x02	0	0	65535
	8	Current Length 4	VAR	U16	RO	See index 0x02	0	0	65535
	9	Current Delay 5	VAR	U16	RO	See index 0x02	0	0	65535
	A	Current Length 5	VAR	U16	RO	See index 0x02	0	0	65535
	B	Current Delay 6	VAR	U16	RO	See index 0x02	0	0	65535
	C	Current Length 6	VAR	U16	RO	See index 0x02	0	0	65535
	D	Current Delay 7	VAR	U16	RO	See index 0x02	0	0	65535

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	E	Current Length 7	VAR	U16	RO	See index 0x02	0	0	65535
	F		VAR	U16	RO				
	1F	Last Error Code	VAR	U16	RO		0	0	65535
	20	Current Volume	VAR	U16	RO	Reading this sub index will force an update for ALL volume related parameter	0	0	255
	21	Learned Volume	VAR	U16	RO	Read sub Index 0x20 first to update data	0	0	255
	22	Reference Value	VAR	U16	RO	See index 0x21	0	0	255
	23	Current Value	VAR	U16	RO	See index 0x21	0	0	255
	24	Current Delay 8	VAR	U16	RO	See index 0x02	0	0	65535
	25	Current Length 8	VAR	U16	RO	See index 0x02	0	0	65535
	26	Current Delay 9	VAR	U16	RO	See index 0x02	0	0	65535
	27	Current Length 9	VAR	U16	RO	See index 0x02	0	0	65535
	28	Current Delay 10	VAR	U16	RO	See index 0x02	0	0	65535
	29	Current Length 10	VAR	U16	RO	See index 0x02	0	0	65535
	30	Current Product Length	VAR	U16	RO		0	0	65535
	32	Current Symbology	VAR	VSTR	RO				
	33	Learned Symbology	VAR	VSTR	RW				
	34	Current Sensor to Markingvalve	VAR	U32	RW		0	0	65535
3C02		Status Data Sensor 2	RECORD			Sensor 2			
3C03		Status Data Sensor 3	RECORD			Sensor 3			
3C04		Status Data Sensor 4	RECORD			Sensor 4			
3D01		Status Data Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	5		
	1	Activation Counter	VAR	U32	RW	Total scanner activations	0		
	2	Product Length [Pulses]	VAR	U32	RO	Number of pulses of last product	0		
	3	Product Length	VAR	U32	RO	Total scanner activations	0		

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	4	Product Dist. [Pulses]	VAR	U32	RO	Number of Pulses between leading edges	0		
	5	Product Distance	VAR	U32	RO	Distance between leading edges	0		
3D02		Status Data Scanner 2	RECORD			Scanner 2			
3D03		Status Data Scanner 3	RECORD			Scanner 3			
3D04		Status Data Scanner 4	RECORD			Scanner 4			
3E00		Number of Objects with Index 3Exx	VAR	U16	RO		10		
3E01		Valve Type User	RECORD			USER			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for User Valve	User		
	2	Ton	VAR	U16	RW	On Compensation Time	10	0	500
	3	Toff	VAR	U16	RW	Off Compensation Time	10	0	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	15	0	250
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	20	4	250
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	250
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	50	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	2	950
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	80	2	950
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	2	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3E02		Valve Type 400E	RECORD			400E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 400E	400E		
	2	Ton	VAR	U16	RW	On Compensation Time	29	2	250
	3	Toff	VAR	U16	RW	Off Compensation Time	37	2	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	15	6	250
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	25	5	25
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	50
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	300	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	180	180	260
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	100	4	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	180	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	15	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E03		Valve Type 300E	RECORD			300E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 300E	300E		
	2	Ton	VAR	U16	RW	On Compensation Time	23	1	250
	3	Toff	VAR	U16	RW	Off Compensation Time	30	1	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	9	5	120

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	8	5	250
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	50	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	460	120	700
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	60	2	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	2	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	45	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E06		Valve Type MAC 12V	RECORD			MAC_12V			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for Mac 12V	MAC 12V		
	2	Ton	VAR	U16	RW	On Compensation Time	60	2	500
	3	Toff	VAR	U16	RW	Off Compensation Time	60	2	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	9	1	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	500	350	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	100	200
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	100	80	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1

DS-ICM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	100	200
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E07		Valve Type MAC 24V	RECORD			MAC_24V			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for Mac 24V	MAC 24V		
	2	Ton	VAR	U16	RW	On Compensation Time	60	2	500
	3	Toff	VAR	U16	RW	Off Compensation Time	60	2	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	30	5	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	30	5	150
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	700	350	850
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	350
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	200	150	240
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	350
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	30	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3000		Software Version	VAR	VSTR	RO	Complete software version and copyright information	© VALCO Cincinnati, Inc.		
3001		Device Configuration	RECORD						Generate Device Specific Source/Header Files
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Sensor inputs	VAR	U16	RO	Number of monitoring sensors per device in the range of [0-32]	0	0	0
	2	Transducer Outputs	VAR	U16	RW	Number of transducer outputs per device in the range [1-8]	2	1	2
	3	Job Storage	VAR	U16	RO	Number of jobs that can be stored in the job memory of the device	1	1	1
	4	Scanner Inputs	VAR	U16	RW	Number of scanner inputs per device in the range [1-6]	5	1	5
	5	Valve Outputs	VAR	U16	RW	Number of valve outputs per device in the range [1-32]	4	1	4
	6	Encoder Inputs	VAR	U16	RO	Number of encoder inputs per device in the range [1-8]	2	1	2
3002		Operation Status	VAR	U32	RWW	Operation status channel; Size = 32 bits; 0 = Off, 1 = On; Bit0 = Channel1, Bit31 = Channel32	0		
3003		Error Status	VAR	U32	RO	Error Status channel; Size = 32 bits; 0 = Disabled or Error, 1 = Enabled; Bit0 = Channel1, Bit31 = Channel32	255		
3004		Update Status 1	VAR	U32	RWR	Update status 1; Size = 32 bits; 0 =No Change, 1 =Changed; For Bit definitions see page ' Definitions'	0		
3005		Update Status 2	VAR	U32	RWR	Update status 2; Size = 32 bits; 0 =No Change, 1 =Changed; Reserved for future use	0		
3006		Valve Output Status	VAR	U32	RO	Size = 32 bits; 0 = Off, 1 = On, Bit0 = Valve1, Bit31 = Valve32	0		
3007		Scanner Input Status	VAR	U32	RO	Size = 32 bits; 0 = Not Active, 1 = Active, Bit0 = Scanner1, Bit31 = Scanner32	0		
300C		Valve Purge Status	VAR	U32	RW	Size = 32 bits; 0 = Normal, 1 = Purge, Bit0 = Valve1, Bit31 = Valve32	0		
300D		Aux. Output Status	VAR	U16	RW	Size = 16 bits; 0 = Off 1 = On, Bit0 = Output1, Bit15 = Output16	0		

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
300D		Aux. Output Status	VAR	U16	RW	Size = 16 bits; 0 = Off 1 = On, Bit0 = Output1, Bit15 = Output16	0		
300E		Status/Code for Last Message	VAR	U32	RWR	Size = 4 Bytes; Bytes 0-1 = Error/Message, Byte2 = Error Code, Byte3 = ErrorStatus	0	0	
300F		Add. Info for Last Message	VAR	U32	RO	Size = 4 Bytes; Bytes 0-3 = Additional Information for last Error/Message	0	0	
3100		Parameter Valve Common	RECORD			Valve Common			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	18		
	1	TipSealer Enable	VAR	U16	RW	0=Disabled, 1=Enabled	0	0	1
	2	TipSealer T1	VAR	U16	RW	TipSealer Time 1 in [ms]	500	100	2000
	3	TipSealer T2	VAR	U16	RW	TipSealer Time 2 in [ms]	500	100	2000
	4	TipSealer T3	VAR	U16	RW	TipSealer Time 3 in [ms]	500	100	2000
	5	TipSealer T4	VAR	U16	RW	TipSealer Time 4 in [ms]	500	100	2000
	6	TipSealer Feed Timeout	VAR	U16	RW	Timeout after Feedstop in [sec]	15	5	60
	7	TipSealer Feed Polarity	VAR	U16	RW	Polarity of Feedstop Signal	1	0	1
	8	TipSealer Pos.Switch Enable	VAR	U16	RW	Position Switch Enabled	0	0	1
	9	Copied Valve Defaults	VAR	U16	RW	0=Valve Default Parameters will be copied on next power on 1=No action	0	0	1
	A	Pulse Purge Activation	VAR	U16	RW	Number of Pulses at beginning of purge cycle	0	0	50
	B	TipSealer Status	VAR	U16	RO	TipSealer Status	0	0	255
	C	TipSealer Output Manual	VAR	U16	RW	This output is active when the control is in the MANUAL mode. 0 = No Output 1 = Glue Fault Light (Blue) 2 = Jam Fault Light (Red) 3 = Buzzer 4 = Low Level Light (Amber) 5 = Relay 1 6 = Relay 2	0	0	6

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	D	TipSealer Output Error	VAR	U16	RW	This output is active when the control is in the MANUAL mode. 0 = No Output 1 = Glue Fault Light (Blue) 2 = Jam Fault Light (Red) 3 = Buzzer 4 = Low Level Light (Amber) 5 = Relay 1 6 = Relay 2	0	0	6
	E	Glue Station Type 1	VAR	U16	RW	Glue Station Type. 0 = Not Installed 1 = Boardrunner NC-3 2 = Boardrunner NC-4 3 = Boardrunner NC-Hybrid 4 = BoardRunner Contact Single 5 = BoardRunner Contact Dual 6 = BoardRunner FLP-3 7 = BoardRunner FLP-4 8 = Seperated Valve NC	0	0	8
	10	TipSealer Jog On Restart	VAR	U16	RW	Number of cycle the valves will switch to Jogg mode after a restart	0	0	25
	11	Valve Orientation	VAR	U16	RW	Valve Orientation 0 = Top Down 1 = Bottom Up	0	0	1
	12	TipSealer T5	VAR	U16	RW	TipSealer Time 5 in [ms]	50	15	500
3101		Parameter Valve 1	RECORD			Valve 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	63		
	1	Delay 1	VAR	U16	RW	Distance from leading edge to start of glue line 1 in [1/10mm]	0	0	65535
	2	Length 1	VAR	U16	RW	Length of glue line 1 in [1/10mm]	0	0	65535
	3	Delay 2	VAR	U16	RW	…	0	0	65535
	4	Length 2	VAR	U16	RW	…	0	0	65535
	5	Delay 3	VAR	U16	RW	...	0	0	65535
	6	Length 3	VAR	U16	RW	...	0	0	65535
	7	Delay 4	VAR	U16	RW	...	0	0	65535
	8	Length 4	VAR	U16	RW	...	0	0	65535
	9	Delay 5	VAR	U16	RW	…	0	0	65535

