Service Manual for MCP-25/MS and FS Controls

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Section 1—Introduction

About this Manual

Valco Cincinnati has prepared this manual as an aid for installing, operating, and servicing the MCP-25/MS and MCP-25/FS controls.

Section 2—Safety Information

General Information

It is the purchaser's responsibility to ensure that all local, county, state, and national codes, regulations, rules, and laws relating to safety and safe operating conditions are met and followed.

The best safeguard is trained personnel. The purchaser is responsible for providing personnel who are adequately trained to install, operate, and maintain Valco components and systems.

This section contains information that is essential to the safety of personnel. Safety information is included throughout the rest of the manual as well. The following safety conventions are used to indicate potential safety hazards:

WARNING! This symbol indicates the presence of un-insulated dangerous voltage within the product's enclosure. This voltage may cause electrical shock or fire. FAILURE TO OBSERVE WARNING MAY RESULT IN DEATH, PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE.

WARNING! This convention is used to alert the user to important installation, operation, and/or maintenance information. FAILURE TO OBSERVE WARNING MAY RESULT IN DEATH, PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE.

CAUTION! This convention is used to alert the user to important installation, operation, and/or maintenance information. FAILURE TO OBSERVE CAUTION MAY CAUSE EQUIPMENT DAMAGE.

Warnings

All personnel involved with the installation, operation, and maintenance of the equipment must read and thoroughly understand the following warnings:

WARNING! Disconnect all power before opening the control. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR. Only qualified personnel should open and service the control.

WARNING! Promptly repair or replace all worn or damaged electrical wiring and equipment wires. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Properly route all electrical wires. OTHERWISE, DEATH, PERSONAL INJURY, OR DAMAGE TO THE MOVING PARTS OF THE MACHINE MAY OCCUR.

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

WARNING! Promptly repair or replace all worn or damaged parts. OTHERWISE, PERSONAL INJURY OR EQUIPMENT DAMAGE COULD OCCUR.

WARNING! Always wear insulated gloves and proper eye protection when working around hot-melt equipment. A protective screen around the face is also recommended. OTHERWISE, DEATH OR PERSONAL INJURY COULD OCCUR.

WARNING! Purge the fluid pressure from the system before disconnecting any part of the system. 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! The hot-melt unit should be installed so that it can be turned off at a location away from the hot-melt unit. OTHERWISE, DEATH, PERSONAL INJURY, OR EQUIPMENT DAMAGE COULD OCCUR.

Cautions

All personnel involved with the installation, operation, and maintenance of the equipment must read and thoroughly understand the following cautions:

CAUTION! Never hose or steam-clean the unit. If the surrounding area is cleaned in this manner, protect the unit by covering it with plastic or other waterproof material. OTHERWISE, DAMAGE TO EQUIPMENT COULD OCCUR.

CAUTION! Do not bend hot-melt hoses less than an 18-inch (460 mm) radius. OTHERWISE, EQUIPMENT DAMAGE COULD OCCUR.

CAUTION! Place Material Safety Data Sheets for the adhesive near the unit. OTHERWISE, DAMAGE TO EQUIPMENT COULD OCCUR.

What to Do if Contact with Hot Adhesive Occurs

WARNING! The heat that is contained in hot-melt material will continue to penetrate and deeply burn the skin unless rapidly cooled by external means such as water. Do not attempt to remove set hot-melt adhesive from the skin. OTHERWISE, PERSONAL INJURY COULD OCCUR.

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

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

Note! It is 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 see a physician 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. Fight the fire in ***one*** of the following ways:
    - 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.

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 a qualified medical authority.

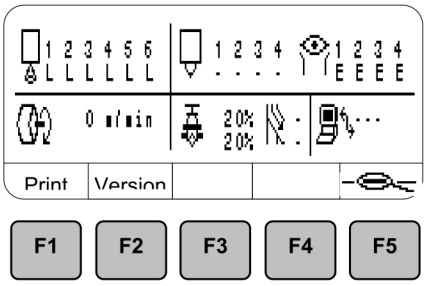
Section 3—Internal Test Functions

Introduction

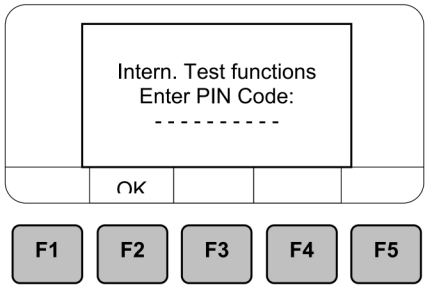
Accessing the Internal Test Functions

To access the internal test functions, follow these steps:

1. Press the "Diagnostic" menu button on the control. The "Diagnostic" menu screen displays.
1. Press the F3 button. (**Note!** The F3 button is not labeled!)
3. Enter the PIN code *"32168"*.



4. Press the ENTER button and the first page of the "Internal Test Function" menu appears



Internal Test Functions

Overview

To scroll between the different pages press **F5.** The following "Internal Test Functions" are available:

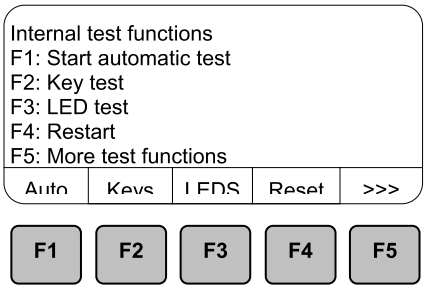
Page 1:

F1: AUTO—Test functions simulates a series of key inputs to test software function. Only used for burn-in test and software evaluation. Attention: This function will overwrite job and setup parameter!

F2: KEYS—Test function for all buttons on the control keypad.

F3: LEDS—Test function for all LEDs controlled by the CPU.

F4: RESET—Test function to generate a reset of the control without switching the control off and then on again.



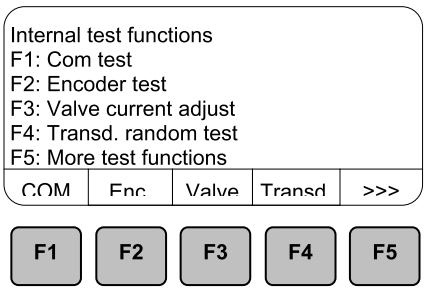
Page 2:

F1: COM—Test function for interface COM1 and COM2.

F2: ENC—Test function for the quality of the encoder signal.

F3: VALVE—Test function to adjust time and current settings for existing and for new valve types. Attention: This function can overwrite the default setting for a valve type

F4: TRANSD—Test function to generate a random signal (time and pressure) for the pressure transducer output. This function is used for pump testing.



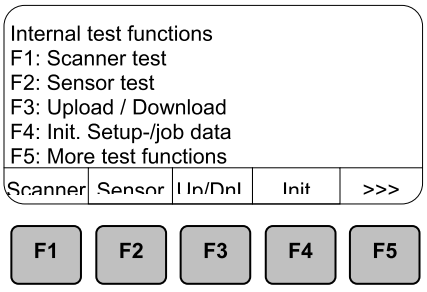
Page 3:

F1: SCAN—Test function for scanner signal. This function displays the scanner counter and measures the length of a product at the scanner position and the distance between the last two products. The results can be used to set up the ration compensation.

F2: SENSOR—Test function to measure and download signal from glue inspection sensors.

F3: UP/DOWN—This option allows you to upload/download job and setup parameters via the diagnostic port and the I/O server protocol.

F4: INIT—Test function to re-initialize all job and setup parameters. Attention: Make sure to backup data as all setting will be deleted.



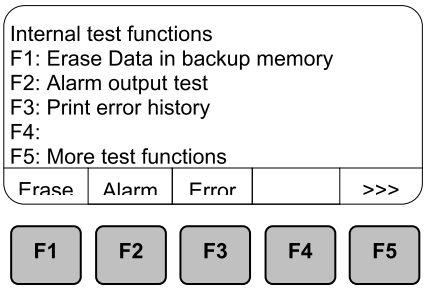
Page4:

F1: ERASE—This function will erase all data in the backup memory. (CANCPU only!)

F1: BACKUP—This function will store a copy of all setup parameters (COMCPU only!)

F2: ALARM—This function will test all alarm outputs.

F3: ERROR—This function will print and/or reset the internal error history storage.



Using the Automatic Test Function

The automatic test function is only used for software and “Burn In” testing.

1. Press F1 on the first page of the “Internal Test Function” menu
2. Press F2 to start the “Automatic Test Function”

Attention: Before starting the automatic test function make sure that all job and setup data are either backed up by using the ‘Data Backup’ functions (if available) or printed by the diagnostic printout or writing them down.

ALL CURRENT SETTINGS IN THE CONTROL WILL BE LOST AFTER THE STARTING THE AUTOMATIC TEST FUNCTION!

Using the Keys Test Function

1. Press F2 on the first page of the “Internal Test Function” menu to start the “Keyboard Test Function”
2. The name of the last key pressed is now displayed
3. Press F4 to end the key test function

Using the LED Test Function

1. Press F3 on the first page of the “Internal Test Function” menu to start the “LED Test Function”
2. Press F2 to toggle between the RED and the GREEN LEDs
3. Press F4 to end the LED test function

Note: The LED test function can only test the LEDs inside the buttons. All other LEDs (Status LED for valves, scanners, encoders, supply voltages etc.) can not be tested with this function!

Using the Reset Function

1. Press F4 on the first page of the “Internal Test Function” menu to reset the control.

   Note: This is only a ‘Warm start’ and may not reset all functions. Hardware related function may need a reset by switching the control off an back on again to be initialized completely.

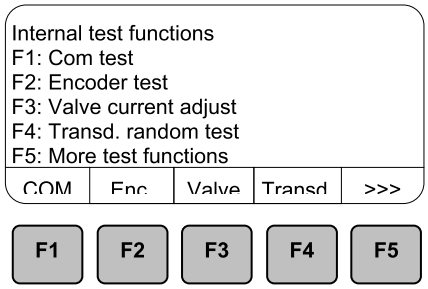
Using the Communications Port Test Function

1. Press F5 to get to the second page of the “Internal Test Function” menu
2. Press F1 on the second page to start the “Communication Test Function”
3. Connect the test plug to the COM1 connector on the MCP-25
   (see drawing FA0139, jumpers between pin 2 + 3 and between 7 + 8)
4. Start the test with 'F3'
5. If test was successful the following message appears: TXD/RXD -> OK and RTS/CTS -> OK
6. If there is a problem, check the 151xx465 board (RS-232 interface) and the ribbon cable connection to the board.

Using the Encoder Test Function

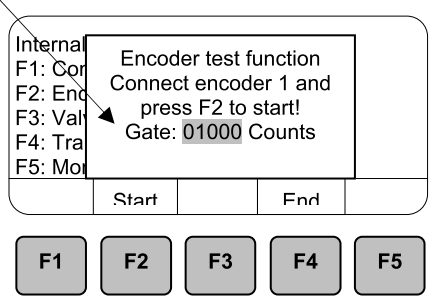
The encoder test function will measure the quality of the encoder signal. It will capture the exact time between encoder pulses for 10000 pulses. At the end of a measurement cycle it will show the deviation of the measured values and will provide the data to print / send them to a Terminal program or direct to the Grafix software to visualize them.

1. Press F5 to get to the second page of the “Internal Test Function” menu
2. Press F2 on the second page to start the “Encoder Test Function”

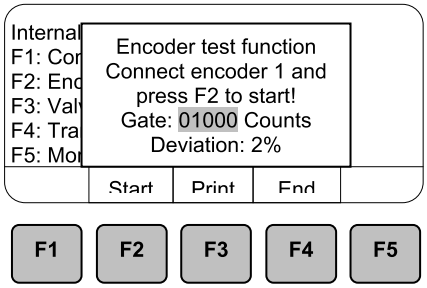


Number of Counts

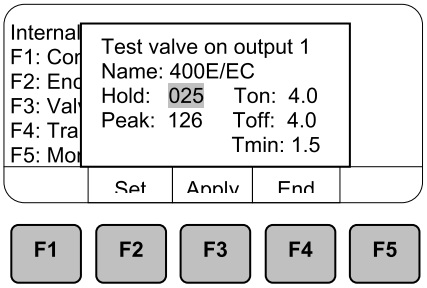
3. Enter the number pulses to measure. Usually set the number to 2 or 3 times of the number of pulse per encoder revolution so you can see repeating variations.
4. Press F2 to start the measurement cycle
5. After the measurement is completed the deviation between the maximum and the minimum value is displayed in percent. A good encoder signal should have a deviation < 5%. In some cases 10% can be tolerated



6. If there are values stored in the unit they can be printed or downloaded via the diagnostic port by pressing F3.
7. For details and instruction how to capture and visualize the data on a PC or Laptop see Scanner Test Function



Using the Valve Test Function



1. Press F5 to get to the second page of the "Internal Test Function" menu
2. Press F3 on the second page to go to the "Valve Parameter Test " menu
3. Select the valve type you want to change the default settings:
   3a. Using the up/down arrow buttons, move the cursor to the valve -name field.
   3b. Press the number of the desired valve type or use the +1/-1 buttons to scroll through the list of valve types and press the "ENTER" button.

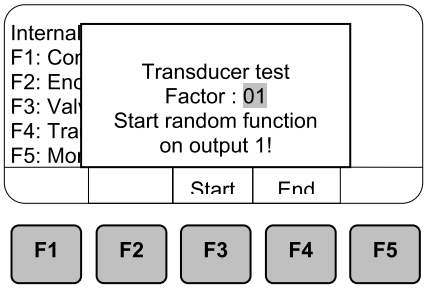
   Note: If the valve type for valve output 1 is already set it will be displayed immediately
4. Change the valve default settings by moving the cursor to the desired field
5. After a parameter in the edit has been changed press F2 to set the new value(s) on the valve driver board. At this point the change only applies to setting for valve output 1. A change of the valve type will discard the new settings if the same valve type is selected on output 1 or any other output the setting will be the original default settings for the valve type
6. To change the default settings for a valve type permanently press F3. This will overwrite the original default settings. If the valve type is selected for output number 1 or any other output the default settings will be the new values.
7. Press F4 to end the valve test function

Attention: Changing the valve default settings, specially the peak and the hold current settings, can damage the valve and/or the valve driver!

CHANGES TO THE PEAK AND HOLD SETTINGS SHOULD ONLY BE DONE AFTER CONTACTIN THE VALCO ENGINEERING DEPARTMENT

See Appendix B for details on "Default Valve Settings"

Using the Transducer Test Function



1. Press F5 to get to the second page of the "Internal Test Function" menu
2. Press F4 on the second page to go to the "Transducer Test " menu
3. Set the 'speed' factor (lower number ⇨ faster) and start the random pressures transducer output test with F3
4. Press F3 to stop the random output change
5. Press F4 to end the transducer test function

Using the Scanner Test Function

The scanner test function is mainly used to setup the ration compensation on system where the setting cannot be determined exactly. Therefore it will show for each scanner the following information:

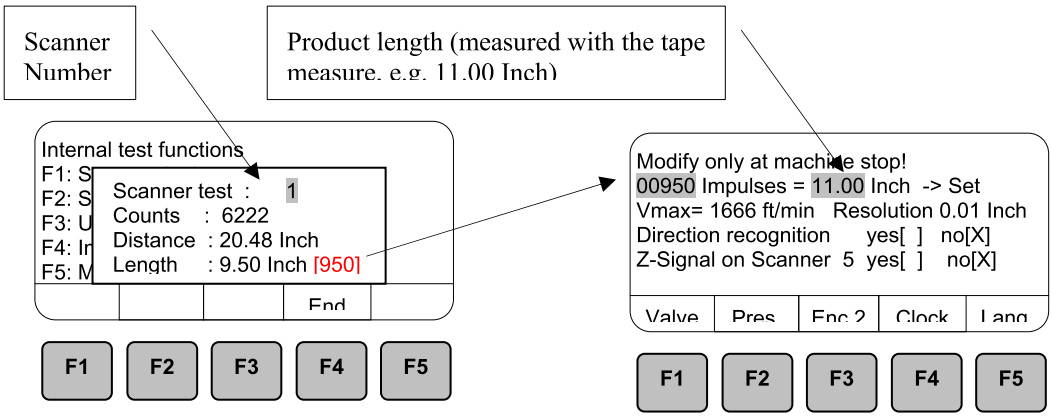
- Counts: The product counter shows the number of trigger signal after the last counter reset. This number will increase by two or more counts per product if the start signal is not clean enough.
- Distance: Distance between the last 2 products (leading edge to leading edge). The number in [] equals the number of pulses.
- Length: Length of the last products (leading edge to trailing edge). The number in [] equals the number of pulses.

The following procedure describes how to set the ratio compensation for an unknown relation (e.g. gear driven encoder).

Note, only for software older than 01/01/2001: Go to the ‚Encoder' Setup and change the ratio compensation to 1 Pulse = 1mm (metric mode) or 100 Pulses = 1.00" (imperial mode).

Important: After changing the values the cursor need to be moved to the ‚Set' field and the ‚Enter' key has to be pressed once. If this is not done the ratio compensation has not changed. After that the unit has to be switched off and back on to recalculate all values.

1. Press F5 twice to get to the third page of the "Internal Test Function" menu
2. Press F1 on the third page to start the "Scanner Test Function"
3. Mount one of the scanners so that it's signal is active for the whole product (no cut outs, no print etc). Run a product and measure the length of the product (which activated the scanner) with a tape measure.
4. Select the scanner number (default is scanner 1). The screen shows the following data (example for imperial mode):



5. Press F4 and go back to the ‚Encoder' Setup and set the ration compensation.
6. **For software older than 01/01/2001:**
   In the imperial mode take the 'Length' information in Inch and multiply it by 100 and enter it as number of pulses. In the metric mode take the 'Length' information and enter it as number of pulses.
7. **For software newer than 01/01/2001:**
   Take the information in the [ ] and enter it as number of pulses. Enter the length (measured with the tape measure) as the product travel length.
8. Move the cursor to the ‚Set' field and press the ‚Enter' key once. After that the unit has to be switched off and back on to recalculate all values.
9. Verify the setting by going back to the scanner diagnostic screen. The length information should now match up with the real length of the product.

Using the Sensor Test Function

The sensor test function is used to analyze the measurement data of a designated sensor input.

Note: Install the Grafix software on your PC (see *Section —Installing Grafix Software*) and connect the diagnostic port of the MCP-xx control with the PC via a NULL-modem cable (e.g. 030xx794).

1. Press F5 twice to get to the third page of the "Internal Test Function" menu
2. Press F2 on the third page to start the "Sensor Test Function".

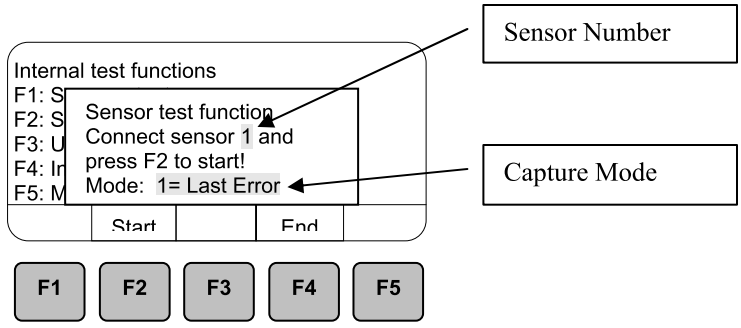


Figure X. "Sensor Test Function' Screen

4. Select the sensor from which you want to capture diagnostic data:
   4a. Using the up/down arrow buttons, move the cursor to the sensor-number field.
   4b. Press the number of the desired sensor and press the "ENTER" button.
5. Select a capture mode:
   5a. Select capture-mode 1, 2, or 3 by pressing 1, 2, or 3 *or* by pressing the +1/-1 arrow buttons. The number and name of the mode you have selected displays.

   Note: *Mode1 = "Last error"*, which means that the sensor CPU will capture the data of the last product that was designated as an error.

   Mode 2 = "Last good", which means that the sensor CPU will capture the data of the last product that was designated as an acceptable ("good") product.

   Currently not supported:

   Mode 3 = "Minmax good", which means that the sensor CPU will capture the minimum and maximum data of the last 10 "good' products.

   5b. Press the "ENTER" button.
6. Press F2 (START). Signal measurement begins and the LED in the button of the selected sensor illuminates range. **Note:** The measurement can be interrupted by pressing F3.
7. If the measurement was successful, start the Grafix software:
   7a. Double-click the Grafix icon on the computer's desktop. The "Untitled=Grafix" screen displays.
   7b. Click "Download" from the menu bar at the top of the screen.
   7c. Select "Start Download". The "Ready" message displays in the bottom left corner of the screen. The software is now ready to be utilized.
8. Press F3 (PRINT). The "Receiving" message displays in the bottom left corner of the computer screen and the graph of the signal displays.
9. After the data had been downloaded into Grafix, store the data:
   9a. Click "File" from the menu bar at the top of the screen.

9b. Click “Save As”.

9c. Select the location and an appropriate name for the file where the data will be stored. **Note:** Grafix can store up to 16 different data sets in one file.

10. Exit the Grafix software. **Note:** The file with the captured data can now be sent via e-mail for further analysis.

Using the Upload/Download Function

1. Press F5 twice to get to the third page of the “Internal Test Function” menu
2. Press F4 on the third page to start the “Upload/Download Test Function”

Using the Initialization Function

1. Press F5 twice to get to the third page of the “Internal Test Function” menu
2. Press F3 on the third page to initialize the battery buffered memory of the control
3. Confirm the initialization with F2 and F4
4. Switch the control off. When the control is switched back on again the configuration screen appears to define the control type or to restore setting from a backup.

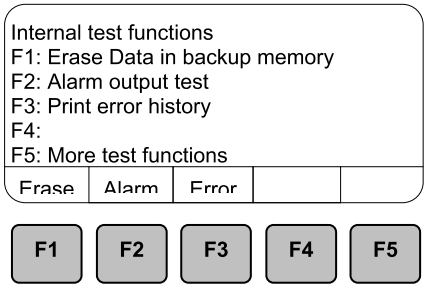
Attention: Before starting the initialization process make sure that all job and setup data are either backed up by using the ‘Data Backup’ functions (if available) or printed by the diagnostic printout or writing them down.

ALL CURRENT SETTINGS IN THE CONTROL WILL BE LOST AFTER THE INITIALIZATION!

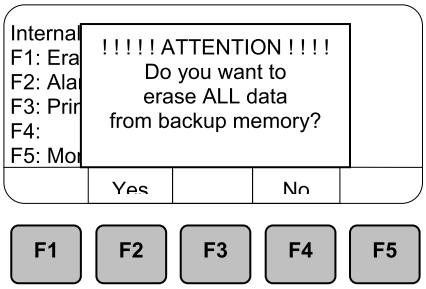
Using the Flash Memory Erase Function

Note: This function is only available with the new CANCPU board 151xx515

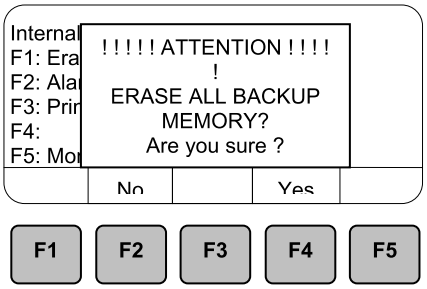
1. Press F5 three times to get to the fourth page of the “Internal Test Function” menu
2. Press F1 on the fourth page to start the “Flash Memory Erase Function”



3. Now there will be two (2) warning messages that all stored data will be erased



4. Make sure that everything can be overwritten and press F2 and F4 to confirm



<u>ATTENTION</u>: This only should only be used by trained service personal! The previous backup can’t be restored!!

Using the Backup Function

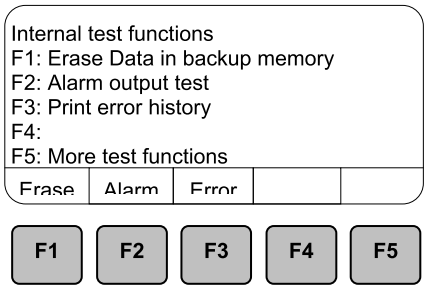
Note: This function is only available with the COMCPU board 151xx409

1. Press F5 three times to get to the fourth page of the “Internal Test Function” menu
2. Press F1 on the fourth page to start the “Backup Erase Function”

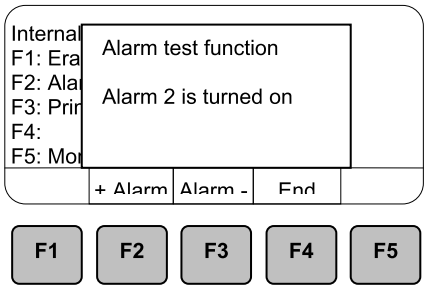
Using the Alarm Output Test Function

The Alarm Output Test function is used to test every alarm, relays and bypass output of the control separately with out activating any of the alarm function

1. Press F5 three times to get to the fourth page of the “Internal Test Function” menu
2. Press F2 on the fourth page to start the “Alarm Output Test Function”



3. With F2 and F3 every output can be switched on separately. The correspondent output number is displayed on the screen. These are the same numbers used for the programming of the Alarm switch matrix. (Parameter 74xx)

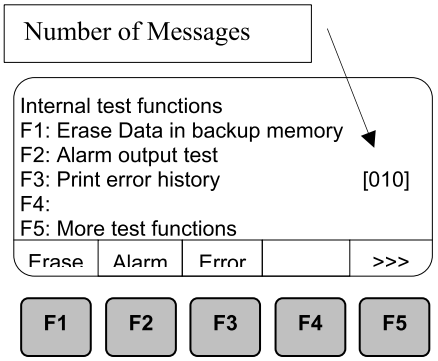


For details on the output numbers see Appendix D “Alarm Switch Matrix” and Appendix A “Special Setup Parameter”

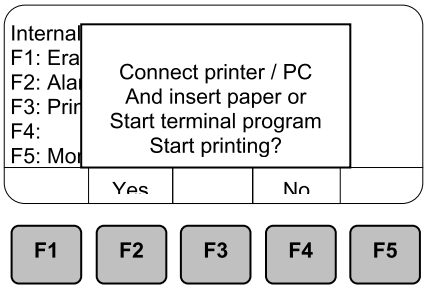
Using the Error History Function

With the software version 119xx120 A009 08/09/02 (CANCPU 151xx515) and 119xx111 C016 08/09/02 (COMCPU 151xx409) all MCP-25 controls have a feature that is very helpful to diagnose and troubleshoot difficult hardware and/or software problems. The 'Error History' function automatically stores the last 1000 error message and warning internally with a time stamp and an error/warning number. The information can be downloaded and stored via the serial diagnostic interface using the VTerminal program. As this function is mostly unknown the following description should help to understand how to download and analyze the information.

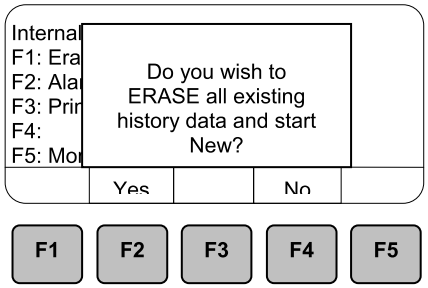
1. Press F5 three times to get to the fourth page of the "Internal Test Function" menu
2. The number of messages in the memory is displayed in prentices (only available on version older than March 2003)
3. Press F3 on the fourth page to start the "Error History Function"



4. Press F3 to start the print function.
5. Connect a PC / Laptop and start VTerminal or any other terminal software. (Parameter 9600,1,8,N)
6. Start the capture function to direct all data into a file.
7. Press F2 to start the printing



8. After the printing stop the capture function in the terminal program on the PC and save the data file at in an appropriate location.
9. If the download was successful press F2 to delete and reset the current error history list. If there were problems with the transmission press F4 and start all over again.



See Appendix C for details on "Error History Codes"

Sample:

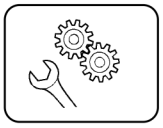
```
---- Error History ----
Date/time : 25.11.2002 09:11

1 => 25.11.2002 09:10:14 =>      1
2 => 25.11.2002 09:10:16 => 100100
3 => 25.11.2002 09:10:17 => 110000
4 => 25.11.2002 09:10:17 => 110000
5 => 25.11.2002 09:10:17 => 110000
--------- End ---------
```

Section 4—Special Setup Parameters

Introduction

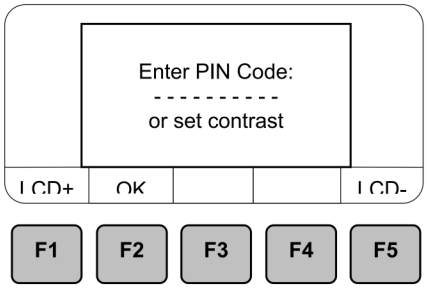
Special setup parameters are stored in the control's software. Some of the parameters can be modified and some cannot.

Accessing Control Parameters



To access the special setup parameters, follow these steps:

1. Press the setup-menu button on the control. The "Enter PIN code:" screen displays.
2. Type *050952* and press F2 or the "ENTER" button. The "Special Parameter" menu screen displays.



3. To change the parameter number, move the cursor to the field on the left and take *one* of the following actions:

   3a. Use the "Quick Change" buttons to scroll buttons to scroll through the parameter list.

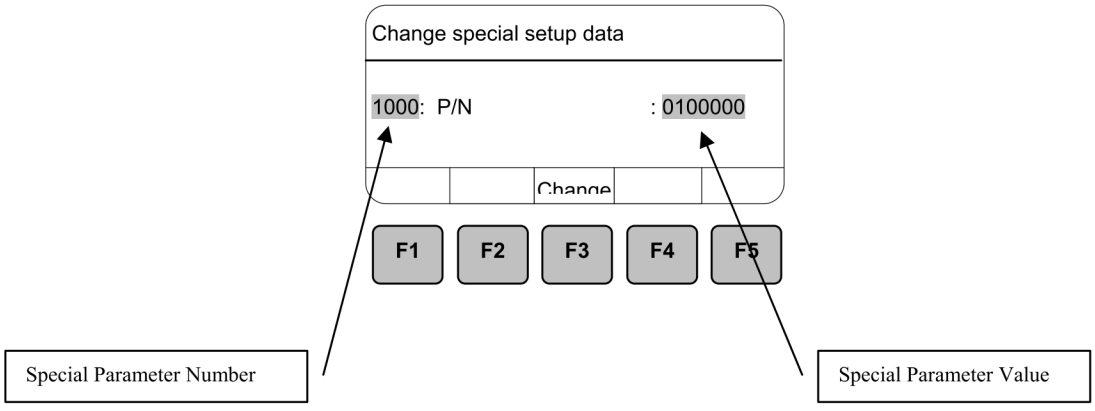
   3b. Type in a new parameter and either press the "ENTER" button or wait two seconds. The new parameter setting is displayed.

4. To change the parameter value:

   4a. Press F3 (CHANGE). The parameter is highlighted.

   4b. Type in the new parameter and press the enter key. The parameter is changed.

   Note: F3 (Change) is not displayed if a value cannot be changed.



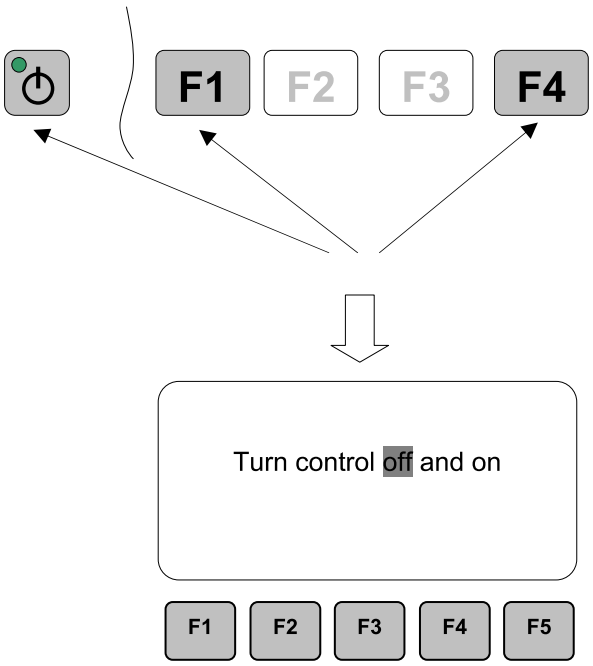
See Appendix A for details on "Special Setup Parameter"

Reinitialize Memory

There are two functions to reset the internal memory:

1. Initialize the memory using the 'Internal Test' function 'INIT' (See Page 18)
2. Initialize the memory during the Boot sequence

If the software does not response to any keystroke while the screen stays completely black or white the most of the time a re initialization of the memory can overcome this problem. As the Internal Test function are not access able, the unit can be initialized by pressing the F1 and the F4 button when the control is switched on.



After that the control needs to be turned off. When the control is switched back on again the configuration screen appears to define the control type or to restore setting from a backup.

Attention: Before starting the initialization process make sure that all job and setup data are either backed up by using the 'Data Backup' functions (if available) or printed by the diagnostic printout or writing them down.

ALL CURRENT SETTINGS IN THE CONTROL WILL BE LOST AFTER THE INITIALIZATION !