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	A	Length 5	VAR	U16	RW	…	0	0	65535
	B	Delay 6	VAR	U16	RW	…	0	0	65535
	C	Length 6	VAR	U16	RW	…	0	0	65535
	D	Delay 7	VAR	U16	RW	Distance from leading edge to start of glue line 7 in [1/10mm]	0	0	65535
	E	Length 7	VAR	U16	RW	Length of glue line 7 in [1/10mm]	0	0	65535
	F	Alt. Scanner to Valve	VAR	U16	RW	Alternative Distance scanner to valve in [1/10mm]	0	0	65535
	10	Scanner to Valve	VAR	U16	RW	Distance scanner to valve in [1/10mm]	0	0	65535
	11	Scanner Lockout	VAR	U16	RW	Block out distances for multiple start signals in [1/10mm]	0	0	65535
	12	Repeat Factor	VAR	U16	RW	Repeat factor for glue pattern. The Patter will be repeated at the position of the last 'Delay' entry with 'Length' = 0	1	1	99
	13	Gluing Mode	VAR	U16	RW	0=Standard, 1=Continuous 2=Stitch Mode, 3=Jogging Mode,4=Auto Glue, 5=Auto+Jog, 6=Continous+Stitch	0	0	4
	14	Trigger Source	VAR	U16	RW	Assigned scanner in the range [1-MAX_SCANNER]	1	1	7
	15	Encoder	VAR	U16	RW	Assigned encoder in the range [1-MAX_ENCODER]	1	1	2
	16	Ton	VAR	U16	RW	On Compensation Time in steps off 0.1ms in the range [1-250] (40 = 4.0ms)	40	1	500
	17	Toff	VAR	U16	RW	Off Compensation Time in steps off 0.1ms in the range [1-250] (45 = 4.5ms)	45	1	500
	18	Tmin	VAR	U16	RW	Minimum activation Time in steps off 0.1ms in a range of [1-250] (15 = 1.5ms)	15	1	255
	19	Minimum Speed	VAR	U16	RW	Speed Threshold for gluing operation in [m/min]	20	1	2000
	1A	Correction Factor	VAR	U16	RW	Encoder correction factor in [%]	100	10	200
	1B	Jogging Speed	VAR	U16	RW	Threshold for Jogging Mode in [m/min]	50	1	300
	1C	Dot Length Jogging	VAR	U16	RW	Dot length jogging mode in steps of Tmin	1	1	9
	1D	Dot Gap Jogging	VAR	U16	RW	Dot gap in jogging mode in [1/10mm]	20	10	1000

DS-PCM4									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	1E	Stitch Gap	VAR	U16	RW	Stitch gap if stitch mode is activated in [1/10mm]	50	10	65535
	1F	Stitch Length	VAR	U16	RW	Stitch length if stitch mode is activated in [1/10mm]	50	10	65535
	20	Batch Counter	VAR	U16	RW	Enable / Disable the batch counter for a individual channel.	0	0	1
	21	Auto Glue Mode	VAR	U16	RW	0=Disabled, 1=Enabled	0	0	1
	22	Auto Glue Learn Status	VAR	U16	RW	0=Off, 1=Start, 2=In Process	0	0	2
	23	Number of Dimension	VAR	U16	RO	Additional Product Dimensions	10		
	24	Dimension 1	VAR	U16	RW	e.g. FS Mode: Flap Length MCP-4,PCM4: Delay of glue line 8	0	0	65535
	25	Dimension 2	VAR	U16	RW	e.g. FS Mode: Score To Score Dim. MCP-4,PCM4: Length of glue line 8	0	0	65535
	26	Dimension 3	VAR	U16	RW	e.g. FS Mode: Start Offset MCP-4,PCM4: Delay of glue line 9	0	0	65535
	27	Dimension 4	VAR	U16	RW	e.g. FS Mode: End Offset MCP-4,PCM4: Length of glue line 9	0	0	65535
	28	Dimension 5	VAR	U16	RW	e.g. FS Mode: Product Length MCP-4,PCM4: Delay of glue line 10	0	0	65535
	29	Dimension 6	VAR	U16	RW	e.g. FS Mode: Ext. Tab length Start MCP-4,PCM4: Length of glue line 10	0	0	65535
	2A	Dimension 7	VAR	U16	RW	e.g. FS Mode: Ext. Tab Length End	0	0	65535
	2B	Dimension 8	VAR	U16	RW		0	0	65535
	2C	Dimension 9	VAR	U16	RW		0	0	65535
	2D	Dimension 10	VAR	U16	RW		0	0	65535
	2E	Scanner Mode	VAR	U16	RW	0=Tab, 1=Leading Edge	0	0	1
	2F	Valve Type	VAR	U16	RW	See Valve Reference for details	0	0	10
	30	Batchcount Space	VAR	U16	RW	Batchcounter Space	1	1	999
	31	Batchcount Mark	VAR	U16	RW	Batchcounter Mark	1	1	999
	34	Valve Name	VAR	VSTR	RO		N/A		

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	35	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	36	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	37	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	0	0	950
	38	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	0	0	950
	39	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	0	0	950
	3A	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	3B	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	3C	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	460	2	700
	3D	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	2	250
	3E	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	3F	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
3102		Parameter Valve 2	RECORD			Valve 2			
3103		Parameter Valve 3	RECORD			Valve 3			
3104		Parameter Valve 4	RECORD			Valve 4			
3201		Parameter Transducer 1	RECORD			Transducer 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	26		
	1	Speed 1	VAR	U16	RW	Speed set point 1 in [m/min]	0	0	3000
	2	Pressure 1	VAR	U16	RW	Pressure set point 1 in [%]	20	0	100
	3	Speed 2	VAR	U16	RW	…	5	0	3000
	4	Pressure 2	VAR	U16	RW	…	10	0	100
	5	Speed 3	VAR	U16	RW	...	20	0	3000
	6	Pressure 3	VAR	U16	RW	...	15	0	100
	7	Speed 4	VAR	U16	RW	...	100	0	3000
	8	Pressure 4	VAR	U16	RW	...	80	0	100
	9	Speed 5	VAR	U16	RW	Speed set point 5 in [m/min]	250	0	3000

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	A	Pressure 5	VAR	U16	RW	Pressure set point 5 in [%]	100	0	100
	B	Linear Factor	VAR	U16	RW	Compensation factor for non linear amplifier	30	1	250
	F	Boost Mode	VAR	U16	RW	0=Off, 1=On	0	0	1
	10	Boost Timeout	VAR	U16	RW		1	1	255
	11	ResetCycle Count	VAR	U16	RW		1	1	255
	12	ResetCycle Scanner	VAR	U16	RW		1	1	5
	13	Boost Pressure	VAR	U16	RW		0	0	100
	15	Encoder	VAR	U16	RW	Encoder	1	1	2
	16	Offset	VAR	I16	RW	Offset Pressure	0	-100	100
	17	Output Mode	VAR	U16	RW	Output Mode 0=0-20mA, 1=0-10V	1	0	1
	18	Correction Factor	VAR	U16	RW	Pressure Correction Factor	100	10	200
	19	Status	VAR	U16	RW	0=Disabled, 1=Enabled	1	0	1
	1A	Purge Press. OnDemand	VAR	U16	RW	0=Disabled, 1=Enabled	0	0	1
3202		Parameter Transducer 2	RECORD			Transducer 2			
3301		Parameter Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	9		
	1	Direction Recognition	VAR	U8	RW		0	0	2
	2	Repeat Length	VAR	U16	RW	Distance the machine travels per encoder revolution in [1/10mm]	2540	1	32000
	3	Pulses per Revolution	VAR	U16	RW	Number of pulses per revolution	1000	1	32000
	5	Average Speed Mode	VAR	U16	RW	0=Direct, 1=Avg Calculation fore Transducer only, 2=Avg. Calculation for Valves and Transducer	0	0	2
	6	Average Counter	VAR	U16	RW	Number of average count	5	2	99
	7	Average Timeout	VAR	U16	RW	Timeout between calculations	60	10	1000
	8	Average Factor	VAR	U16	RW	Manipulation factor for Average result	100	2	250
	9	Prescale Factor	VAR	U16	RW	Division Factor for Prerscaler	1	1	8
3302		Parameter Encoder 2	RECORD			Encoder 2			

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3500		Parameter Scanner Common	RECORD			Scanner Common			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	1		
	1	Scanner Link Output	VAR	U16	RW		1	0	7
3501		Parameter Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Debounce Filter Timeout	VAR	U16	RW		127	0	4000
	2	Minimum Product Length	VAR	U16	RW		0	0	2500
	3	Scanner Offset	VAR	U16	RW		0	0	2500
	4	Jam Distance	VAR	U16	RW		0	0	65535
	5	Jam Enable	VAR	U16	RW		0	0	1
	6	Invert Start Signal	VAR	U16	RW		0	0	1
3502		Parameter Scanner 2	RECORD			Scanner 2			
3503		Parameter Scanner 3	RECORD			Scanner 3			
3504		Parameter Scanner 4	RECORD			Scanner 4			
3505		Parameter Scanner 5	RECORD			Scanner 5			
3801		Common Setup data	RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	70		
	2	Unit of Measure	VAR	U16	RW	0=Metric, 1=Imperial, 2=Timer (ms), 3=Timer (s)	0	0	3
	3	Date/Time Format	VAR	U16	RW	0=Europe, 1=USA	0	0	1
	4	Jam Alarm - Mode	VAR	U16	RW	0=Wait for Machine to stop before M-Stop is released 1=Timer activated M-Stop	1	0	1
	5	Jam Alarm - Output 1	VAR	U16	RW	0 = No Output 1 = Glue Fault Light (Blue) 2 = Jam Fault Light (Red) 3 = Buzzer 4 = Low Level Light (Amber) 5 = Relay 1 6 = Relay 2	5	0	6