Interface Test Option

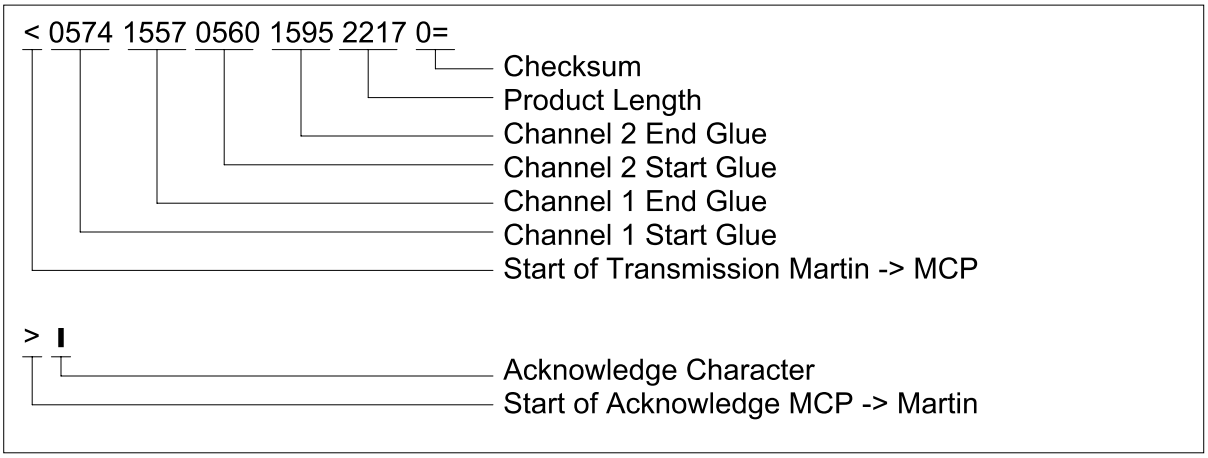
The function is monitoring the data traffic between the MCP-25 and the customer PC. The ‘Interface Test’ function is available for the following interfaces options:

- VEGA (6000 = 1)
- MARTIN (6000 = 3)
- EMBA (6000 = 5)
- ASCII (6000 = 6)

Start the function

1. Switch the unit off
2. Connect the interface to the customer PC
3. Connect a Laptop with a null modem cable to the printer (diagnostic) port
4. Start a terminal program (VTerminal or HyperTerminal) on the Laptop with the following communication settings (9600 Baud, 8 Data bits, 1 Stop bit, No Parity)
5. Start the ‘capture’ function in the terminal software to direct the data into a file for further diagnostics
6. Switch the unit back on
7. Make sure that parameter 6000 is set to one of the interface listed above.
8. Set Parameter 6010 to '1'
9. Switch the unit off and back on
10. Now every transmission between the MCP and the customer PC will be displayed parallel on the terminal screen.
11. After the test make sure that 6010 is set back to '0'

Sample for ‘MARTIN’ transmission:



Section 5—VTerminal Software

Description of VTerminal Software

As the new **CAN CPU 151xx515** does not have EPROM's anymore, new Software has to be programmed with a Laptop or Desktop computer connected to the RS-232 diagnostic port of the MCP-25 or MCP-25/MS(FS).

Installing the VTerminal Software

To communicate with the MCP control the following items are required:

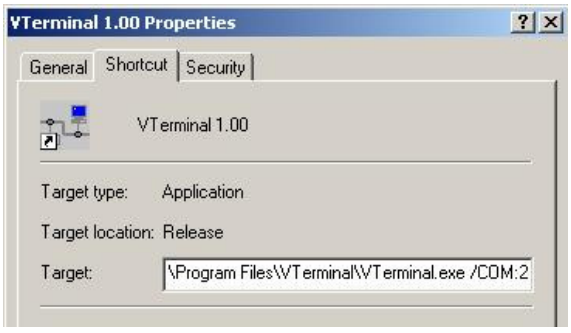
- A PC running under Windows 95/98 ME or 2000
- A free RS232 COM port that can support data transfer rates of at least 38400 Baud (see PC User manual)
- The terminal software 'VTerminal' has to be installed.
- A RS232 'Null-Modem' cable, 9PIN F/ 9PIN F (030xx794)

The installation software for 'VTerminal' is available on and can be ordered under the P/N 119xx130 (2 disks , 1.44MB) or P/N 119xx138 (CD together with 'Grafix' software)

To install the software, run 'SETUP.EXE' on Disk 1 and follow the instructions of the installation program.

When the installation is finished, start 'VTerminal' by clicking the shortcut on the desktop, which is generated automatically during the installation.

Attention: VTermial uses COM1 as the default communication port. If COM1 is not available or used for other devices, the COM port can be changed by adding a parameter to the command line. Therefore change the properties of the shortcut as follows:



Add parameter to command line:
e.g. for COM2: /COM:2

Using the VTerminal for Software Updates

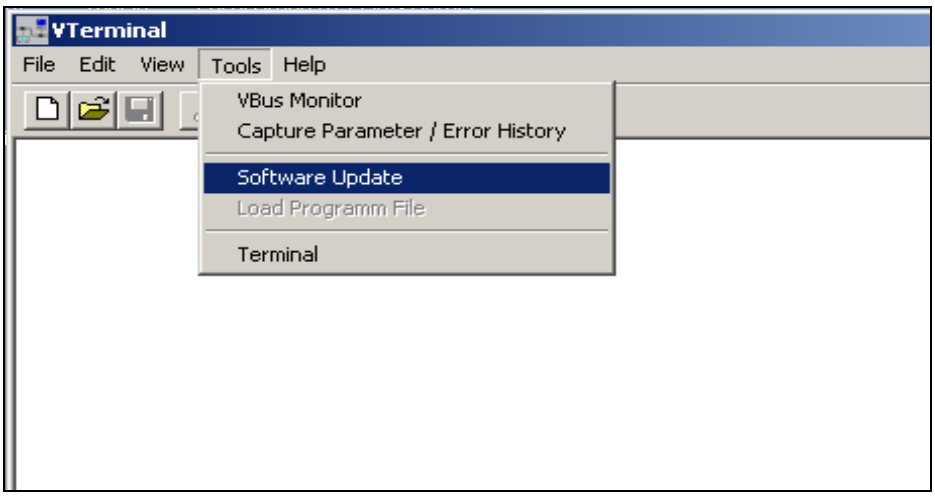
Attention: Before starting the update process make sure that all job and setup data are either backed up by using the 'Data Backup' functions (if available) or printed by the diagnostic printout or writing them down.

ALL CURRENT SETTINGS IN THE CONTROL WILL BE LOST AFTER THE UPDATE !

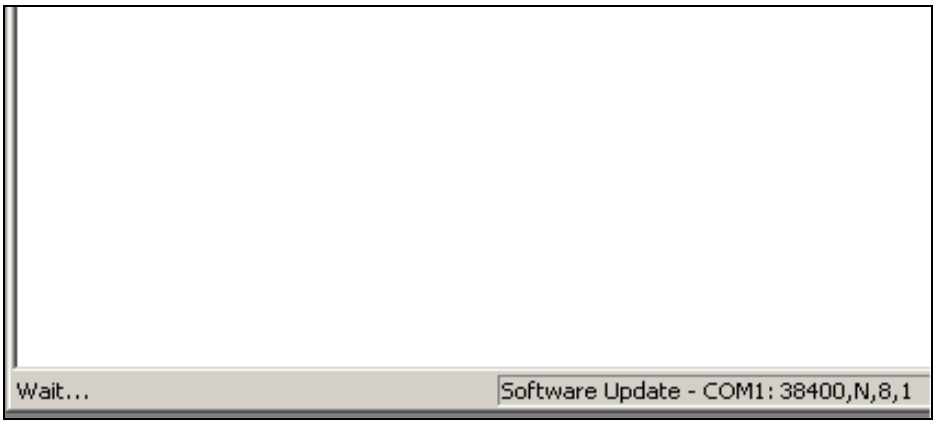
Switch off the MCP-25 and connect the PC with the 'Null-Modem' cable to the diagnostic port of the unit.

Start the Update Function and initialize the CPU

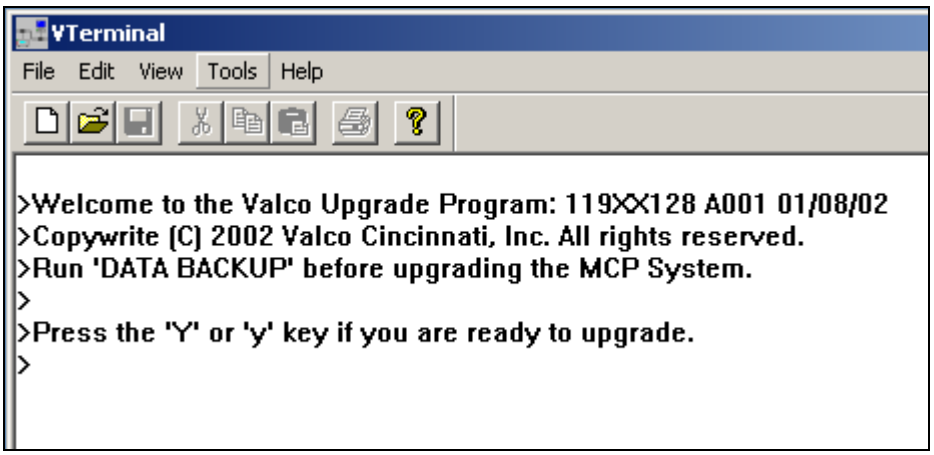
Start the program, select the menu 'Tools' and activate 'Software Update'



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



Switch on the MCP-25 unit and the following message from the ‘BootLoader’ program will appear on the screen:

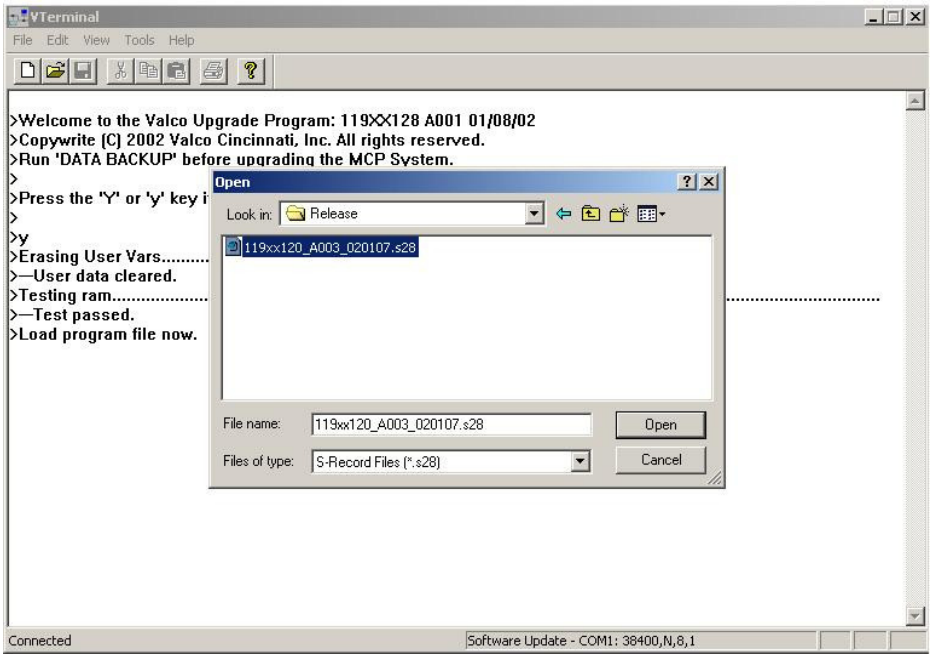


Attention: **Only** when all information in the control is **backed up,** press the **‘Y’** key. If you want to return to the normal menus to verify that all information is backed up press any **other key** or wait 5 seconds and the ‘BootLoader’ will **terminate** automatically.

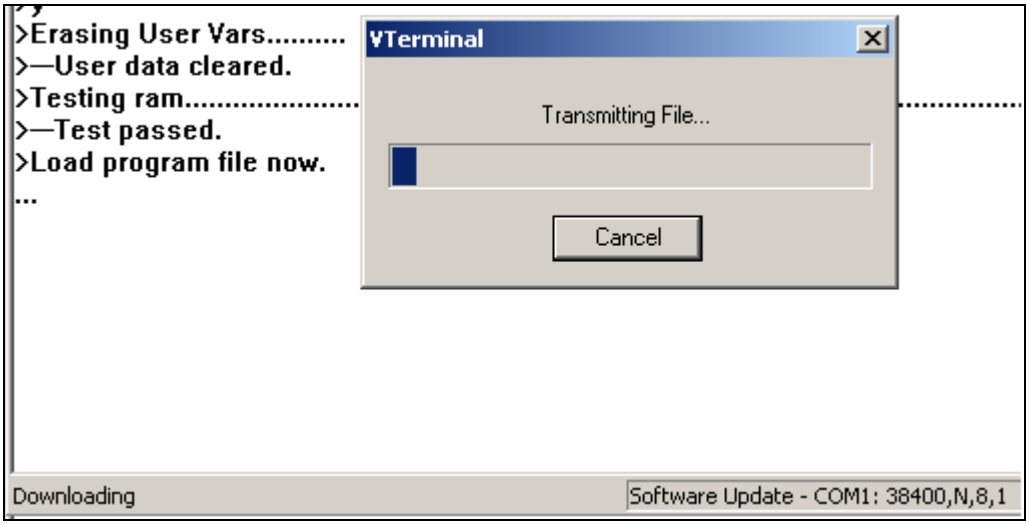
AFTER PRESSING THE ‘Y’ KEY ALL INFORMATION WILL BE EREASED !

The ‘BootLoader’ Program in the MCP-25 will now erase the setup data and the job storage.
Note: The program will not erase the backup memory !
After erasing the memory a dialog box pop up to locate the file with the new MCP software.

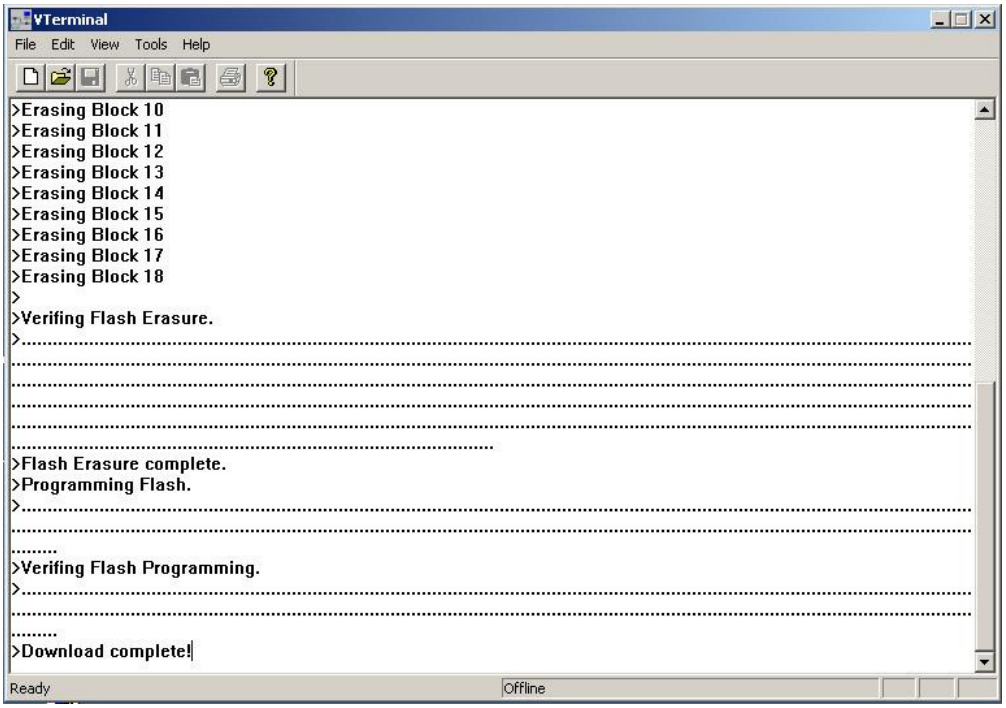
Download the new software and program the CPU



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 ‘OK’ to start the download and the programming.
Attention: 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 !

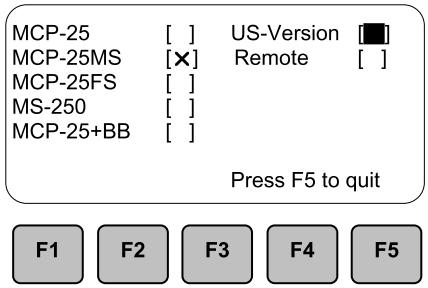


If the download is complete the program will automatically start the programming cycle. The following Messages will show up on the screen if the programming was successful:



Start MCP-25 control after the Update

Switch the MCP-25 control off and back on after the download and the programming are complete. The MCP-25 control will start up with the following screen:



Move the cursor to one of the control options on the left side and press ‘ENTER’. If the unit should start up in English and in the ‘Inch’ mode move the cursor to the right and select ‘US-Version’. If the unit has a separate Operator Terminal select the ‘Remote’ option.
After selecting all options, press F5 and the ‘VALCO’ startup screen will appear.
Attention: This selection menu appears only once on the very first startup after the update. After that the unit type can only be changed via the special setup menu. The only way to get back to this menu is to reinitialize the control by the ‘Init’ diagnostic function.

Section 6—Grafix Software

Description of Grafix Software

The Grafix software displays the glue-sensor signal in a graph. When the sensor detects glue, the signal goes up. When no glue is detected, the signal drops to baseline. The Grafix software can be used in conjunction with any type of sensor.

Installing the Grafix Software

To use the Grafix software, you must have:

- Personal computer (workstation or laptop)
- Windows 95 or higher
- NULL-modem cable (030xx794)

To install the Grafix software, follow these steps:

1. Copy the setup file “GrafixInst.exe” into a temporary directory.
2. Close all other applications.
3. Start “GrafixInst.exe” and follow the installation instructions.
4. Restart the computer.
5. Create a shortcut on your desktop to the “Grafix.exe” file *or* start the “Grafix.exe” program in your installation directory.

Accessing The Grafix Software

To access the Grafix software, follow these steps:

1. Double-click the Grafix icon on the computer’s desktop.
2. Click “Download” from the menu bar at the top of the screen.
3. Select “Start Download”. The “Ready” message displays in the bottom left corner of the screen. The software is now ready to be utilized.

Section 7—Using Hyperterminal Software

Introduction

The Hyperterminal software application allows technicians in the field to download diagnostic data from the control.

Configuring the Software

To configure the Hyperterminal software, follow these steps:

1. Go to Start => Programs => Accessories => Hyperterminal => HyperTerminal. The Hyperterminal logo displays, followed by the "Connection Description" screen (Figure 5-1).

   Note! If no modem is installed, the "You need to install a modem before you can make a connection. Would you like to do this now?" message displays before the "Connection Description" screen comes up. Disregard the message by pressing the "No" button.