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	6	Jam Alarm - Output 2	VAR	U16	RW	See Alarm Reference for details	2	0	6
	7	Jam Alarm - Reset Timeout	VAR	U16	RW		1	1	10
	8	Jam Alarm - Re-arm Speed	VAR	U16	RW		1	1	1000
	9	Jam Alarm - Machine Stop Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	A	Jam Alarm - Light Enable	VAR	U16	RW	0=Off, 1=On	1	0	1
	12	Timer Mode	VAR	U16	RW	0=Off, 1=On	0	0	1
	13	Update Time Transducer	VAR	U16	RW	Refresh time for Transducer Outputs	15	15	120
	36	CAN NodeID	VAR	U16	RW	Valid after the next reset	81	1	127
	37	CAN Baudrate	VAR	U16	RW	Valid after the next reset	500	10	1000
	3C	WebBreak Alarm - Mode	VAR	U16	RW	0=Disabled, 1=Enabled, 2=Enabled w/ Auto release	0	0	2
	46	CAN Messages Enabled	VAR	U16	RW	Valid after the next reset	0	0	2
3802		Time / Data [3]	RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	7		
	1	Second	VAR	U16	RW	In the range [0-59]	0	0	59
	2	Minute	VAR	U16	RW	In the range [0-59]	0	0	59
	3	Hour	VAR	U16	RW	In the range [0-23]	0	0	23
	4	Weekday	VAR	U16	RW	In the range [0-6]; 0=Sunday	0	0	6
	5	Day	VAR	U16	RW	In the range [1-31]	1	1	31
	6	Month	VAR	U16	RW	In the range [0-11]; 0=January	0	0	11
	7	Year	VAR	U16	RW	In the range [0-138]; 0=1900… 138=2038	105	104	138
3901		Status Valve 1	RECORD			Valve 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	1		
	1	Activation Counter	VAR	U32	RW	Total valve activations	0		
3902		Status Data Valve 2	RECORD			Valve 2			
3903		Status Data Valve 3	RECORD			Valve 3			

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3904		Status Data Valve 4	RECORD			Valve 4			
3A00		Number of Objects with Index 3Axx	VAR	U16	RO		2	0	2
3A01		Status Data Transducer 1	RECORD			Transducer 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	1		
	1	Current output pressure	VAR	U16	RO	Current output pressure in [%]	0	0	100
3A02		Status Data Transducer 2	RECORD			Transducer 2			
3B01		Status Data Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	3		
	1	Current Speed	VAR	U16	RO	Current encoder speed of the encoder in [m/min] based on the ration compensation	0	0	3000
	2	Products Per Hour Rate	VAR	U32	RO		0	0	
	3	Products Per Minute Rate	VAR	U16	RO		0	0	65535
3B02		Status Data Encoder 2	RECORD			Encoder 2			
3D01		Status Data Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	5		
	1	Activation Counter	VAR	U32	RW	Total scanner activations	0		
	2	Product Length [Pulses]	VAR	U32	RO	Number of pulses of last product	0		
	3	Product Length	VAR	U32	RO	Total scanner activations	0		
	4	Product Dist. [Pulses]	VAR	U32	RO	Number of Pulses between leading edges	0		
	5	Product Distance	VAR	U32	RO	Distance between leading edges	0		
3D02		Status Data Scanner 2	RECORD			Scanner 2			
3D03		Status Data Scanner 3	RECORD			Scanner 3			
3D04		Status Data Scanner 4	RECORD			Scanner 4			
3E00		Number of Objects with Index 3Exx	VAR	U16	RO		10		

DS-PCM4									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
3E01		Valve Type User	RECORD			USER			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for User Valve	User		
	2	Ton	VAR	U16	RW	On Compensation Time	10	0	500
	3	Toff	VAR	U16	RW	Off Compensation Time	10	0	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	15	0	250
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	20	4	250
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	250
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	50	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	2	950
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	80	2	950
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	2	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E02		Valve Type 400E	RECORD			400E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 400E	400E		
	2	Ton	VAR	U16	RW	On Compensation Time	29	2	250
	3	Toff	VAR	U16	RW	Off Compensation Time	37	2	250

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	4	Tmin	VAR	U16	RW	Minimum activation Time	15	6	250
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	25	5	25
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	50
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	300	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	180	180	260
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	100	4	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	180	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	15	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E03		Valve Type 300E	RECORD			300E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 300E	300E		
	2	Ton	VAR	U16	RW	On Compensation Time	23	1	250
	3	Toff	VAR	U16	RW	Off Compensation Time	30	1	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	9	5	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	8	5	250
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	50	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	460	120	700
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	60	2	120

DS-PCM4									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	2	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	45	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E04		Valve Type 9020	RECORD			9020			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 9020	9020		
	2	Ton	VAR	U16	RW	On Compensation Time	25	1	250
	3	Toff	VAR	U16	RW	Off Compensation Time	90	1	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	25	1	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	20	5	25
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	17	5	150
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	300	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	300
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	80	40	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	300
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E05		Valve Type 900E	RECORD			900E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 900E	900E		
	2	Ton	VAR	U16	RW	On Compensation Time	36	10	250
	3	Toff	VAR	U16	RW	Off Compensation Time	50	10	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	83	25	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	51	5	55
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	32	5	120
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	500	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	500	110	500
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	100	2	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	180	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	40	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E06		Valve Type MAC 12V	RECORD			MAC_12V			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for Mac 12V	MAC 12V		
	2	Ton	VAR	U16	RW	On Compensation Time	60	2	500
	3	Toff	VAR	U16	RW	Off Compensation Time	60	2	500

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	4	Tmin	VAR	U16	RW	Minimum activation Time	9	1	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	500	350	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	100	200
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	100	80	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	100	200
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E07		Valve Type MAC 24V	RECORD			MAC_24V			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for Mac 24V	MAC 24V		
	2	Ton	VAR	U16	RW	On Compensation Time	60	2	500
	3	Toff	VAR	U16	RW	Off Compensation Time	60	2	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	30	5	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	30	5	150
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	700	350	850

DS-PCM4									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	350
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	200	150	240
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	350
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	30	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E08		Valve Type MX	RECORD			MX			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for MX Valve	MX		
	2	Ton	VAR	U16	RW	On Compensation Time	21	15	250
	3	Toff	VAR	U16	RW	Off Compensation Time	18	15	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	12	10	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	14	10	20
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	7	5	20
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	800	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	680	480	720
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	180	120	240
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	680	480	800
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	7	5	250

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E09		Valve Type 540E	RECORD			540E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 540E Valve	540E		
	2	Ton	VAR	U16	RW	On Compensation Time	35	1	250
	3	Toff	VAR	U16	RW	Off Compensation Time	55	1	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	19	1	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	15	8	20
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	20
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	600	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	400	300	600
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	60	40	80
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	300	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	20
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700

DS-PCM4									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3E0A		Valve Type 524E	RECORD			524E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 524E Valve	524E		
	2	Ton	VAR	U16	RW	On Compensation Time	25	1	250
	3	Toff	VAR	U16	RW	Off Compensation Time	25	1	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	11	1	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	11	8	17
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	20
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	800	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	400	400	650
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	60	40	70
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	300	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	255
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3000		Software Version	VAR	VSTR	RO	Complete software version and copyright information	© VALCO Cincinnati, Inc.		
3001		Device Configuration	RECORD						Generate Device Specific Source/Header Files
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Sensor inputs	VAR	U16	RO	Number of monitoring sensors per device in the range of [0-32]	0	0	0
	2	Transducer Outputs	VAR	U16	RW	Number of transducer outputs per device in the range [1-8]	0	0	0
	3	Job Storage	VAR	U16	RO	Number of jobs that can be stored in the job memory of the device	1	1	1
	4	Scanner Inputs	VAR	U16	RW	Number of scanner inputs per device in the range [1-6]	3	1	3
	5	Valve Outputs	VAR	U16	RW	Number of valve outputs per device in the range [1-32]	0	0	0
	6	Encoder Inputs	VAR	U16	RO	Number of encoder inputs per device in the range [1-8]	2	1	2
3002		Operation Status	VAR	U32	RWW	Operation status channel; Size = 32 bits; 0 = Off, 1 = On; Bit0 = Channel1, Bit31 = Channel32	0		3002
3003		Error Status	VAR	U32	RO	Error Status channel; Size = 32 bits; 0 = Disabled or Error, 1 = Enabled; Bit0 = Channel1, Bit31 = Channel32	255		3003
3004		Update Status 1	VAR	U32	RWR	Update status 1; Size = 32 bits; 0 =No Change, 1 =Changed; For Bit definitions see page ' Definitions'	0		3004
3005		Update Status 2	VAR	U32	RWR	Update status 2; Size = 32 bits; 0 =No Change, 1 =Changed; Reserved for future use	0		3005
3006		Valve Output Status	VAR	U32	RO	Size = 32 bits; 0 = Off, 1 = On, Bit0 = Valve1, Bit31 = Valve32	0		3006
3007		Scanner Input Status	VAR	U32	RO	Size = 32 bits; 0 = Not Active, 1 = Active, Bit0 = Scanner1, Bit31 = Scanner32	0		3007
300C		Valve Purge Status	VAR	U32	RW	Size = 32 bits; 0 = Normal, 1 = Purge, Bit0 = Valve1, Bit31 = Valve32	0		300C
300D		Aux. Output Status	VAR	U16	RW	Size = 16 bits; 0 = Off 1 = On, Bit0 = Output1, Bit15 = Output16	0		300D