2. Enter a name (for example, MCP Diagnostic).
3. Select an icon or use the telephone icon that is already selected.
4. Click the "OK" button. The "Connect To" screen displays (Figure 5-2).
5. At the "Connect using" field, ensure that COM1 is selected.
6. Press the "OK" button. The "COM1 Properties" screen displays (Figure 5-3).
7. Select the following properties:

   Bits per second = 9600
   Data bits = 8
   Parity = None
   Stop bits = 1
   Flow control = None

8. Click the "OK" button.
9. Go to File => Properties. The "MCP Diagnostic Properties" screen displays (Figure 5-4).

Figure 5-1. "Connection Description" Screen

Figure 5-2. "Connection To" Screen

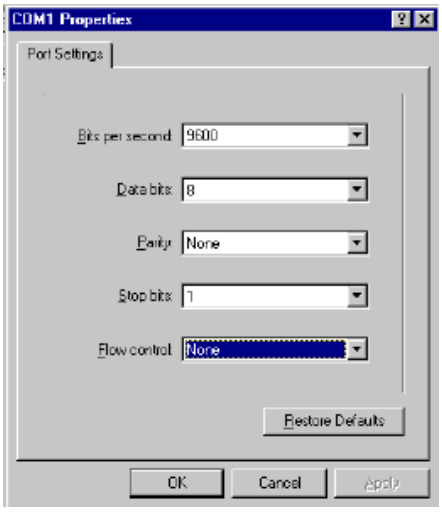


Figure 5-3. "COM1 Properties" Screen

10. Click the “Settings” tab.
11. At the “Emulation” field, select TTY.
12. Click the “OK” button.
13. Go to File => Save. The new information is saved.
14. Go to File => Exit.
15. At the “You are currently connected. Are you sure you want to disconnect now?” message, click the “Yes” button.
16. Go to Start => Programs => Accessories => Hyperterminal => <file name of file just created>.
17. Create a shortcut to the file you created (Figure 5-5).

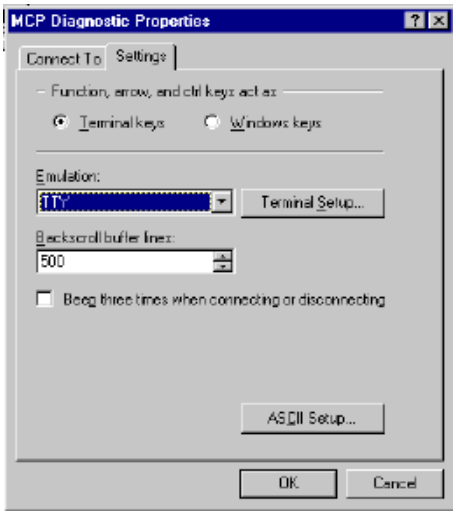


Figure 5-4. “dfg Properties” Screen

Downloading the Data

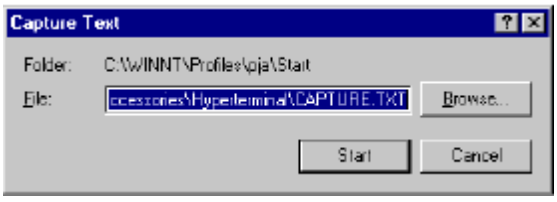
To download the data, follow these steps:

1. Using the null-modem cable (030xx794), connect the laptop to the 9-pin connector diagnostic port on the back of the control.
2. Open the file you created by double-clicking the shortcut icon on the desktop. The “<File Name> - HyperTerminal” screen displays.
3. Go to Transfer => Capture Text. The “Capture Text” screen displays (Figure 5-6).
4. Rename the file.

Note! It is best to use a name that identifies the customer.

5. Click the “Start” button. The Hyperterminal screen displays.
6. At the MCP-25/MS control, press the diagnostic icon.
7. Press F1 (Print).
8. Press F2. The diagnostic data displays on the laptop screen and on the control screen. When the download is finished, the control displays the diagnostic screen again.
9. Go to Transfer => Capture Text => Stop.
10. Open the file, using a text editor such as WordPad.

Figure 5-5. Shortcut Icon



Appendix A —Special Setup Parameter

For a complete parameter list refer to the current version of the file ‘SpecialSetupParameterList.xls’

Appendix B — Default Valve Settings

Valves Types MCP25 (Version 19xx111 06.06.01 C007 or higher)

Number	Name	Ton	Toff	Tmin	Ip (Menü)	Ip [A]	Ih (Menü)	Ih [A]
1	300-E	2.5	2.7	1.0	151	2.50	10	0.23
2	400E/EC	4.0	3.8	1.5	126	2.09	25	0.42
3	585	4.4	4.4	1.5	299	5.04	107	1.78
4	585/2	5.0	5.0	1.5	299	5.04	107	1.78
5	585/4	5.8	5.8	1.5	299	5.04	107	1.78
6	EL-X/24	4.8	7.3	1.5	350	5.88	48	0.80
7	9020 LE	4.8	7.3	1.5	350	5.88	48	0.80
8	366/24	15.0	12.0	1.5	33	0.55	15	0.27
9	369/24	15.0	12.0	1.5	33	0.55	15	0.27
10	05P/24	20.0	18.0	2.0	33	0.55	15	0.27
11	07HP/24	7.5	7.0	1.5	42	0.70	18	0.31
12	08HP/24	8.5	8.5	1.5	33	0.55	15	0.27
13	SP-1/24	10.0	10.0	1.5	33	0.55	15	0.27
14	SP1MM24	10.0	9.5	1.5	33	0.55	15	0.27
15	EL-XC	4.6	5.0	2.5	180	2.99	82	1.36
16	400E/24	4.0	3.8	1.5	40	0.67	14	0.26
17	FST01W5	10.0	19.0	3.0	8	0.20	2	0.15
18	366/12	15.0	12.0	1.5	72	1.20	30	0.50
19	900	5.4	8.0	1.5	511	8.53	48	0.80
20	2050	4.0	4.0	1.5	200	3.34	85	1.40
21	524E	2.5	2.5	1.1	350	5.88	48	0.80
22	540E	3.5	5.5	1.9	350	5.88	48	0.80
31	MAC3/12	5.0	5.0	2.0	72	1.20	30	0.50
32	MAC3/24	5.0	5.0	2.0	33	0.55	15	0.27
33	MAC4/12	5.0	5.0	2.0	72	1.20	39	0.65
34	MAC4/24	5.0	5.0	2.0	42	0.70	18	0.31
35	M-17324	5.0	5.0	2.0	60	1.00	42	0.70
36	Soft.P	5.0	5.0	2.0	2	0.19	1	0.19

Appendix C — Error History Codes

The following error codes have been implemented with version 119xx120 A009 08/09/02 (CANCPU 151xx515) and 119xx111 C016 08/09/02 (COMCPU 151xx409):

Operation Message Codes CAN/COMCPU:	
000000	NO_ERROR
000001	MSG_SWITCH_ON
000002	MSG_COLD_BOOT
000003	MSG_COLD_RECALL
000004	MSG_ERASE_FLASH
000005	MSG_INIT_RAM
000006	MSG_BACKUP_TO_FLASH
000007	MSG_RECALL_FROM_FLASH
Error Message Codes CAN/COMCPU:	
010000	ERR_VALCOBUS_TIMEOUT
020000	ERR_VALCOBUS_VERSION
021xxx	ERR_VALCOBUS_VERSION_CHANGE (xxx -> new version)
030000	ERR_FLASH_VALIDATION
090000	ERR_PLD_CONFIGURATION
0910xx	ERR_PATTERN_TOO_LONG
Error Message Codes Sensor CPU (xx = additional channel information):	
1001xx	ERR_WARMSTART
1002xx	ERR_WATCHDOG
1010xx	ERR_SENSOR_DATA_OVERFLOW_1
1011xx	ERR_SENSOR_DATA_OVERFLOW_2
1012xx	ERR_SENSOR_DATA_OVERFLOW_3
1013xx	ERR_SENSOR_DATA_OVERFLOW_4
1014xx	ERR_PRODUCT_TRACKING_OVERFLOW_1
1015xx	ERR_PRODUCT_TRACKING_OVERFLOW_2
1016xx	ERR_PRODUCT_TRACKING_OVERFLOW_3
1017xx	ERR_PRODUCT_TRACKING_OVERFLOW_4
1018xx	ERR_PRODUCT_TRACKING2_OVERFLOW
1019xx	ERR_PRODUCT_TRACKING2_OVERFLOW_MARKINGVALVE_1
1020xx	ERR_PRODUCT_TRACKING2_OVERFLOW_MARKINGVALVE_2
1021xx	ERR_PRODUCT_TRACKING2_OVERFLOW_EJECTOR_CEP
1022xx	ERR_PRODUCT_TRACKING2_OVERFLOW_EJECTOR_SA
1023xx	ERR_PRODUCT_TRACKING3_OVERFLOW
1024xx	ERR_PRODUCT_TRACKING3_OVERFLOW_MARKINGVALVE_1
1025xx	ERR_PRODUCT_TRACKING3_OVERFLOW_MARKINGVALVE_2
1026xx	ERR_PRODUCT_TRACKING3_OVERFLOW_EJECTOR_CEP
1027xx	ERR_PRODUCT_TRACKING3_OVERFLOW_EJECTOR_SA

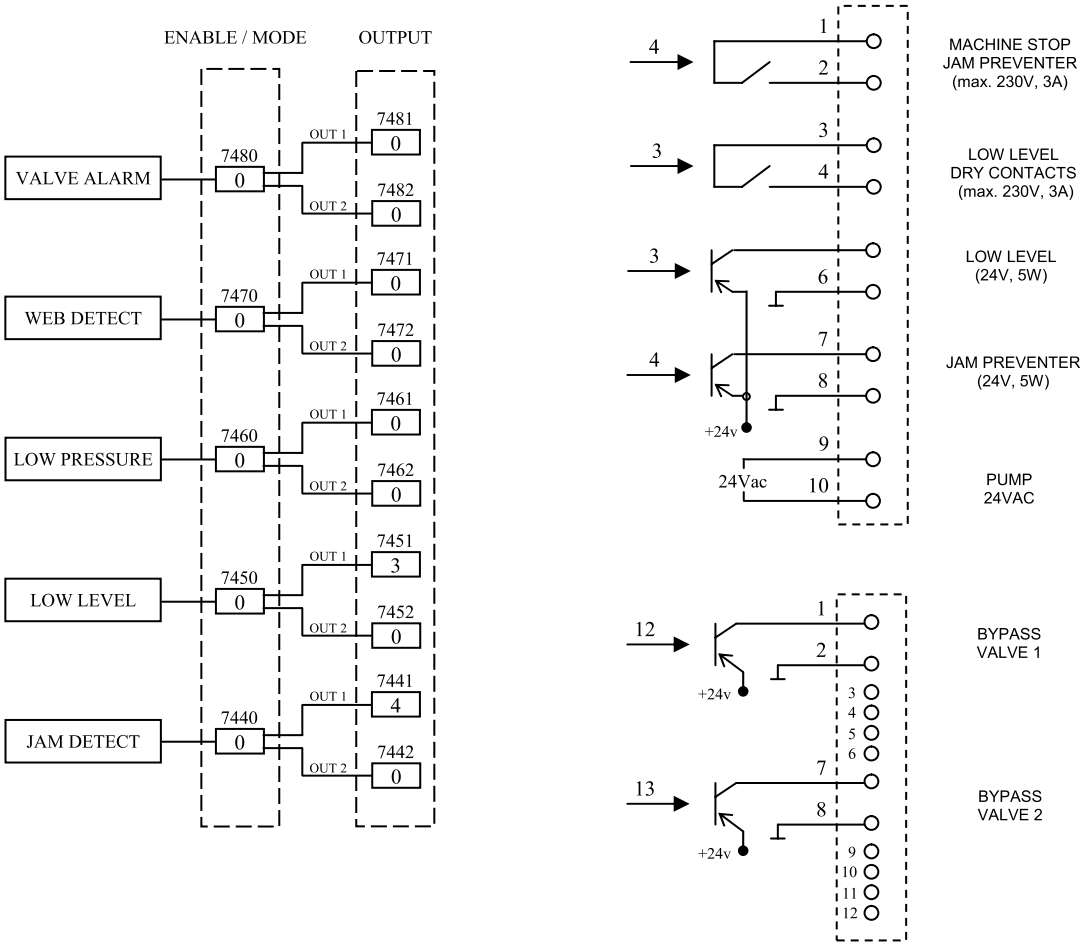
Error Message Codes Sensor CPU (cont.):	
1028xx	ERR_MARK_EJECT
1029xx	ERR_MARK_EJECT_MARKINGVALVE_1
1030xx	ERR_MARK_EJECT_MARKINGVALVE_2
1031xx	ERR_MARK_EJECT_EJECTOR_CEP
1032xx	ERR_MARK_EJECT_EJECTOR_SA
1033xx	ERR_TON_COMPENSATION_MARKINGVALVE_1
1034xx	ERR_TOFF_COMPENSATION_MARKINGVALVE_1
1035xx	ERR_TON_COMPENSATION_MARKINGVALVE_2
1036xx	ERR_TOFF_COMPENSATION_MARKINGVALVE_2
1037xx	ERR_START_FIFO_OVERFLOW
1038xx	ERR_SYNCHONISATION_MARK_EJECT
1039xx	ERR_ SYNCHONISATION _MARK_EJECT_MARKINGVALVE_1
1040xx	ERR_ SYNCHONISATION _MARK_EJECT_MARKINGVALVE_2
1041xx	ERR_ SYNCHONISATION _MARK_EJECT_EJECTOR_CEP
1042xx	ERR_ SYNCHONISATION _MARK_EJECT_EJECTOR_SA

Note:

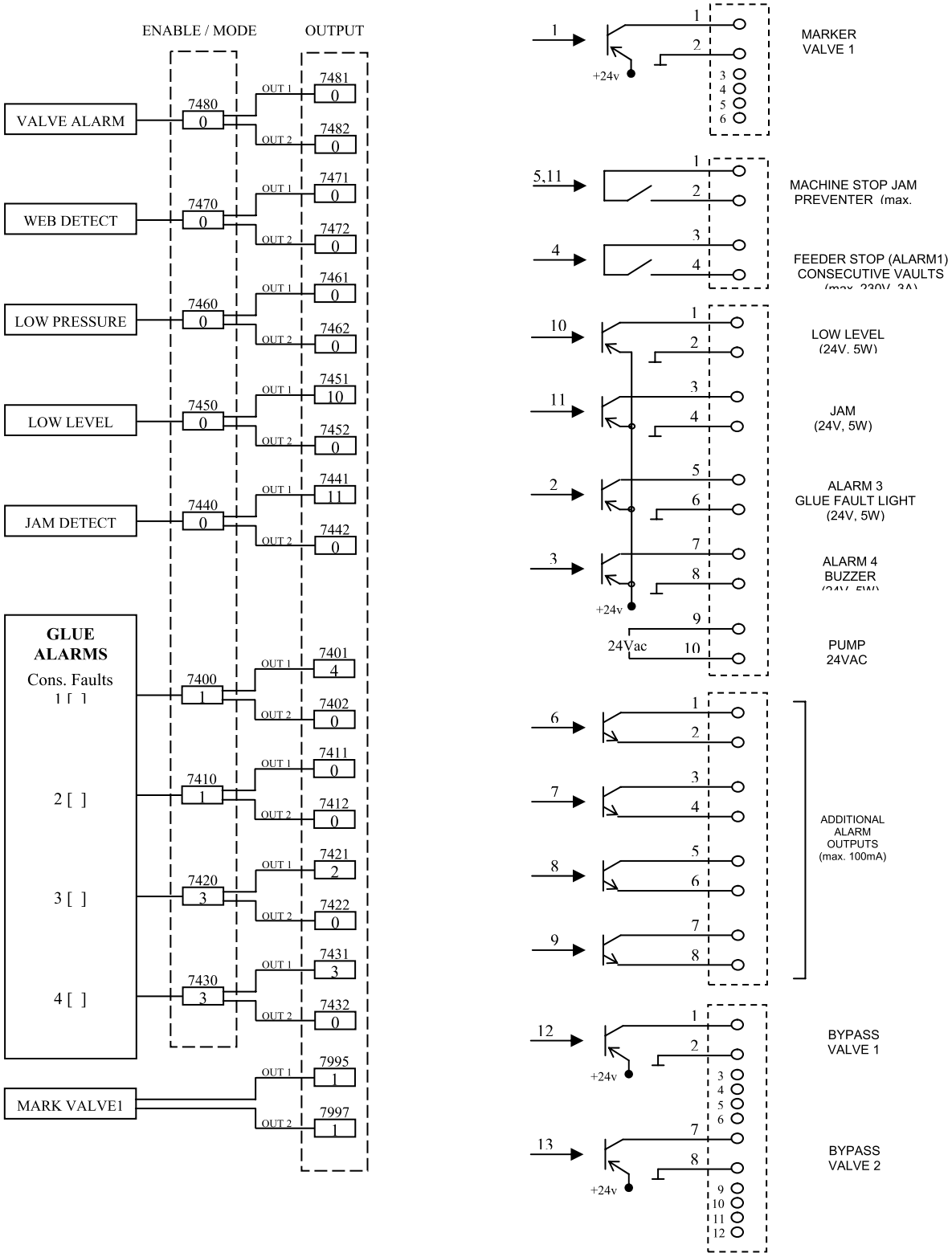
	Message is always displayed on the screen
	Message is also displayed on the screen if special setup parameter 1053 is set to ‘1’
	Message is also displayed on the screen if special setup parameter 1041 is set to ‘1’

Appendix D — Alarm Switch Matrix

Switch Matrix MCP-25 / MS (1st Generation)



Switch Matrix MCP-25 / MS (2nd Generation)



Appendix E — Wiring Diagrams

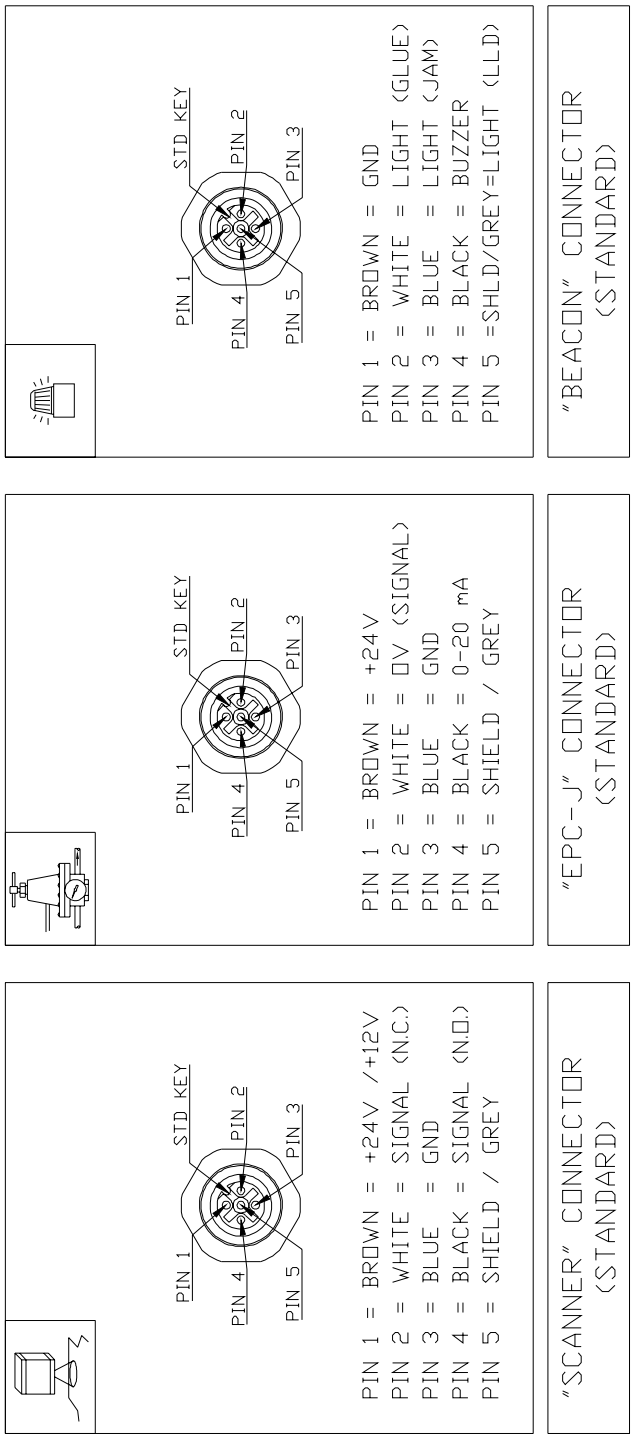


Figure 1 - TURCK Connector Pin out (Ref. Drawing RMK0096)

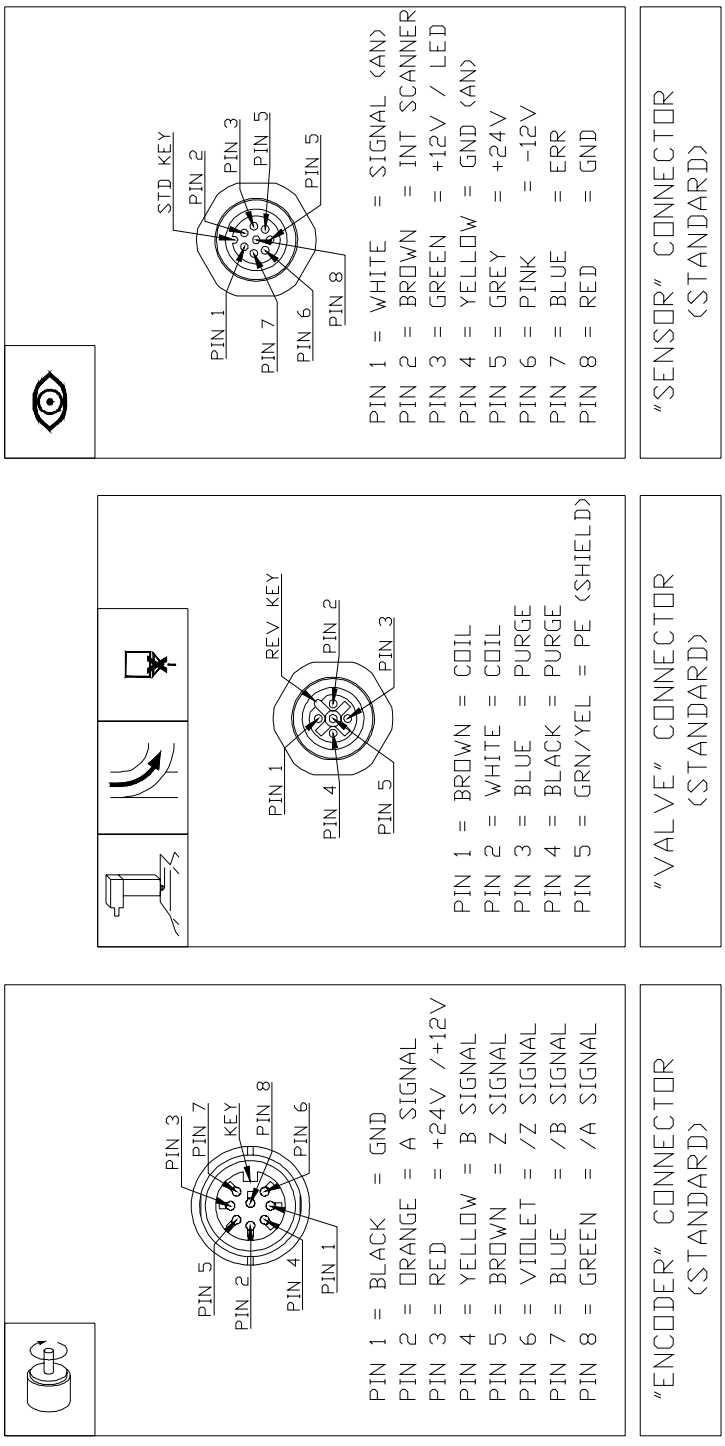
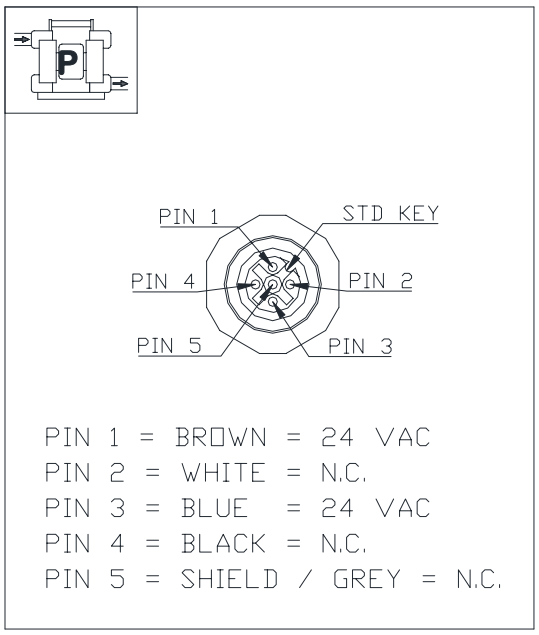
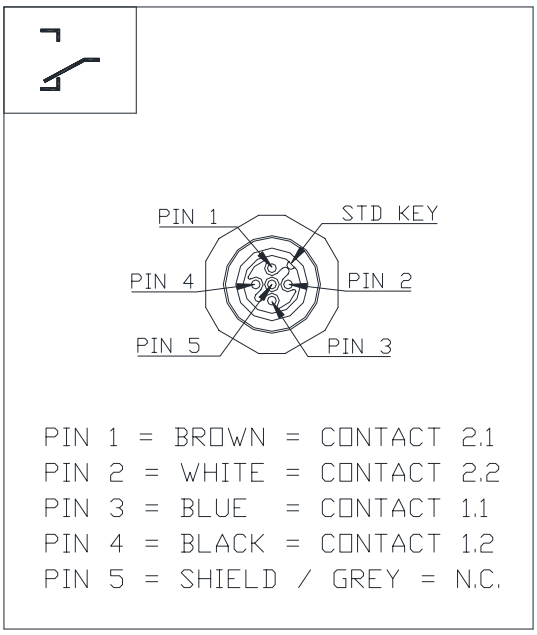


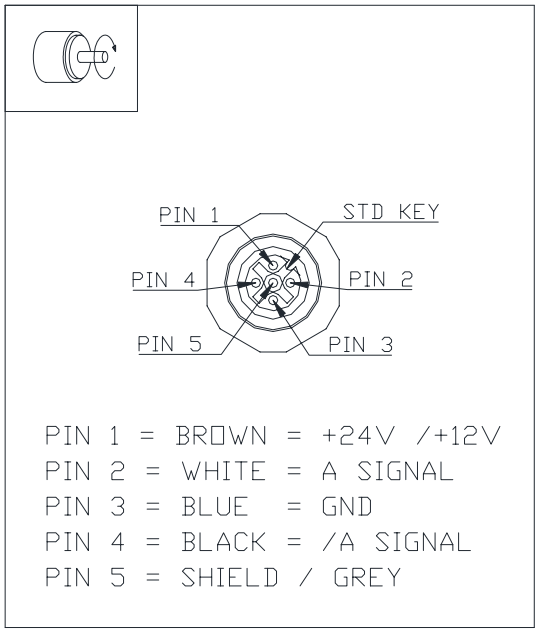
Figure 2 - TURCK Connector Pin out (Ref. Drawing RMK0096)



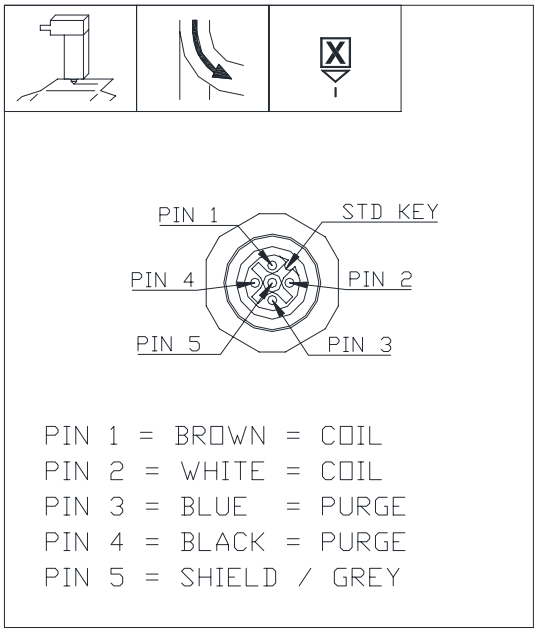
"PUMP" CONNECTOR (STANDARD)



"MACHINE STOP" CONNECTOR (STANDARD)



"ENCODER" CONNECTOR (BOBST)



"VALVE" CONNECTOR (BOBST)

Figure 3 - TURCK Connector Pinout

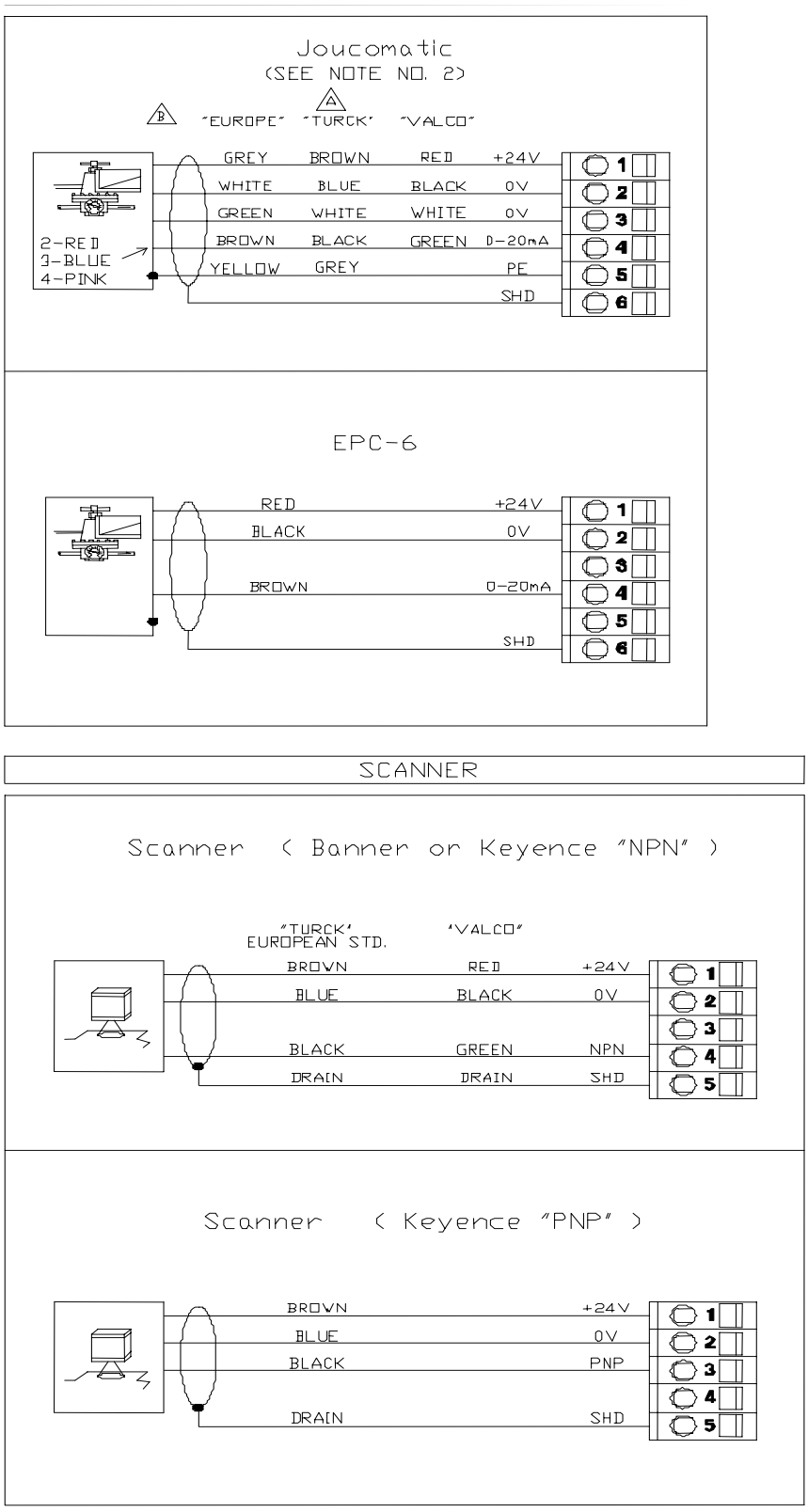


Figure 4 - Common Wiring (Ref. Drawing C080-133)

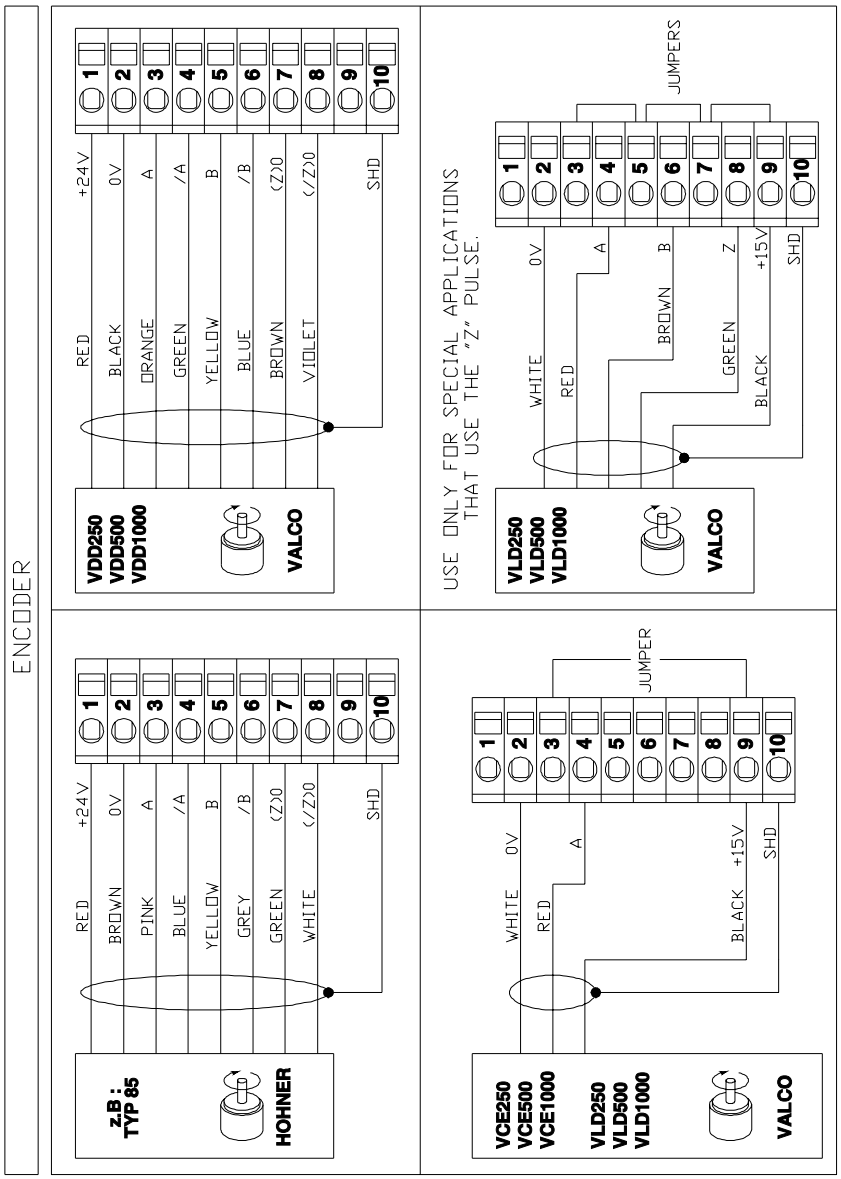


Figure 5 - Common Wiring (Ref. Drawing C080-133)