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
300E		Status/Code for Last Message	VAR	U32	RWR	Size = 4 Bytes; Bytes 0-1 = Error/Message, Byte2 = Error Code, Byte3 = ErrorStatus	0	0	
300F		Add. Info for Last Message	VAR	U32	RO	Size = 4 Bytes; Bytes 0-3 = Additional Information for last Error/Message	0	0	
3300		Parameter Encoder Common	RECORD			Encoder Common			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	3		
	1	Inspection Encoder Input	VAR	U16	RW	Inspection Encoder Selection	1	1	2
	2	Tracking Encoder Input	VAR	U16	RW	Tracking Encoder Selection	1	1	2
	3	Inspection/Tracking Ratio	VAR	U16	RW	Percentage of speed encoders can vary before an error occurs	50	1	100
3301		Parameter Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	9		
	1	Direction Recognition	VAR	U8	RW		0	0	2
	2	Repeat Length	VAR	U16	RW	Distance the machine travels per encoder revolution in [1/10mm]	2540	1	32000
	3	Pulses per Revolution	VAR	U16	RW	Number of pulses per revolution	1000	1	32000
	5	Average Speed Mode	VAR	U16	RW	0=Direct, 1=Avg Calculation fore Transducer only, 2=Avg. Calculation for Valves and Transducer	0	0	2
	6	Average Counter	VAR	U16	RW	Number of average count	5	2	99
	7	Average Timeout	VAR	U16	RW	Timeout between calculations	60	10	1000
	8	Average Factor	VAR	U16	RW	Manipulation factor for Average result	100	2	250
	9	Prescale Factor	VAR	U16	RW	Division Factor for Prerscaler	1	1	8
3302		Parameter Encoder 2	RECORD			Encoder 2			
3400			RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	154		
	4	Counter Job Total	VAR	U32	RW		0		
	5	Counter Job Error	VAR	U32	RW		0		
	6	Counter Job Scrap	VAR	U32	RW		0		

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	7	Consecutive Fault Alarm - Mode	VAR	U16	RW	5 = Latched Output 6 = Latched Output, Vmin dependent 7 = Momentary Output, Vmin dep. 8 = Momentatry Output	7	5	8
	8	Consecutive Fault Alarm - Output 1	VAR	U16	RW	0 = No Output 1 = Relay 1 2 = Relay 2 3 = Buzzer	2	0	3
	A	Number of Consecutive Faults	VAR	U16	RW		5	1	100
	B	Consecutive Fault Alarm - Activation Time	VAR	U16	RW	Only used in Mode 2, 7 and 8	20	0	255
	11	Alarm Light - Mode	VAR	U16	RW	1 = Latched Output (until next good) 2 = Latched Output, Vmin dependent 3 = Momentary Output, Vmin dep. 4 = Momentatry Output	1	1	4
	13	Alarm 3 - Output 2	VAR	U16	RW	See Alarm Reference for details	0	0	9
	14	Alarm Light - Maximum Time	VAR	U16	RW	Used in Mode 3+4 only	20	0	255
	15	Alarm Light - Minimum Time	VAR	U16	RW	Used in Mode 3+4 only	10	0	255
	16	Alarm Buzzer - Mode	VAR	U16	RW	1 = Latched Output (until next good) 2 = Latched Output, Vmin dependent 3 = Momentary Output, Vmin dep. 4 = Momentatry Output	4	1	4
	18	Alarm 4 - Output 2	VAR	U16	RW	See Alarm Reference for details	0	0	9
	19	Alarm Buzzer - Maximum Time	VAR	U16	RW	Used in Mode 3+4 only	20	0	255
	1A	Alarm Buzzer - Minimum Time	VAR	U16	RW	Used in Mode 3+4 only	10	0	255
	1C	Markingvalve - Ton	VAR	U16	RW	Valve -On- Compensation Time	45	0	255
	1D	Markingvalve - Toff	VAR	U16	RW	Valve -Off- Compensation Time	45	0	255
	1E	Markingvalve - Tmin	VAR	U16	RW	Valve Minimum Activation Time	15	0	255
	1F	Markingvalve - Type	VAR	U16	RW	See Valve Type Reference for details	0	0	49
	20	Markingvalve - Vmin	VAR	U16	RW	Minimum Speed	0	0	3000
	27	Markingvalve - Delay	VAR	U16	RW		0	0	65535
	29	Markingvalve - Length	VAR	U16	RW		0	0	65535
	50	Ejector (Top) - Ton	VAR	U16	RW	Upper Ejector Valve - On- Compensation Time	120	0	500

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	51	Ejector (Bottom) - Ton	VAR	U16	RW	Lower Ejector Valve - On- Compensation Time	120	0	500
	52	Ejector (Top) - Toff	VAR	U16	RW	Upper Ejector Valve - Off- Compensation Time	120	0	500
	53	Ejector (Bottom) - Toff	VAR	U16	RW	Lower Ejector Valve - Off- Compensation Time	120	0	500
	54	Ejector (Top) - Tmin	VAR	U16	RW	Upper Ejector Valve Minimum Activation Time	50	0	120
	55	Ejector (Bottom) - Tmin	VAR	U16	RW	Lower Ejector Valve Minimum Activation Time	50	0	120
	5D	Distance Counter Scanner -Ejector	VAR	U16	RW	Distance between Counter Scanner and Ejector ejector	2500		
	5F	Mark.valve / Ejector - Setup Mode	VAR	U16	RW	0 = Disabled 1 = All products are marked / ejected. 2 = No products are marked / ejected. 3 = Only Bad products are marked/ ejected . All alarm functions are disabled in Mode 1-3.	0	0	3
	60	Mark.valve / Ejector - Setup Output	VAR	U16	RW	This output is active when the control is in the setup mode. 0 = No Output 1 = Glue Fault Light (Blue) 2 = Jam Fault Light (Red) 3 = Buzzer 4 = Low Level Light (Amber) 5 = Relay 1 6 = Relay 2	0	0	6
	61	Verification Scanner 2 Mode	VAR	U16	RW	0=Disabled, 1=Enabled	0	0	1
	62	Verification Scanner 3 Mode	VAR	U16	RW	0=Disabled, 1=Enabled	0	0	1
	63	Counter Status	VAR	U16	RW	0=Counting, 1=Reset	0	0	1
	6F	Switch TCM Consecutive Faults Alarm	VAR	U16	RW	0=Off, 1=On	0	0	1
	71	Tracking Module Type	VAR	U16	RO	UNKNOWN = 0, EJECTOR = 1, FLIPPER = 2, X49 = 3, SPRAYER = 4, LNR EJECTOR = 5, DIANAPRO = 6	0	0	7
	72	Distance Counter Scanner - Verification Scanner 2	VAR	U16	RW	Distance between Counter Scanner and Verification Scanner 2	3000		
	73	Distance Counter Scanner - Verification Scanner 3	VAR	U16	RW	Distance between Counter Scanner and Verification Scanner 3	3000		

DS-TCMx									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	74	Offset Flipper Diverter	VAR	U16	RW	Distance Counter Scanner - Flipper Diverter	0		
	75	Product Length @ Scanner 1	VAR	U16	RW	Product Length at Scanner 1	0		
	76	Product Gap @ Scanner 1	VAR	U16	RW	Product Gap at Scanner 1	0		
	77	Jam - Mode Inspection	VAR	U16	RW	0=Off, 1=On - Alarm has to be confirmed, 2=On - Alarm releases automatically	3	0	8
	78	Jam - Output 1 Inspection	VAR	U16	RW	See Alarm Reference for details	1	0	9
	79	Jam - Output 2 Inspection	VAR	U16	RW	See Alarm Reference for details	0	0	9
	7A	Tracking Shift Ratio	VAR	U16	RW	Percentage of learned box length at light gate 1 that tracking window is shifted forward.	50	1	250
	7B	Ejector Control Interface Enabled	VAR	U16	RW	Enables/Disables Ejector Control Interface	1	0	1
	7C	Ejector Low Line Speed	VAR	U16	RW	Lower Line Speed Thereshold	250	1	3000
	7D	Ejector Low Motor RPM	VAR	U16	RW	RPM <= Low Line Speed	100	10	100
	7E	Ejector High Line Speed	VAR	U16	RW	Lower Line Speed Thereshold	500	1	3000
	7F	Ejector High Motor RPM	VAR	U16	RW	RPM >= High Line Speed	100	25	100
	80	Ejection Delay Ratio	VAR	U16	RW	Percentage of learned box length at light gate 1 that determines the delay for ejection.	10	1	100
	81	Ejection Length Ratio	VAR	U16	RW	Percentage of learned box length at light gate 1 that determines the length for ejection.	90	1	100
	83	Sprayer/Kicker Counter Output Mode	VAR	U16	RW	0=All boxes counted, 1=Only good boxes counted.	0	0	1
	84	Invert Counter Output	VAR	BOOL	RW	Inverts Counter Output signal.	0	0	1
	85	TCM Learn Status	VAR	U16	RW	0=No Learn, 10=MakeLearn, 12=MakeLearnGut, 13=MakeLearnErr	0	0	255
	86	Product Length @ Scanner 2	VAR	U16	RW	Product Length at Scanner 2	0		
	87	Fault Suppression Mode	VAR	U16	RW	0 = Disabled (No faults suppressed), 1 = Tracking fault popups msg supp, 2 = Tracking faults suppressed.	0	0	2

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	8B	Ejector Malfunction Output 1	VAR	U16	RW	This output is active when the control is in the MANUAL mode. 0 = No Output 1 = Glue Fault Light (Blue) 2 = Jam Fault Light (Red) 3 = Buzzer 4 = Low Level Light (Amber) 5 = Relay 1 6 = Relay 2	0	0	6
	8C	Ejector Malfunction Output 2	VAR	U16	RW	This output is active when the control is in the MANUAL mode. 0 = No Output 1 = Glue Fault Light (Blue) 2 = Jam Fault Light (Red) 3 = Buzzer 4 = Low Level Light (Amber) 5 = Relay 1 6 = Relay 2	0	0	6
	8D	Counter Ejection Control	VAR	U32	RW		0		
	8E	Double Ejection Ratio	VAR	U16	RW		150	110	200
	8F	Batchcounter - Ton	VAR	U16	RW	Valve -On- Compensation Time	45	0	255
	90	Batchcounter - Toff	VAR	U16	RW	Valve -Off- Compensation Time	45	0	255
	91	Batchcounter - Tmin	VAR	U16	RW	Valve Minimum Activation Time	15	0	255
	92	Batchcounter - Delay	VAR	U16	RW		0	0	65535
	93	Batchcounter - Length	VAR	U16	RW		0	0	65535
	94	Batchcounter - Distance to Counter Scanner	VAR	U16	RW		0	0	65535
	95	Batchcounter - Count	VAR	U16	RW		0	0	1000
	96	Batchcounter - Reset	VAR	U16	RW		0	0	1
	97	Batchcounter - Current Count	VAR	U16	RO		0	0	1000
	98	Flipper Inactive Timeout	VAR	U16	RW	0=Flipper Timeout feature Disabled, >0 Timeout in seconds	15	0	120
	99	Ejector Valve Type	VAR	U16	RW	0=Dual Electric Valve, 1=Single Pneumantic Valve.	0	0	1
	9A	Check 24V Driver Status	VAR	U16	RW	0=Disabled, 1=Enabled.	0	0	1

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3501		Parameter Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	6		
	1	Debounce Filter Timeout	VAR	U16	RW		127	0	4000
	2	Minimum Product Length	VAR	U16	RW		150	0	2500
	3	Scanner Offset	VAR	U16	RW		0	0	2500
	4	Jam Distance	VAR	U16	RW		0	0	65535
	5	Jam Enable	VAR	U16	RW		0	0	1
	6	Invert Start Signal	VAR	U16	RW		0	0	1
3502		Parameter Scanner 2	RECORD			Scanner 2			
3503		Parameter Scanner 3	RECORD			Scanner 3			
3802		Time / Data [3]	RECORD						
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	7		
	1	Second	VAR	U16	RW	In the range [0-59]	0	0	59
	2	Minute	VAR	U16	RW	In the range [0-59]	0	0	59
	3	Hour	VAR	U16	RW	In the range [0-23]	0	0	23
	4	Weekday	VAR	U16	RW	In the range [0-6]; 0=Sunday	0	0	6
	5	Day	VAR	U16	RW	In the range [1-31]	1	1	31
	6	Month	VAR	U16	RW	In the range [0-11]; 0=January	0	0	11
	7	Year	VAR	U16	RW	In the range [0-138]; 0=1900… 138=2038	105	104	138
3B01		Status Data Encoder 1	RECORD			Encoder 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	3		
	1	Current Speed	VAR	U16	RO	Current encoder speed of the encoder in [m/min] based on the ration compensation	0	0	3000
	2	Products Per Hour Rate	VAR	U32	RO		0	0	
	3	Products Per Minute Rate	VAR	U16	RO		0	0	65535

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3D01		Status Data Scanner 1	RECORD			Scanner 1			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	5		
	1	Activation Counter	VAR	U32	RW	Total scanner activations	0		
	2	Product Length [Pulses]	VAR	U32	RO	Number of pulses of last product	0		
	3	Product Length	VAR	U32	RO	Total scanner activations	0		
	4	Product Dist. [Pulses]	VAR	U32	RO	Number of Pulses between leading edges	0		
	5	Product Distance	VAR	U32	RO	Distance between leading edges	0		
3D02		Status Data Scanner 2	RECORD			Scanner 2			
3D03		Status Data Scanner 3	RECORD			Scanner 3			
3E01		Valve Type User	RECORD			USER			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for User Valve	User		
	2	Ton	VAR	U16	RW	On Compensation Time	10	0	500
	3	Toff	VAR	U16	RW	Off Compensation Time	10	0	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	15	0	250
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	20	4	250
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	250
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	50	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	2	950
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	80	2	950
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	2	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250

DS-TCMx									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E02		Valve Type 400E	RECORD			400E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 400E	400E		
	2	Ton	VAR	U16	RW	On Compensation Time	29	2	250
	3	Toff	VAR	U16	RW	Off Compensation Time	37	2	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	15	6	250
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	25	5	25
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	50
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	300	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	180	180	260
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	100	4	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	180	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	15	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
3E03		Valve Type 300E	RECORD			300E			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for 300E	300E		
	2	Ton	VAR	U16	RW	On Compensation Time	23	1	250
	3	Toff	VAR	U16	RW	Off Compensation Time	30	1	250
	4	Tmin	VAR	U16	RW	Minimum activation Time	9	5	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	8	5	250
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	50	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	460	120	700
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	60	2	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	950	2	950
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	45	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	5	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E06		Valve Type MAC 12V	RECORD			MAC_12V			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for Mac 12V	MAC 12V		
	2	Ton	VAR	U16	RW	On Compensation Time	60	2	500
	3	Toff	VAR	U16	RW	Off Compensation Time	60	2	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	9	1	120

DS-TCMx									
Index (Hex)	Sub-Index (Hex)	Name	Object Type	Data Type	Access Type	Comment	Default	Min	Max
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	500	350	950
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	100	200
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	100	80	120
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	120	100	200
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	5	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700
3E07		Valve Type MAC 24V	RECORD			MAC_24V			
	0	Number of Entries	VAR	U8	RO	Largest supported Sub-index	19		
	1	Valve Name	VAR	VSTR	RO	Settings for Mac 24V	MAC 24V		
	2	Ton	VAR	U16	RW	On Compensation Time	60	2	500
	3	Toff	VAR	U16	RW	Off Compensation Time	60	2	500
	4	Tmin	VAR	U16	RW	Minimum activation Time	30	5	120
	7	Acceleration Time	VAR	U16	RW	Only for controls with voltage dirver	10	5	150
	8	Spike Time	VAR	U16	RW	Only for controls with voltage dirver	30	5	150
	9	Acceleration Voltage	VAR	U16	RW	Only for controls with voltage dirver	700	350	850
	A	Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	350
	B	Hold Voltage	VAR	U16	RW	Only for controls with voltage dirver	200	150	240
	C	Boost Mode Enable	VAR	U16	RW	0=Off, 1=On	0	0	1

DS-TCMx									
Index (Hex)	**Sub-Index (Hex)**	**Name**	**Object Type**	**Data Type**	**Access Type**	**Comment**	**Default**	**Min**	**Max**
	D	Low Voltage Correction	VAR	U16	RW	Only for controls with voltage dirver	100	100	999
	E	Boost Spike Voltage	VAR	U16	RW	Only for controls with voltage dirver	240	240	350
	F	Boost Spike Time	VAR	U16	RW	Only for controls with voltage dirver	30	5	250
	10	Boost Activations	VAR	U16	RW	Only for controls with voltage dirver	1	1	10
	11	Boost Timeout	VAR	U16	RW	Only for controls with voltage dirver	60	1	600
	12	Ideal Time	VAR	U16	RW	Only for controls with voltage dirver	0	0	250
	13	Preset Voltage	VAR	U16	RW	Only for controls with voltage dirver	40	20	700

Appendix B - Test and Diagnostic Monitor

System Requirements

The system requirements are as follows:

- PC / Laptop with Windows 98 / 95, Windows NT, Windows 2000 or Windows XP
- HyperTerminal
- Null Modem Cable

Hyperterminal Setup

To setup the hyperterminal, do the following:

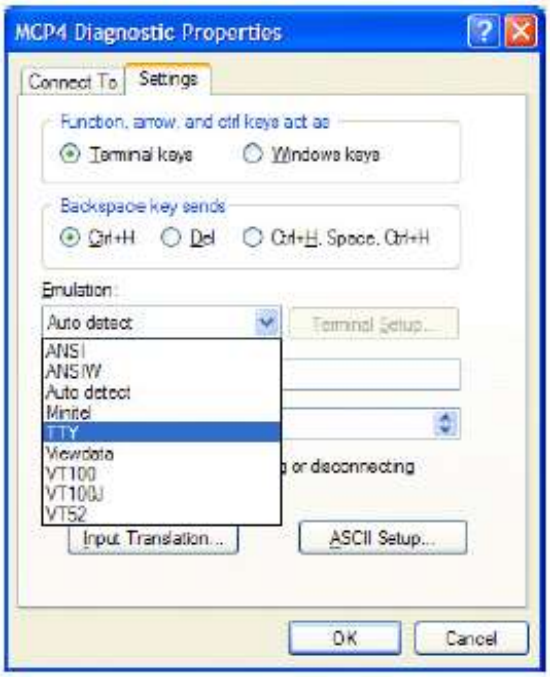
1. Open a terminal program on your PC (e.g. Hyperterminal,see Windows Accessories).

2. Select direct communication to a serial port (e.g. COM1).

Hyperterminal Setup - Continued

3. Use the setting 19200 baud, no parity, 8 data bits, 1 stop bit (19200,8,N1) with no handshaking.

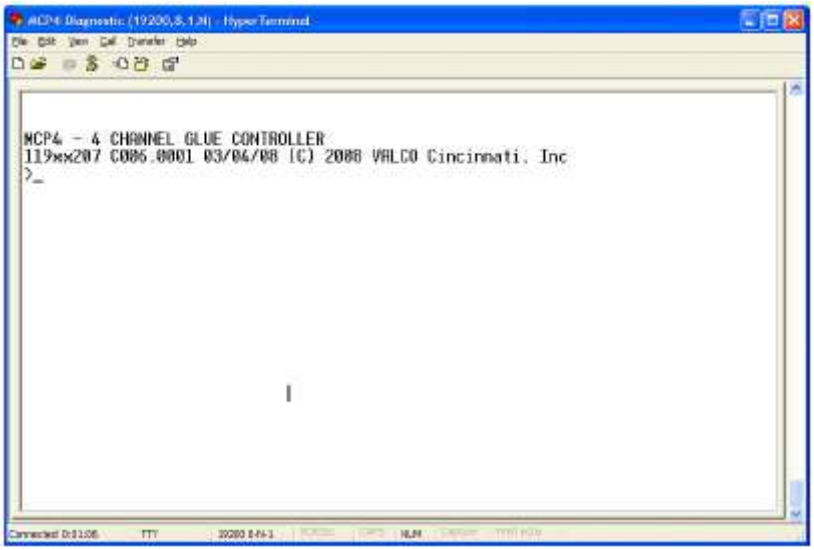
4. Set the Terminal emulation mode to TTY.



Monitor Functions

A few seconds after the unit is turned on a boot message appears showing the unit type and the version that is currently installed.