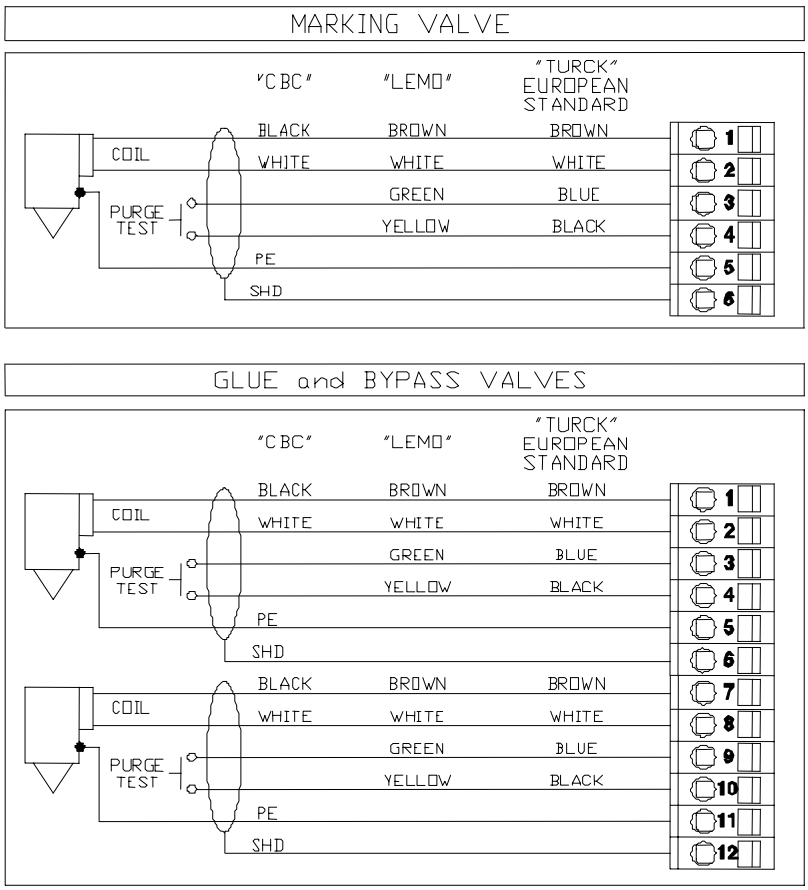


Figure 6 - Common Wiring (Ref. Drawing C080-133)

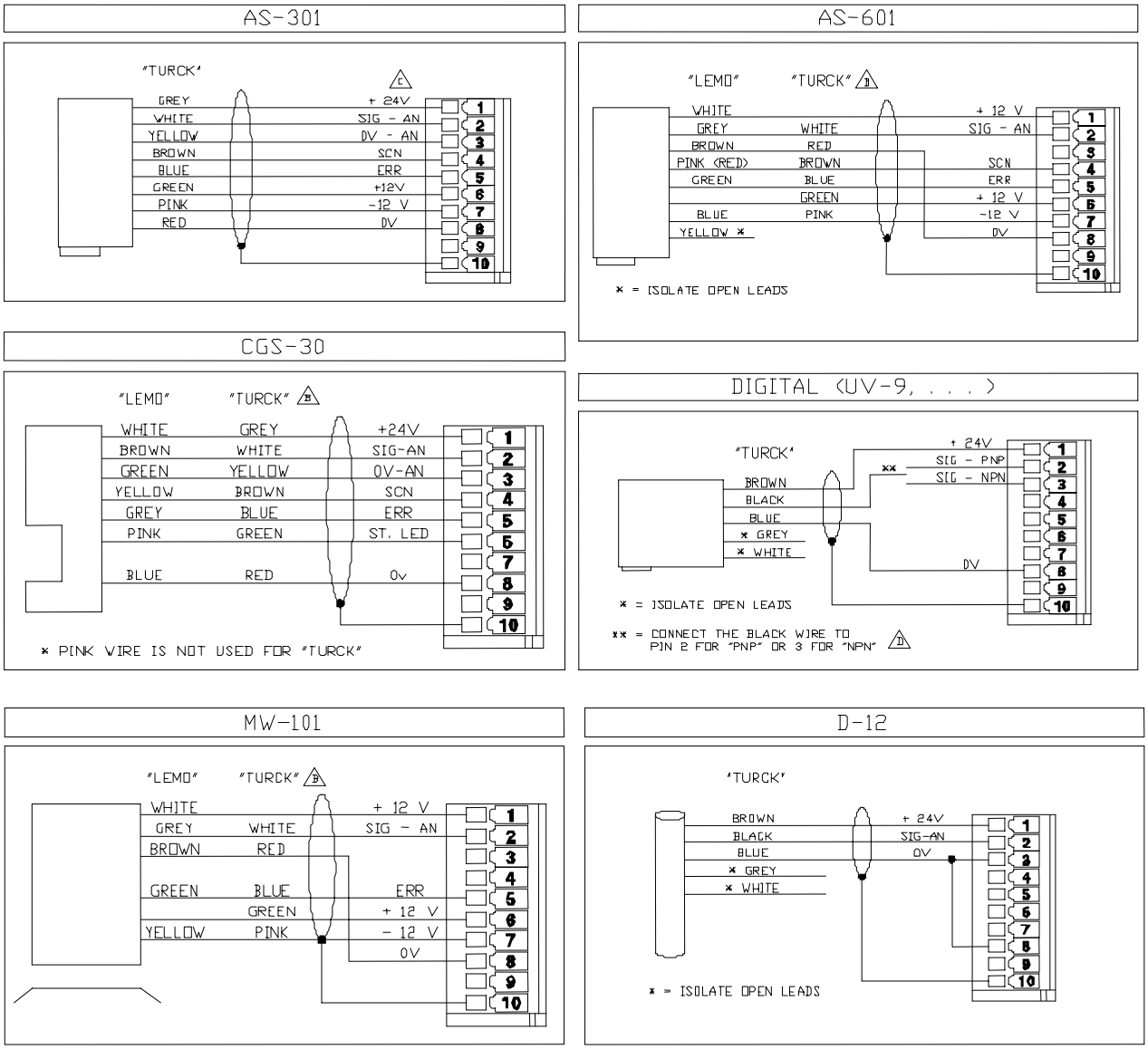


Figure 7 - Sensor Wiring (Ref. Drawing C080-137)

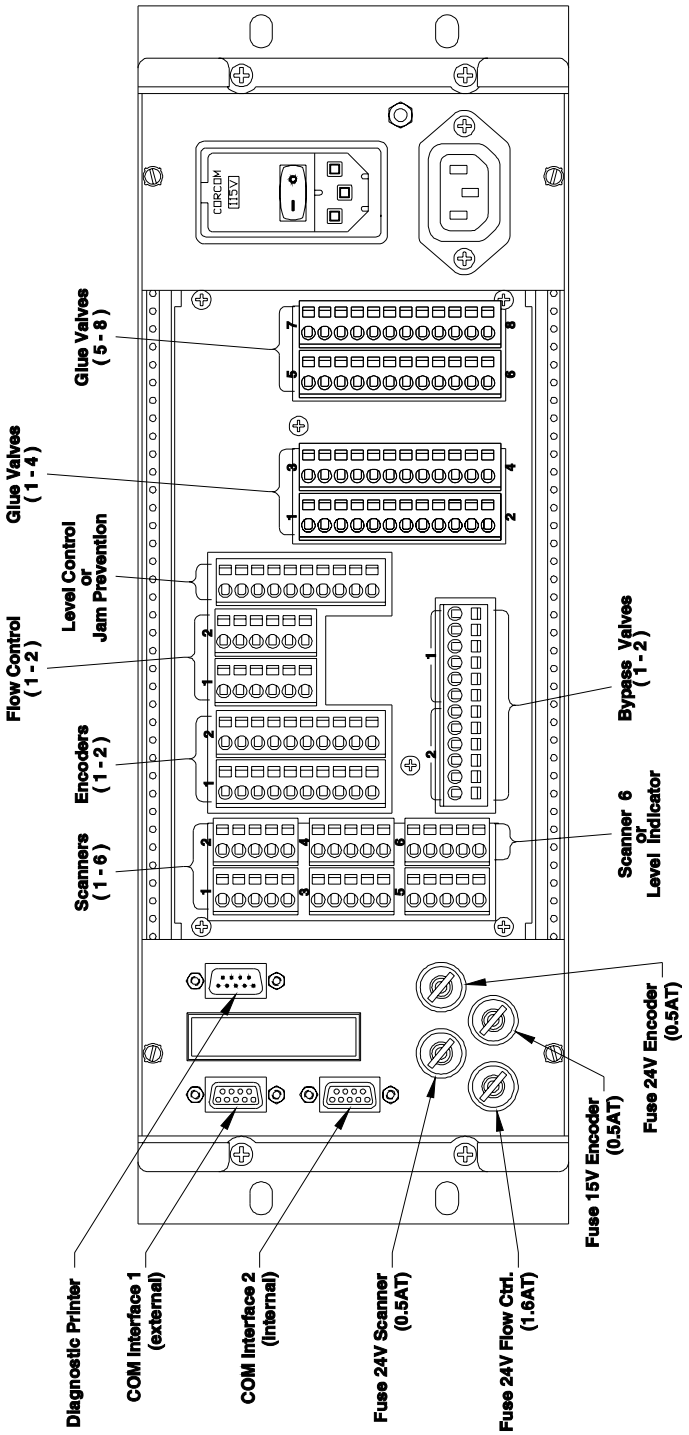


Figure 8 – Backpanel MCP-25 3rd Generation (Ref. Drawing D080-135)

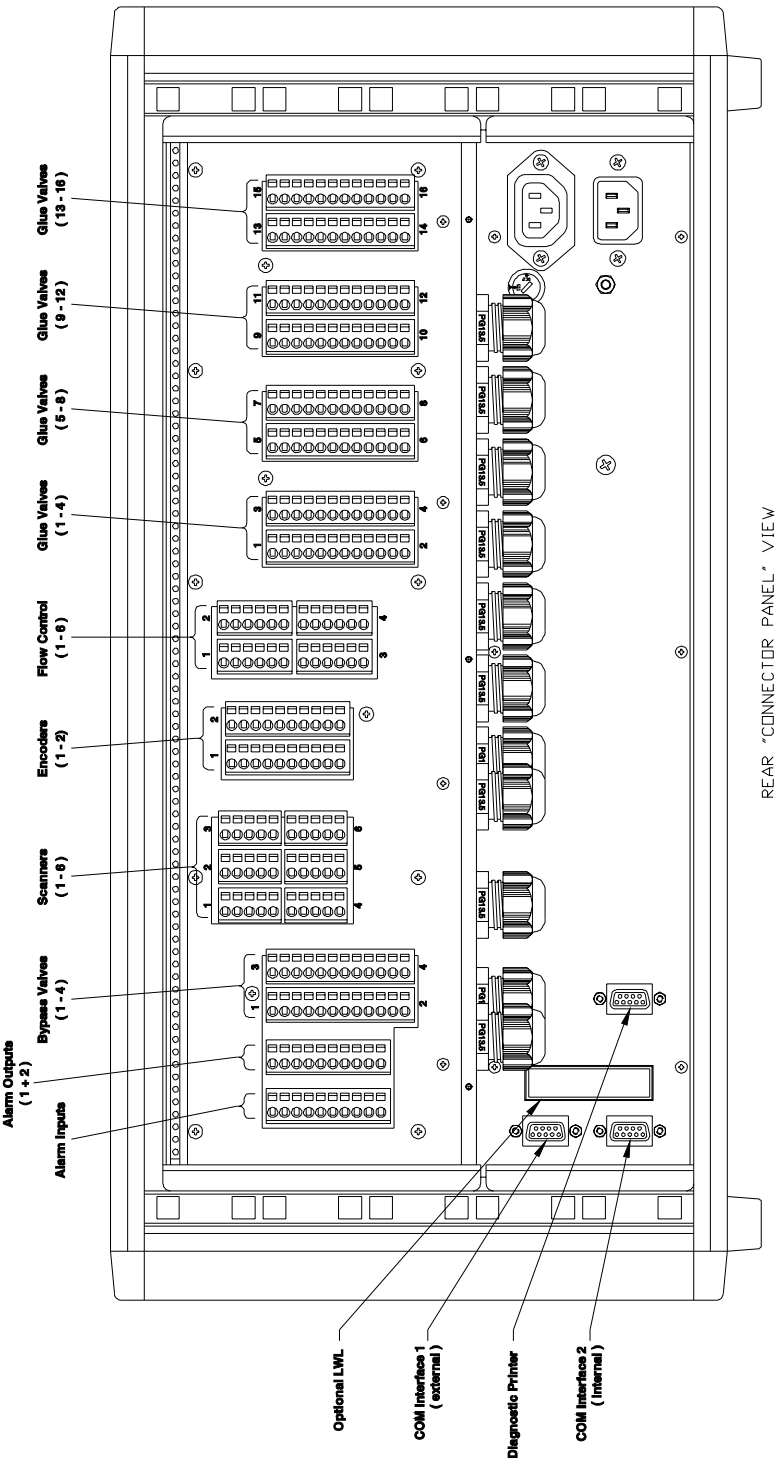


Figure 9 - Backpanel MCP-42 (Ref. Drawing D080-134)

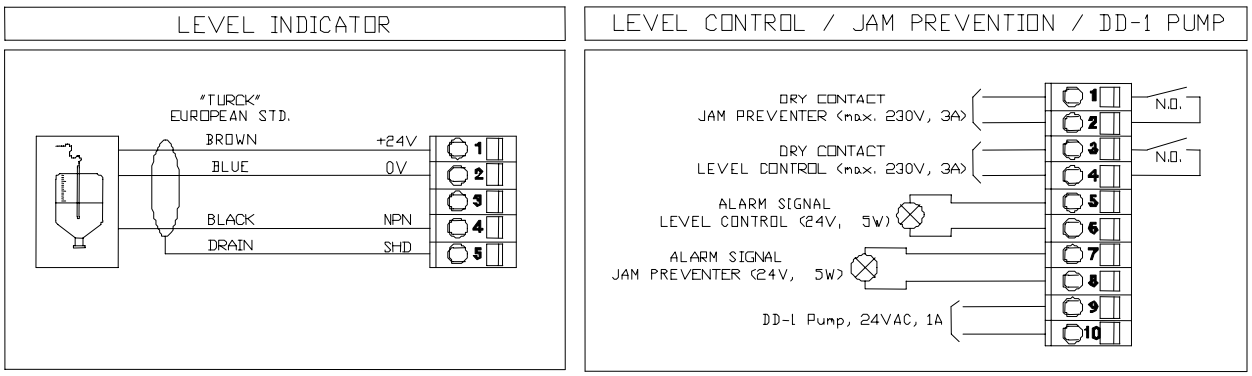


Figure 10 - Special Wiring MCP-25 3rd Generation (Ref. Drawing D080-135)

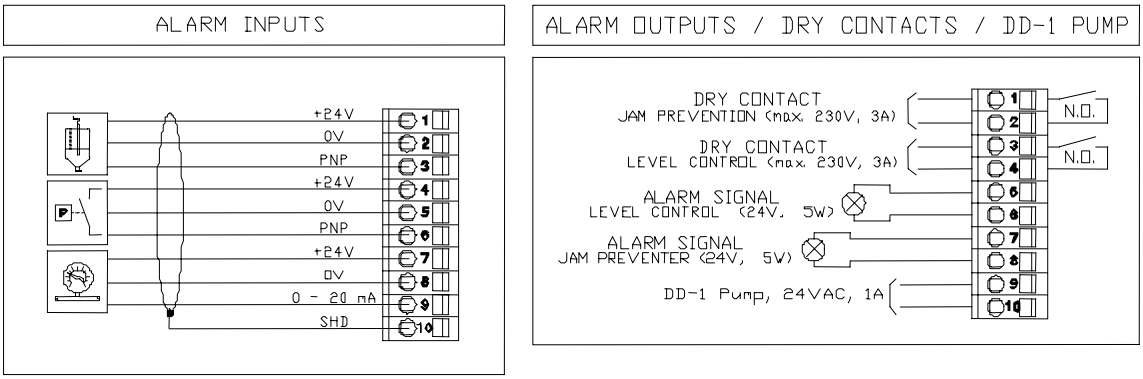


Figure 11 - Special Wiring MCP-42 (Ref Drawing D080-134)

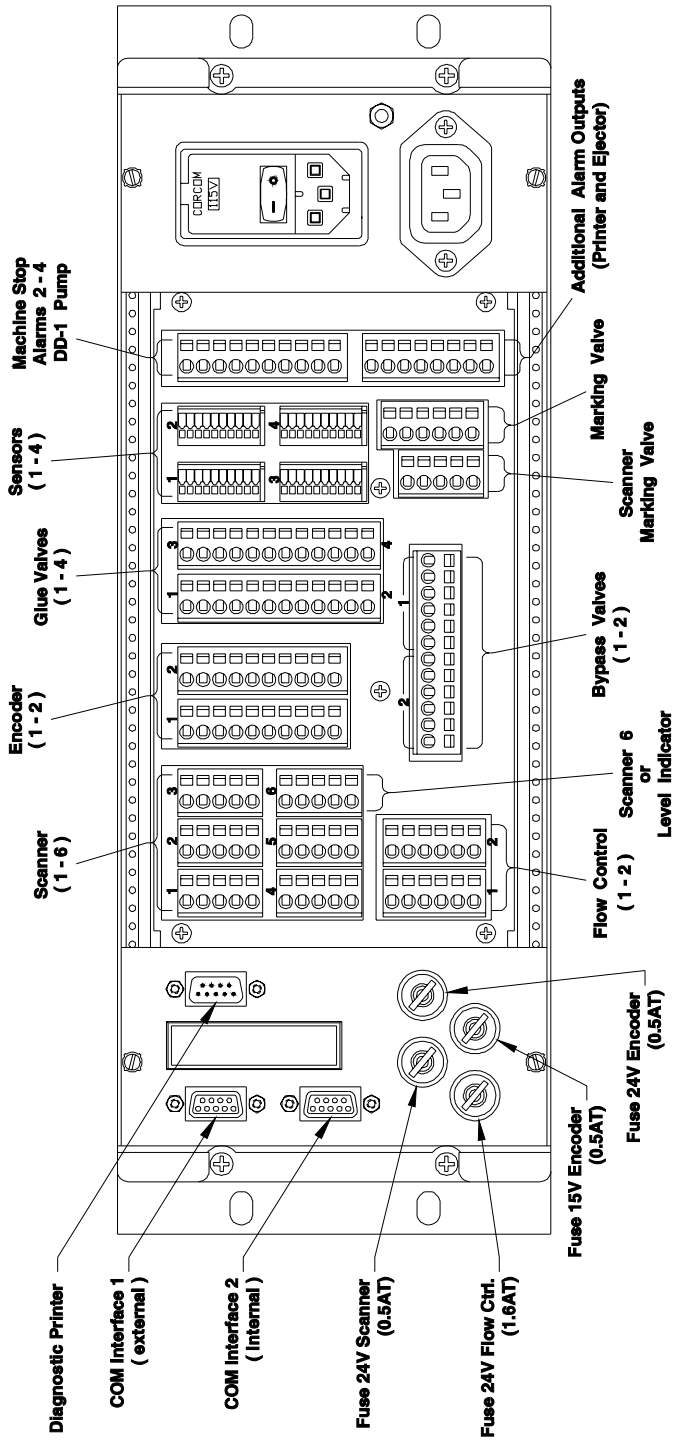


Figure 12 - Backpanel MCP-25/MS 1st Generation (Ref. Drawing D080-132)

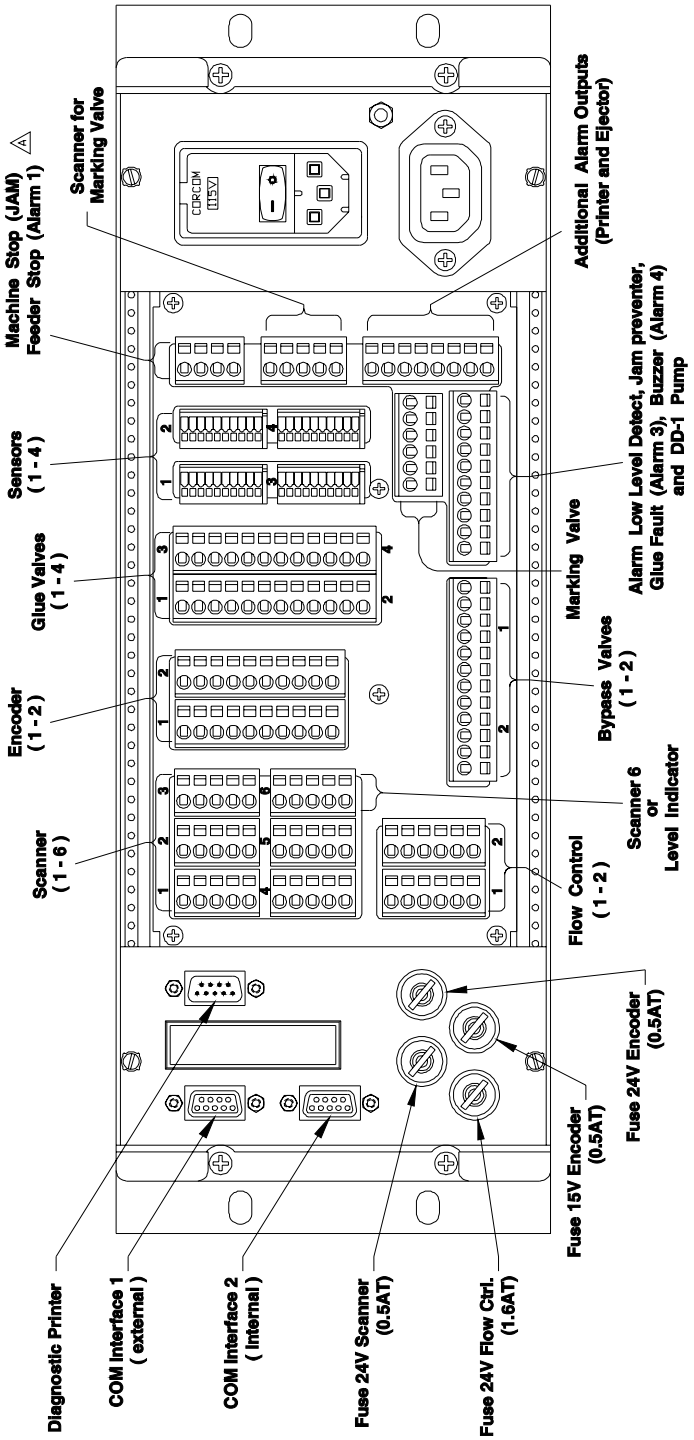


Figure 13 - Backpanel MCP-25/MS 2nd Generation (Ref. Drawing D080-140)

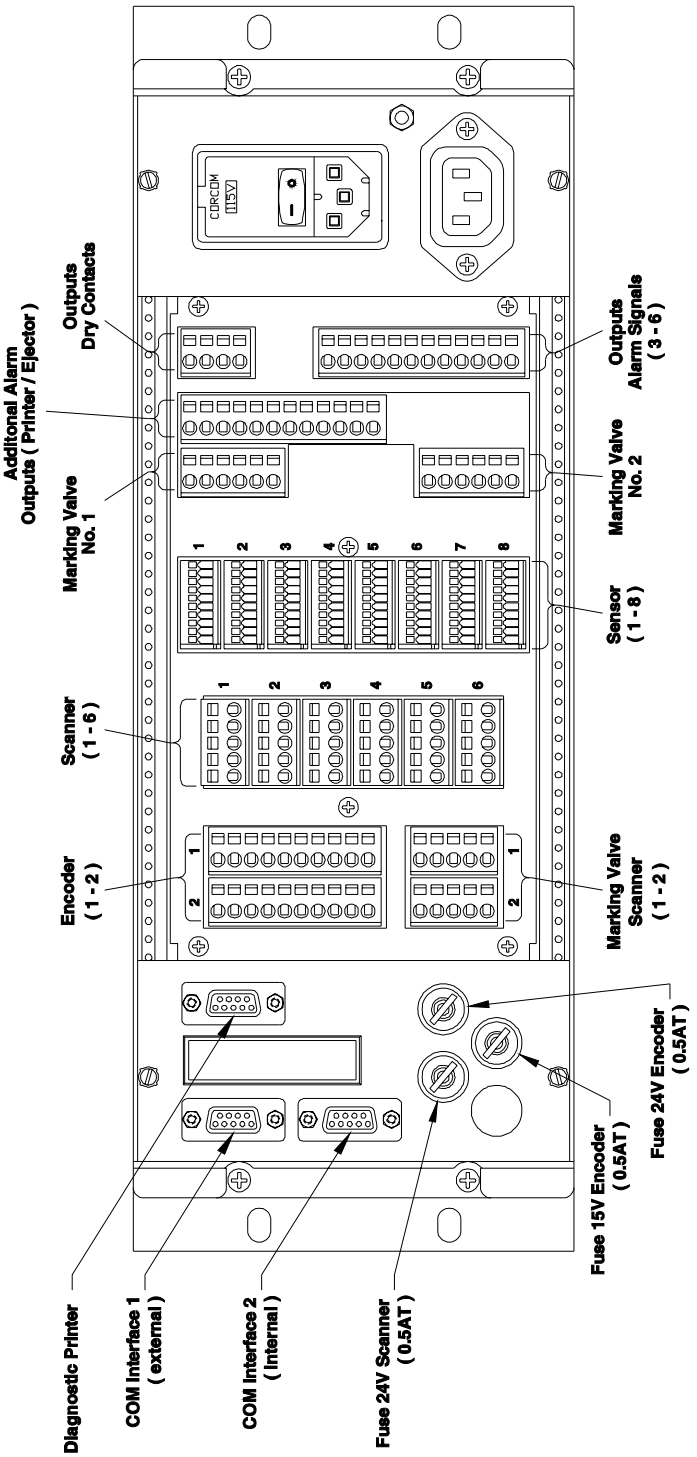


Figure 14 - Backpanel MS-250 (Ref. Drawing D080-136)

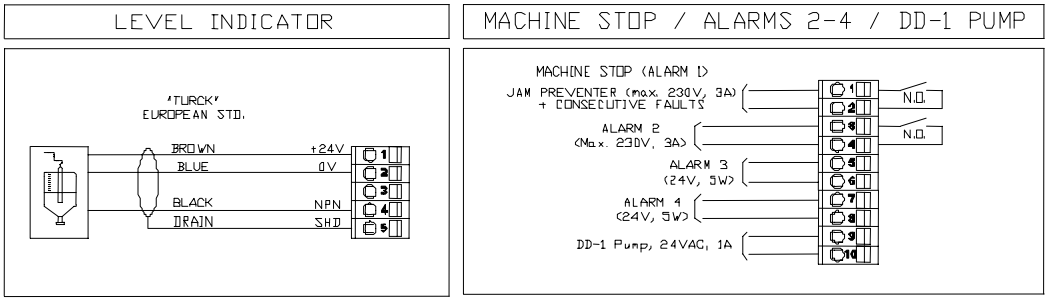


Figure 15 - Special Wiring MCP-25/MS 1st Generation (Ref. Drawing D080-132)

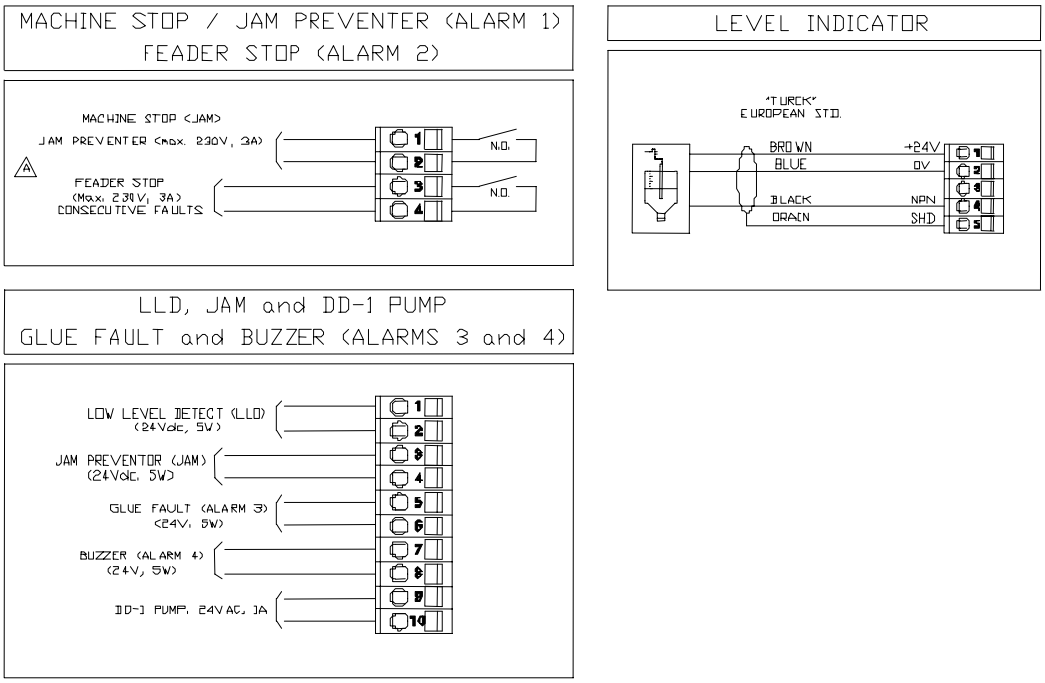


Figure 16 - Special Wiring MCP-25/MS 2nd Generation (Ref Drawing D080-140)

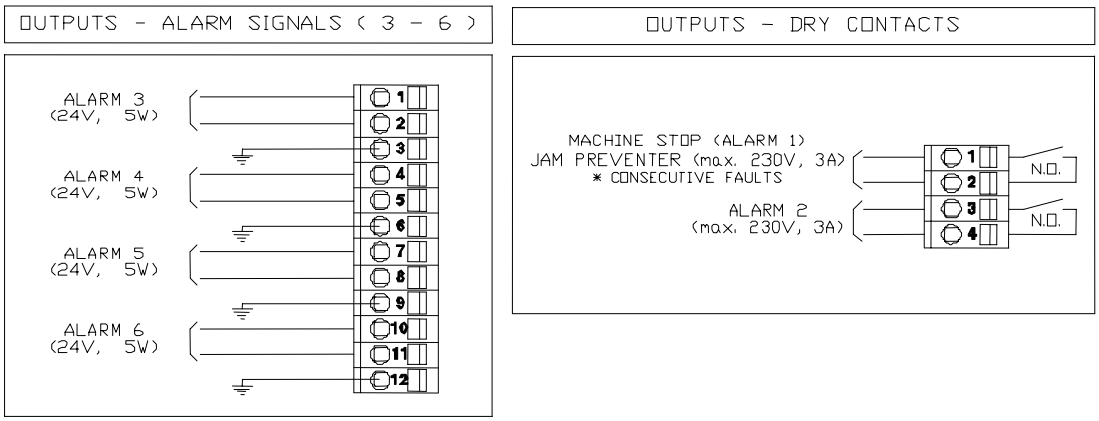


Figure 17 - Special Wiring MS-250 (Ref Drawing D080-136)

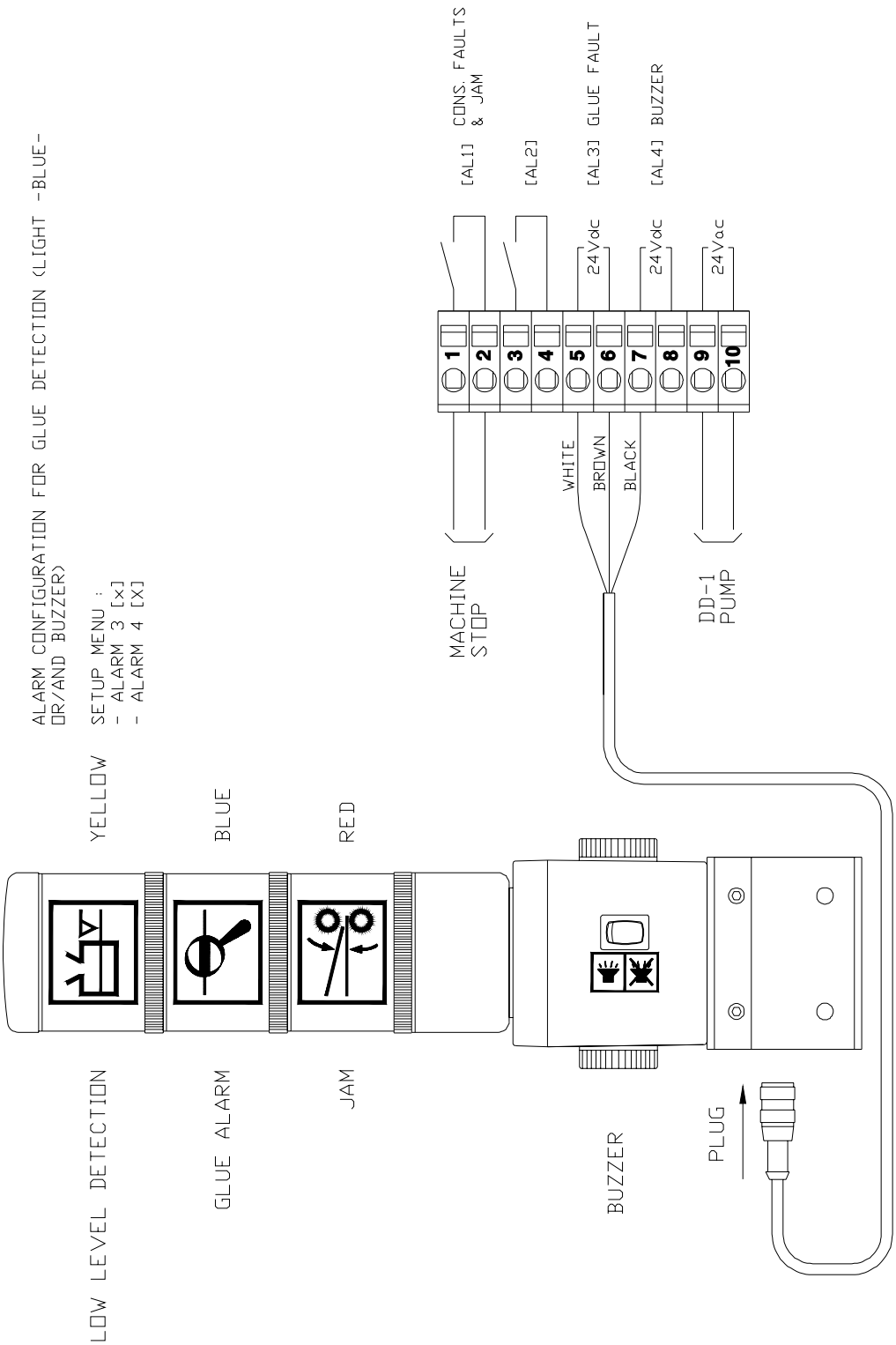


Figure 18 - Beacon Wiring MCP-25/MS (Example A)