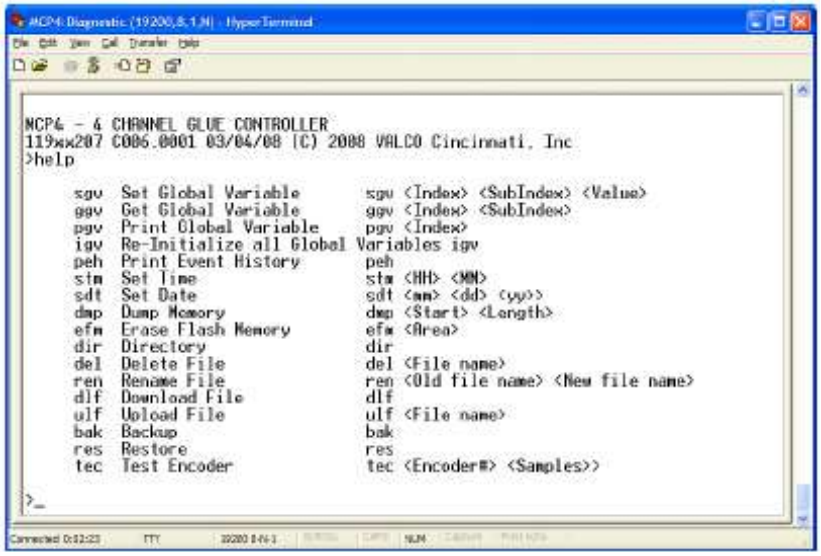
Boot Message



Help Function

Typing ‘help’ <ENTER> will list all available monitor commands:

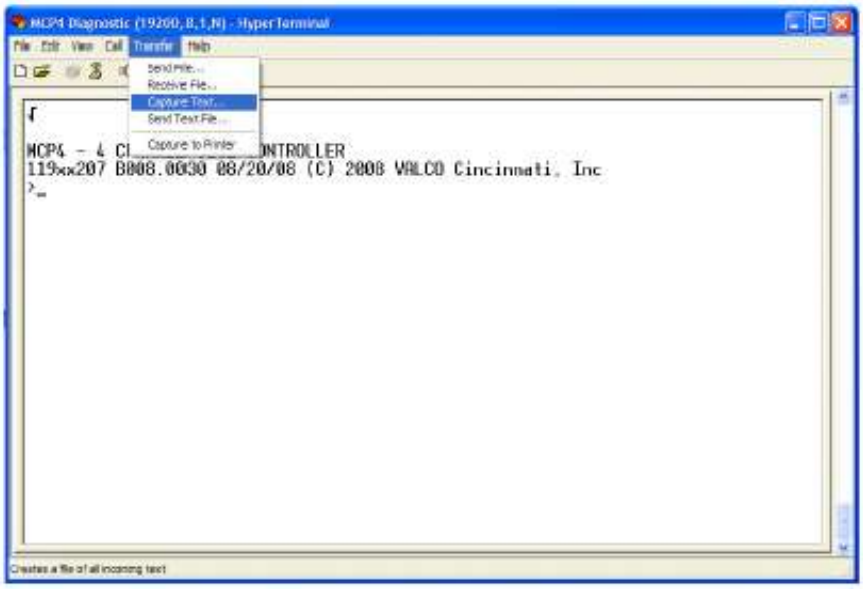
> See “Appendix C - Monitor Commands” for a full list of available monitor commands for all units.



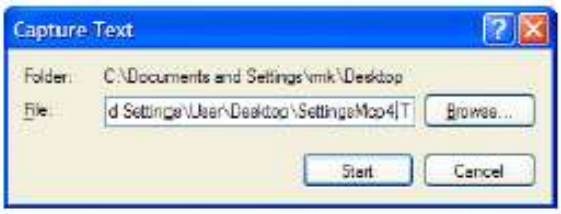
Print Parameter Function

To capture the control parameter in a text file, do the following:

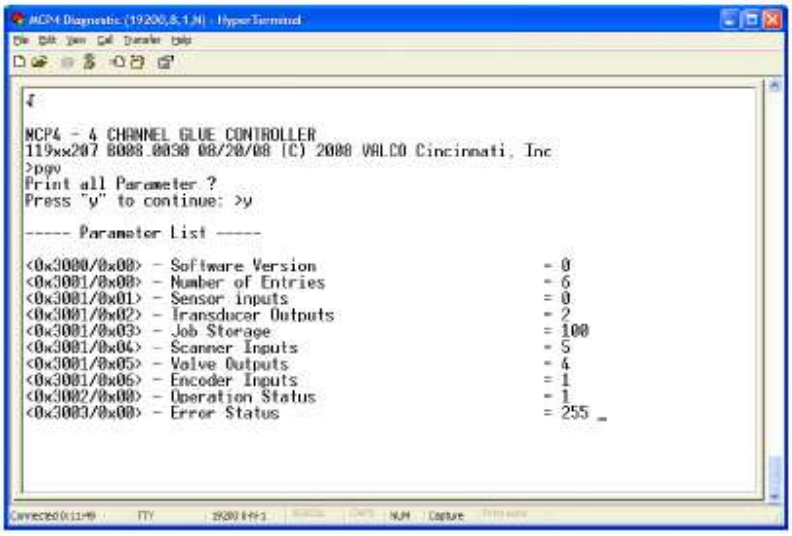
1. Activate the ‘Capture Text… ‘ tool in the ‘Transfer’ menu of the Hyperterminal:



2. When asked for a file name create a name that makes sense (SettingsMCP4.txt) and memorize the location where it is stored. (usually the ‘Desktop’ folder is a good location to find the file later.)



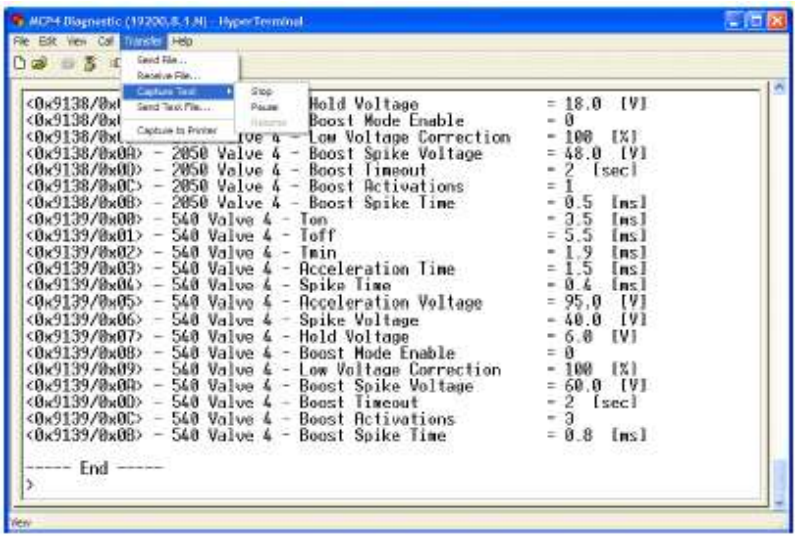
3. Press ‘Start’ in the ‘Capture Text’ dialog. Than type ‘pgv’<ENTER> and confirm the printing of all variables by typing ‘y’. After that the control will print all parameters.



Print Parameter Function - Continued

After all parameters are printed finish the download by selecting 'Transfer->Capture Text->Stop'.

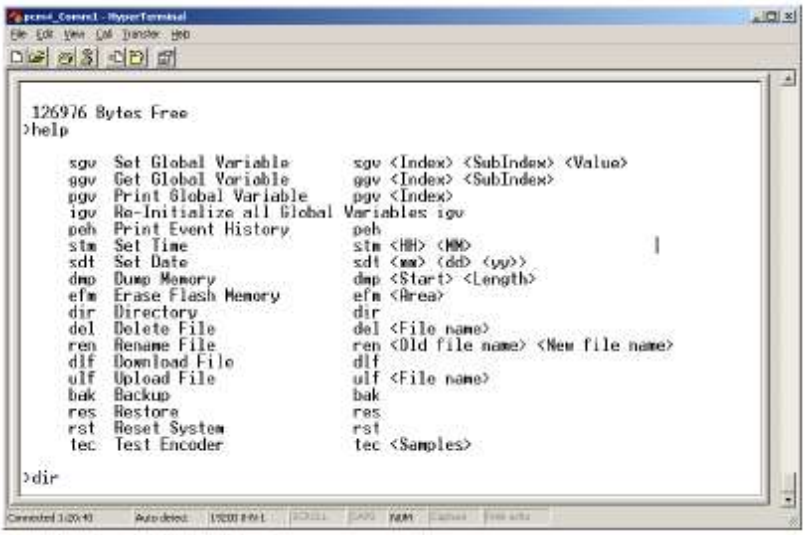
> The print function can be run even when the control is operating. However, since the serial output does not the highest priority, the data can have gaps. Therefore, the machine should be stopped if possible during a download.



Use the Disk Utilities for Unit Data Recovery

To use the Disk Utilities for unit data recovery, do the following:

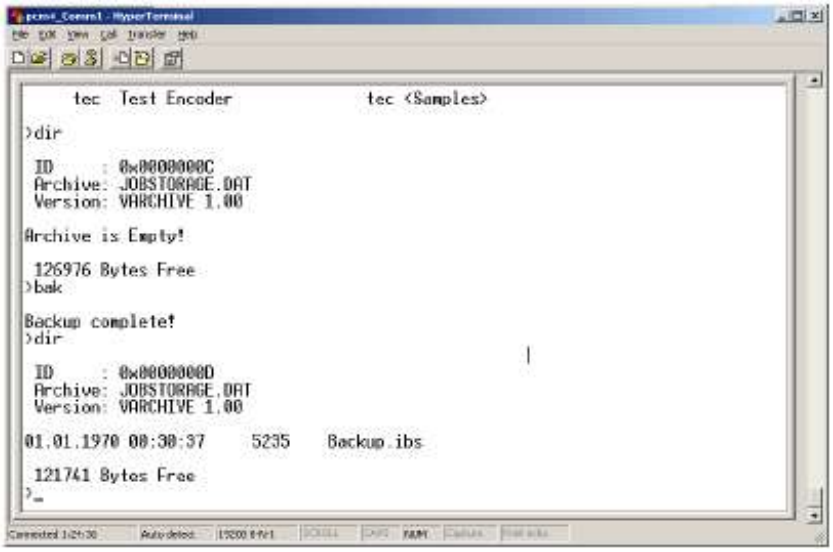
1. Using the 'help' function, bring up the following screen and type 'dir' as shown.



2. Press the 'enter' Key. See if there is anything stored in the file structure.

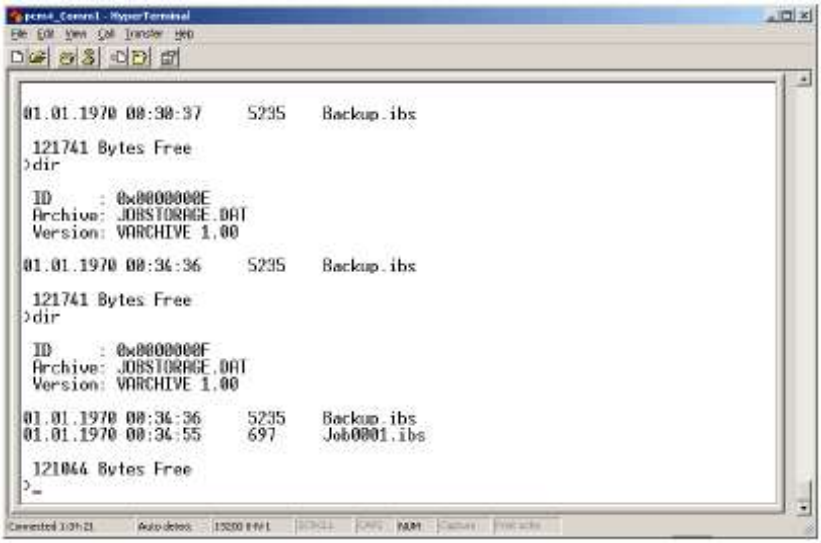
Use the Disk Utilities for Unit Data Recovery - Continued

3. Run ‘bak’ to create the current image of all setup data.
4. Run ‘dir’ to see the directory of the file structure.

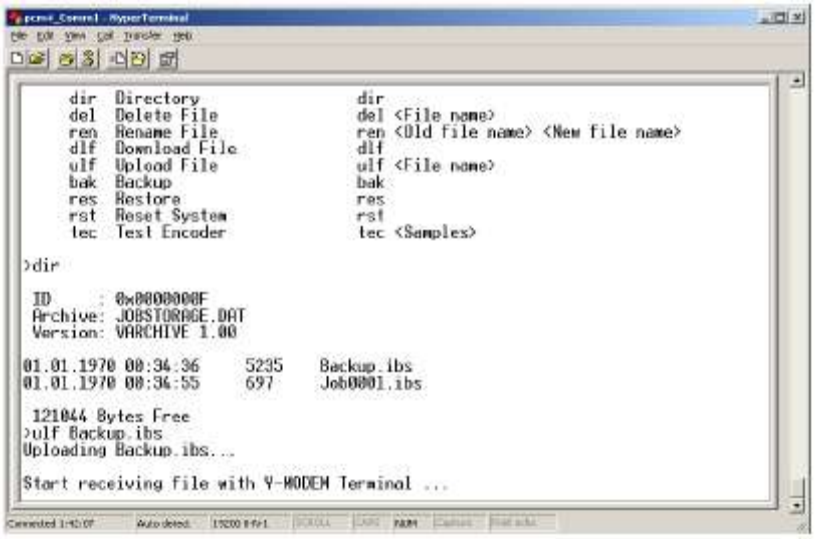


5. The ‘Backup.ibs’ has been created. Check for an open job number. Used job storage locations will be stored as ‘Job0001.ibs’ through ‘Job0099.ibs’. Select a job number that is NOT in the file list.
6. On the MCP-4, run a job storage for the number you selected. Then do another ‘dir’ to verify the files are there.

Use the Disk Utilities for Unit Data Recovery - Continued

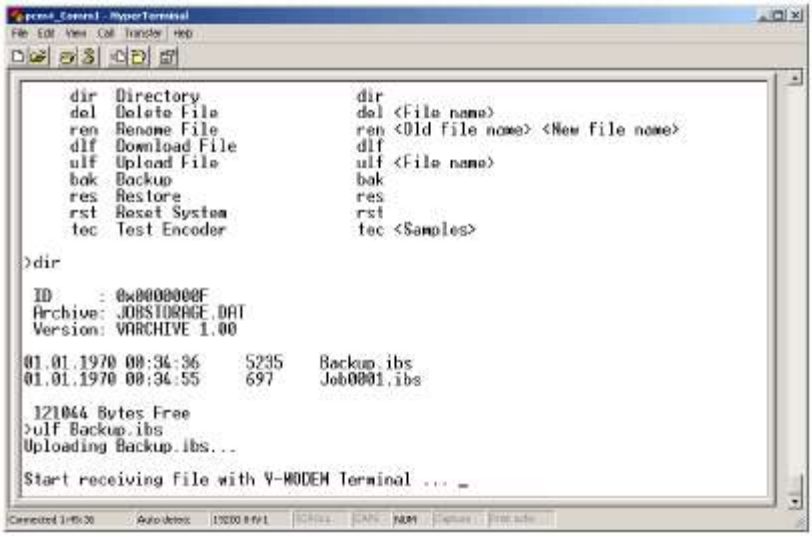


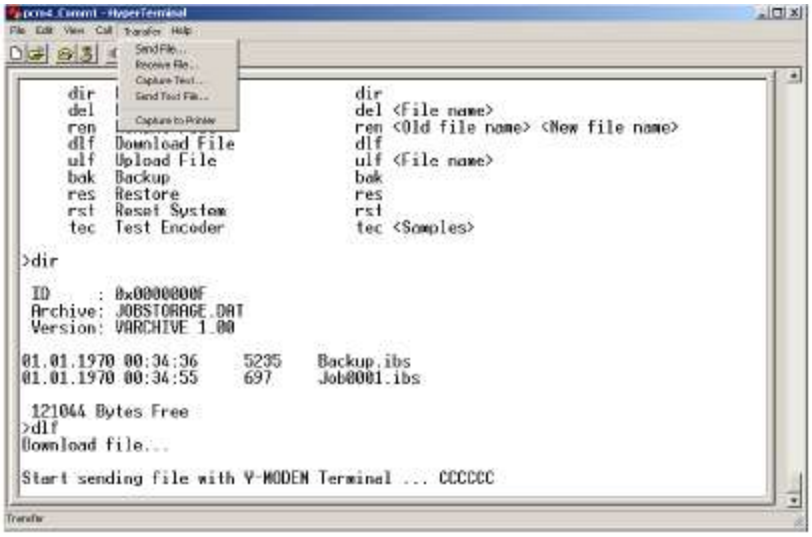
7. To copy the files to the PC, use the file upload feature ‘ulf <file name>’. The file name is case sensitive and must be typed exactly as seen in the file list.

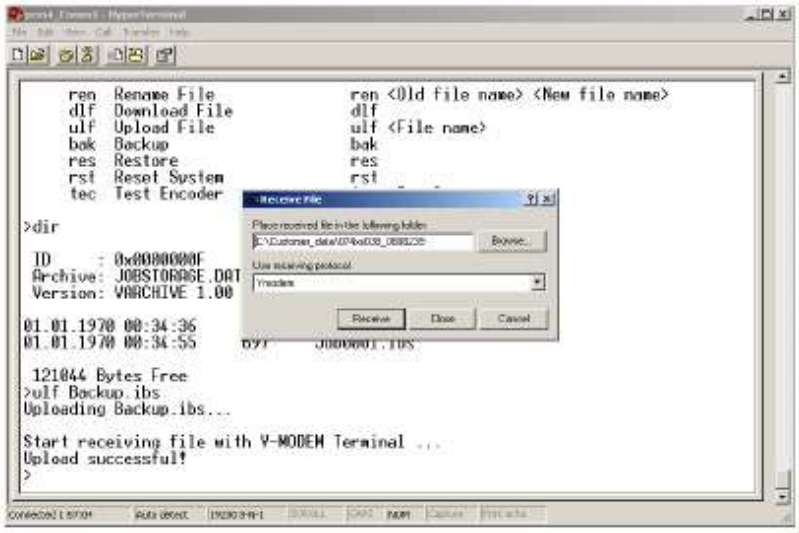


8. Select the ‘Transfer send’ option, Y-Modem and a storage location. Use C:\customer_data\<partnum>+<serialnum> as a storage location.
9. Use the Disk Utilities for Unit Data Recovery - Continued

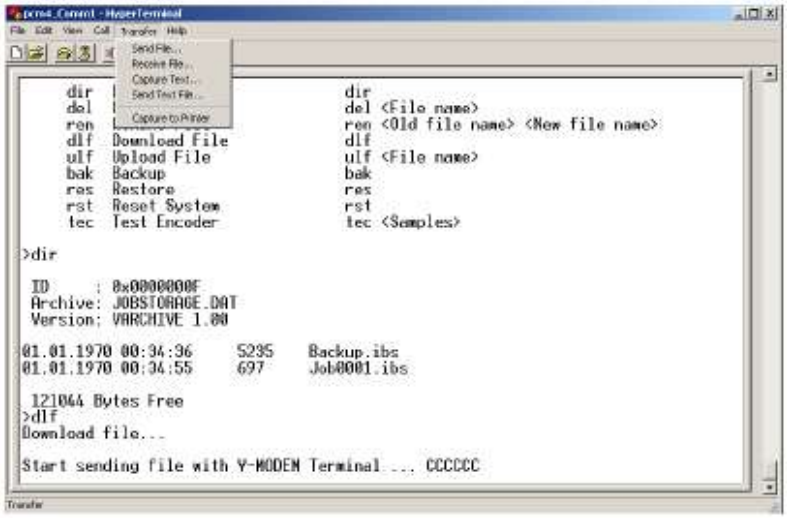
Use the Disk Utilities for Unit Data Recovery - Continued







Use the Disk Utilities for Unit Data Recovery - Continued *Step 9: Repeat until all '*.ibs' files have been copied to the PC.*



Use the VTerminal for Software Updates

System Requirements

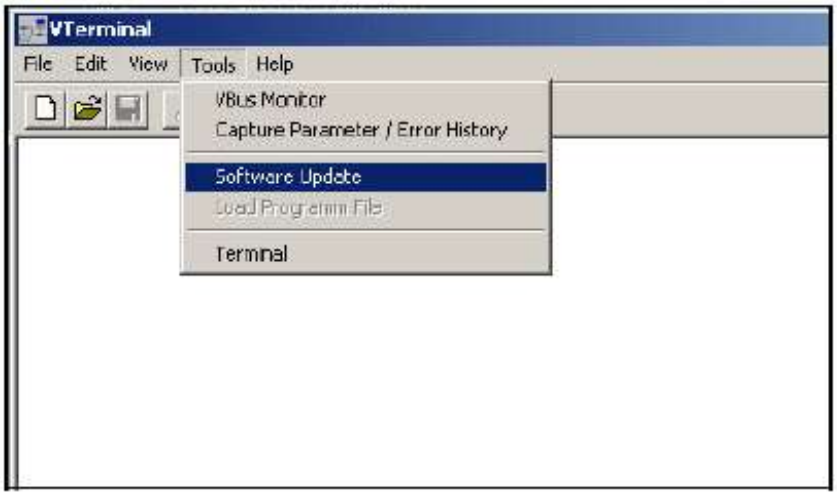
To use the VTerminal for software updates, the following is required:

- PC / Laptop with Windows 98 / 95, Windows NT, Windows 2000 or Windows XP
- VTerminal software
- Null Modem Cable

Start the Update Function and Initialize the CPU

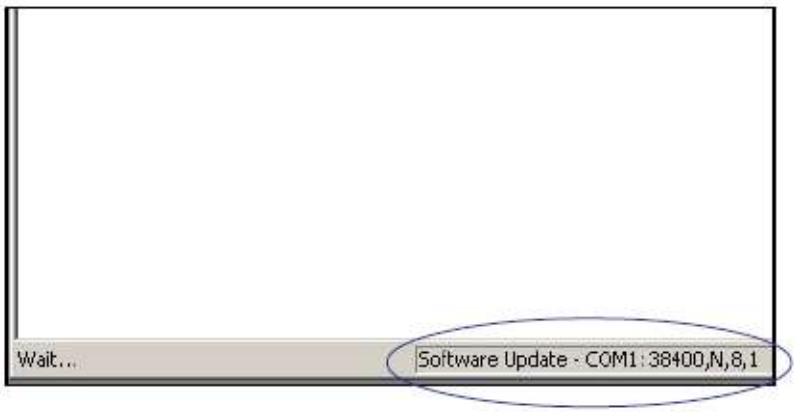
To use the VTerminal for software updates, do the following:

1. Switch off the unit. Connect the PC with the 'Null-Modem' cable to the diagnostic port of the unit.
2. Start VTerminal, select the menu 'Tools' and activate 'Software Update'.

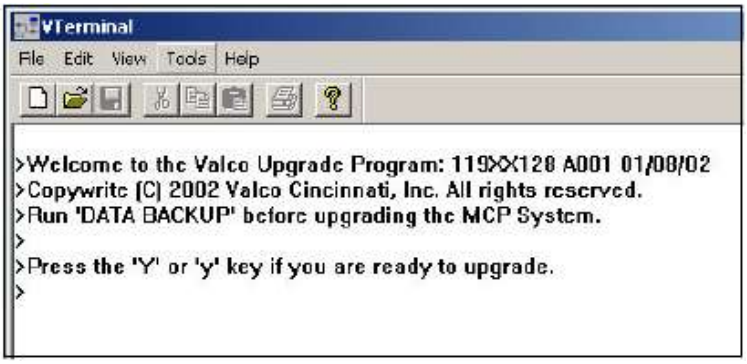


Start the Update Function and Initialize the CPU - Continued

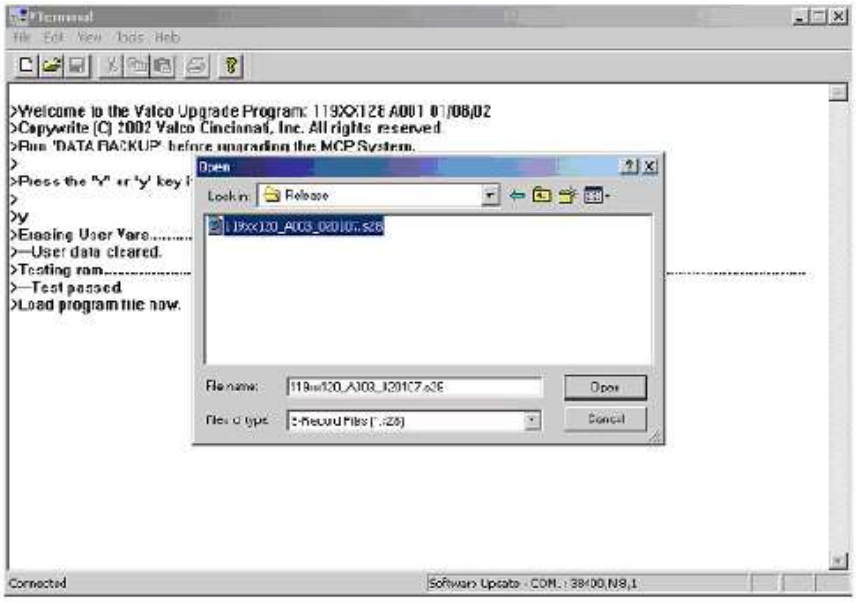
3. After the 'Software Update' function is selected the program will show the status of the connection:



4. Switch on the unit and the following message from the 'BootLoader' program will appear on the screen:



5. To confirm the update press the 'Y' key in the next 5 seconds. No key or a different key will terminate the update function.

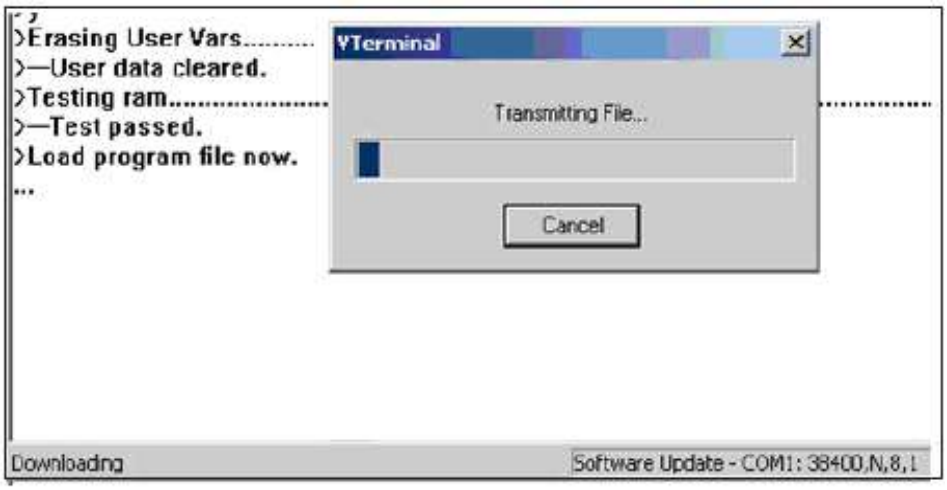


Download the new software and program the CPU

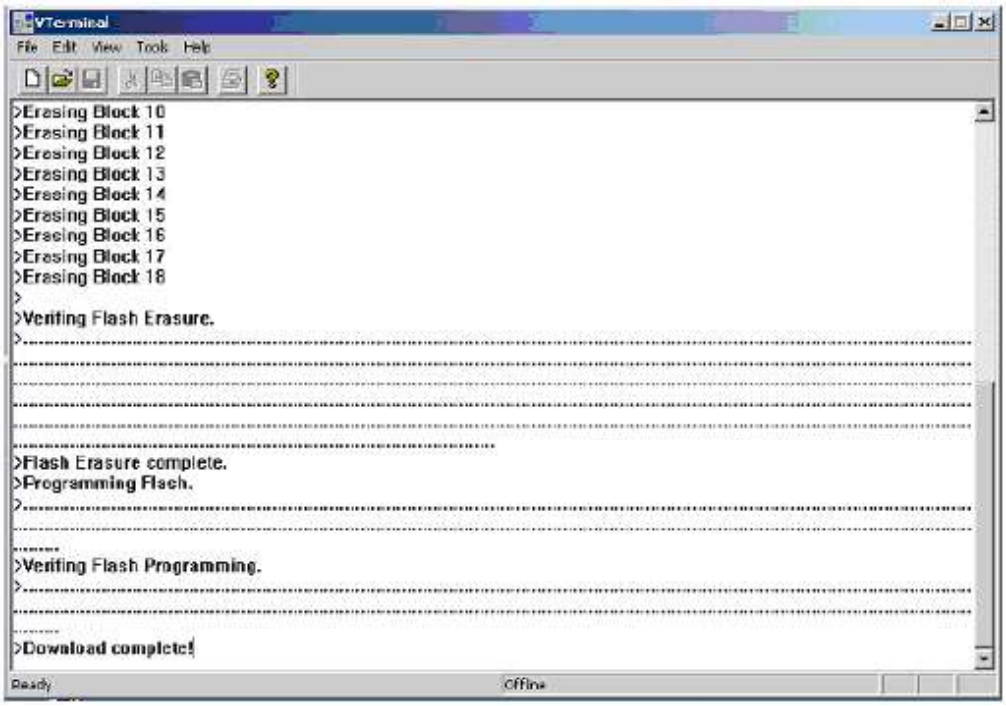
Select the file with the new program software. The file has to be in the 'Motorola-S Record' format and has to have the file extension 's28' Click 'Open' to start the download and the programming.

CAUTION!

The file download can take up to 7 minutes! If the download is canceled by clicking the 'Cancel' Button, or the transmission is corrupted, the whole procedure has to be started again!



If the download is complete the program will automatically start the programming cycle. The following Messages will show up on the screen if the programming was successful:



Appendix C - Monitor Commands

Tracking Control Module Monitor Commands

```
TCMX - TRACKING CONTROL MODULE
119xx___ B002.0004 10/08/09 (C) 2009 VALCO Cincinnati, Inc
Date: 01/07/2010 Time: 11:45:21
>help

sgv   Set Global Variable                 sgv <Index> <SubIndex> <Value> [<EchoOff>]
ggv   Get Global Variable                 ggv <Index> <SubIndex> [<DataOnly>]
pgv   Print Global Variable               pgv <Index>
pcf   Print Configuration                 pcf
igv   Re-Initialize all Global Variables  igv
peh   Print Event History                 peh
stm   Set Time                            stm <HH> <MM>
sdt   Set Date                            sdt <mm> <dd> <yy>>
dmp   Dump Memory                         dmp <Start> <Length>
efm   Erase Flash Memory                  efm <Area>
dir    Directory                          dir
del   Delete File                        del <File name>
ren   Rename File                        ren <Old file name> <New file name>
dlf   Download File                      dlf
ulf   Upload File                        ulf <File name>
bak    Backup                            bak
res   Restore                            res
rst   Reset System                       rst
tec   Test Encoder                       tec <Samples>
ptc   Print Total Counters               ptc
rtc   Reset Total Counters               rtc
```