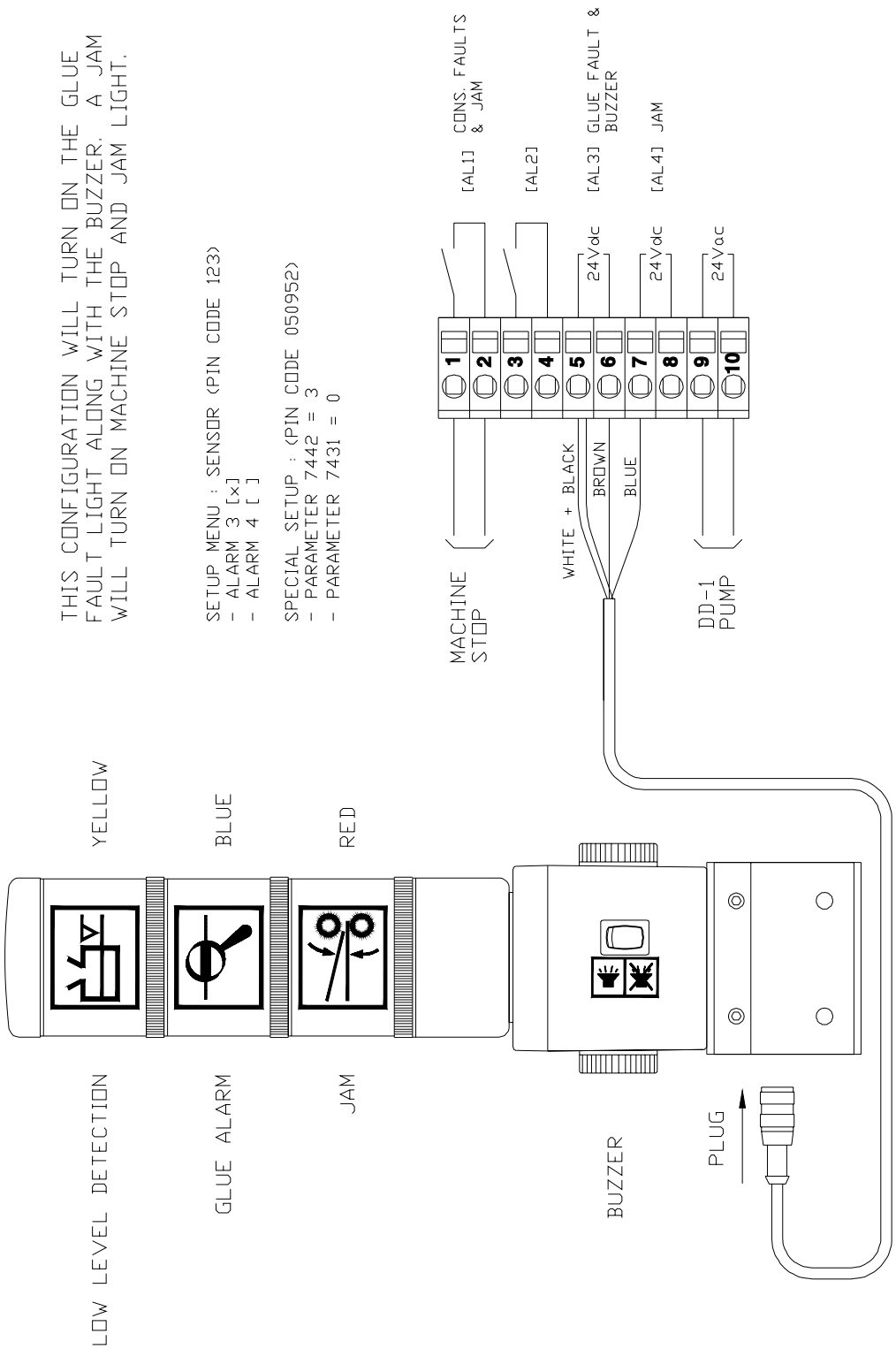


Figure 19 - Beacon Wiring MCP-25/MS (Example B)

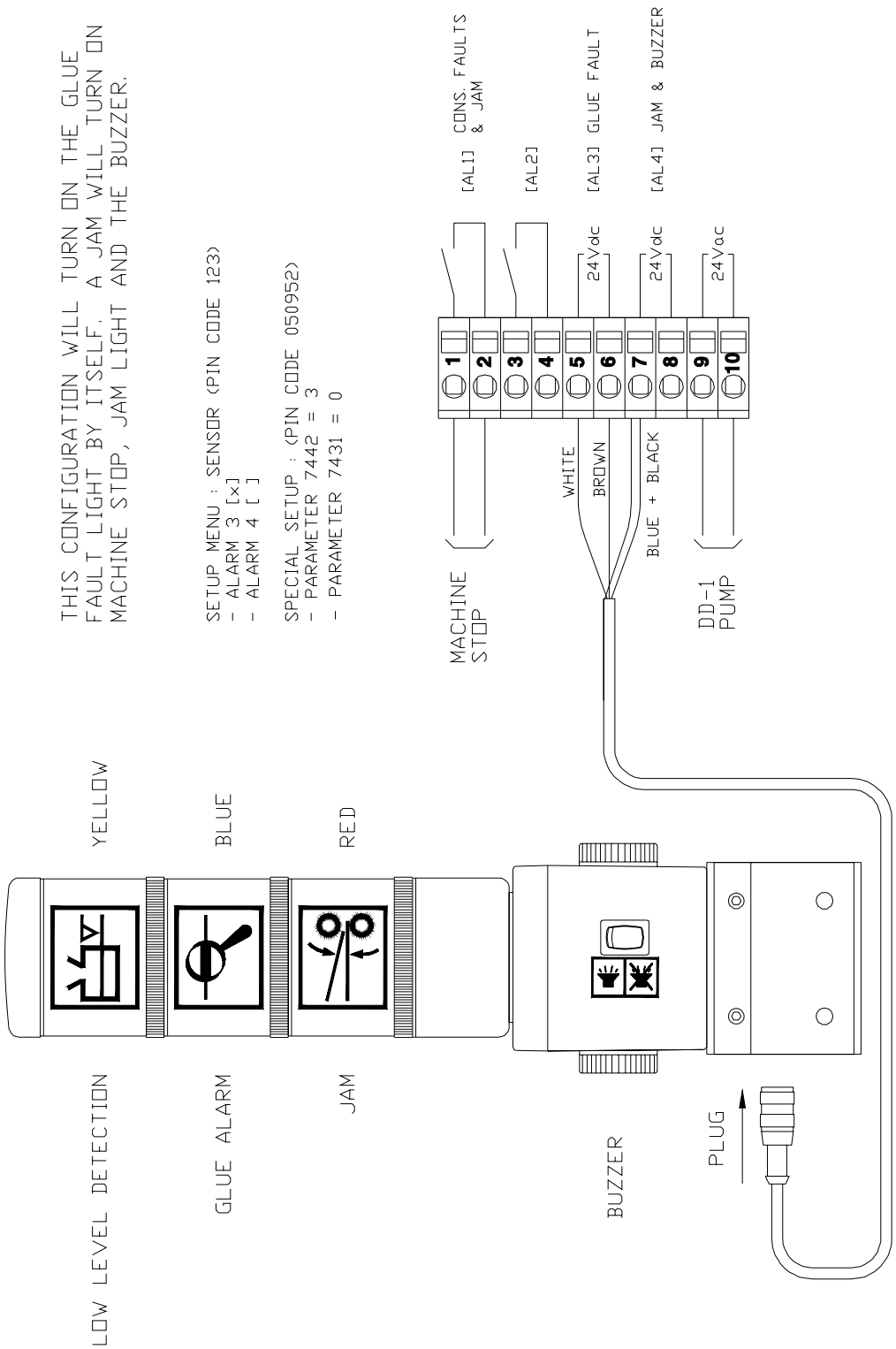


Figure 20 - Beacon Wiring MCP-25/MS (Example C)

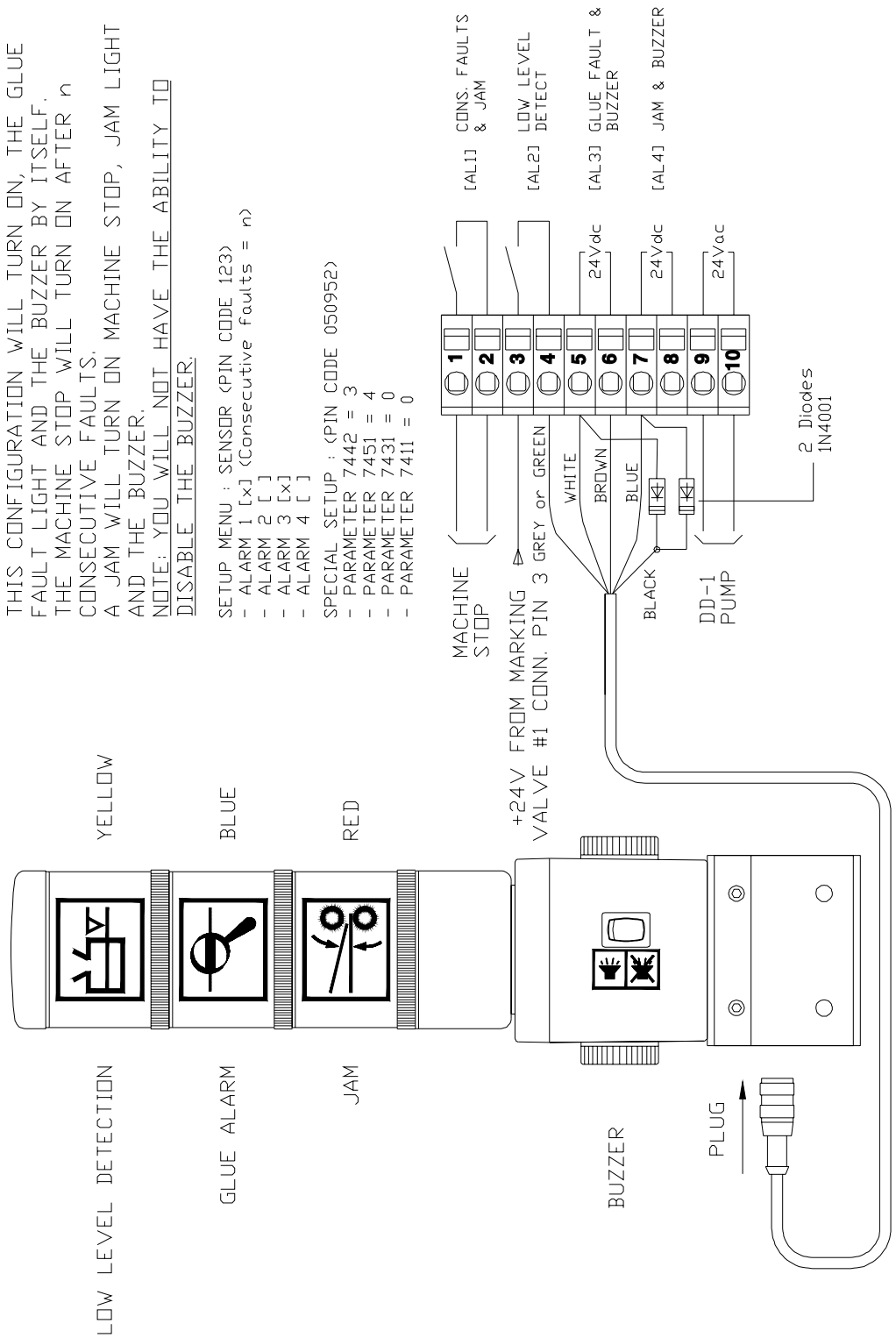


Figure 21 - Beacon Wiring MCP-25/MS (Example D)

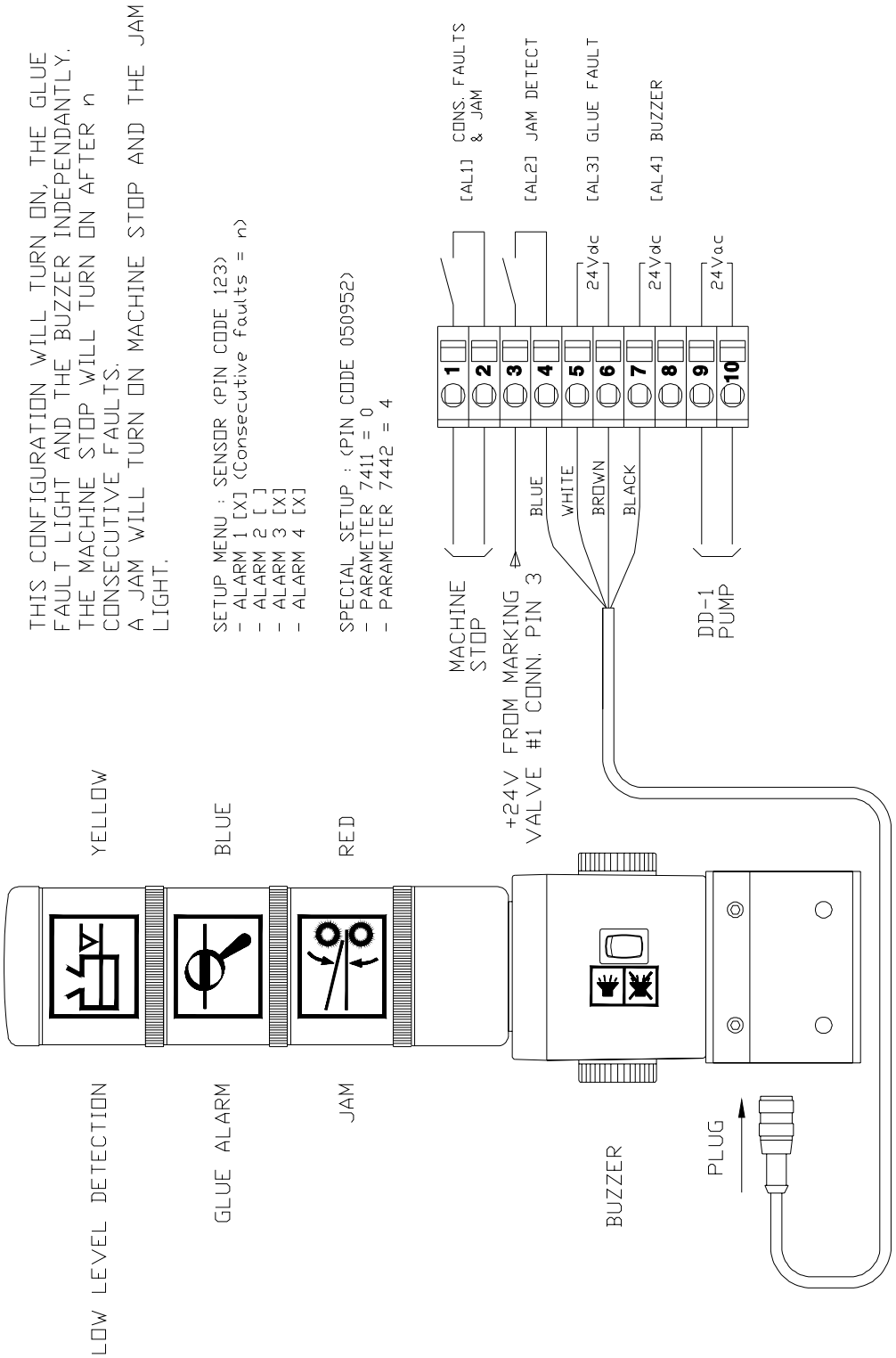


Figure 22 - Beacon Wiring MCP-25/MS (Example E)

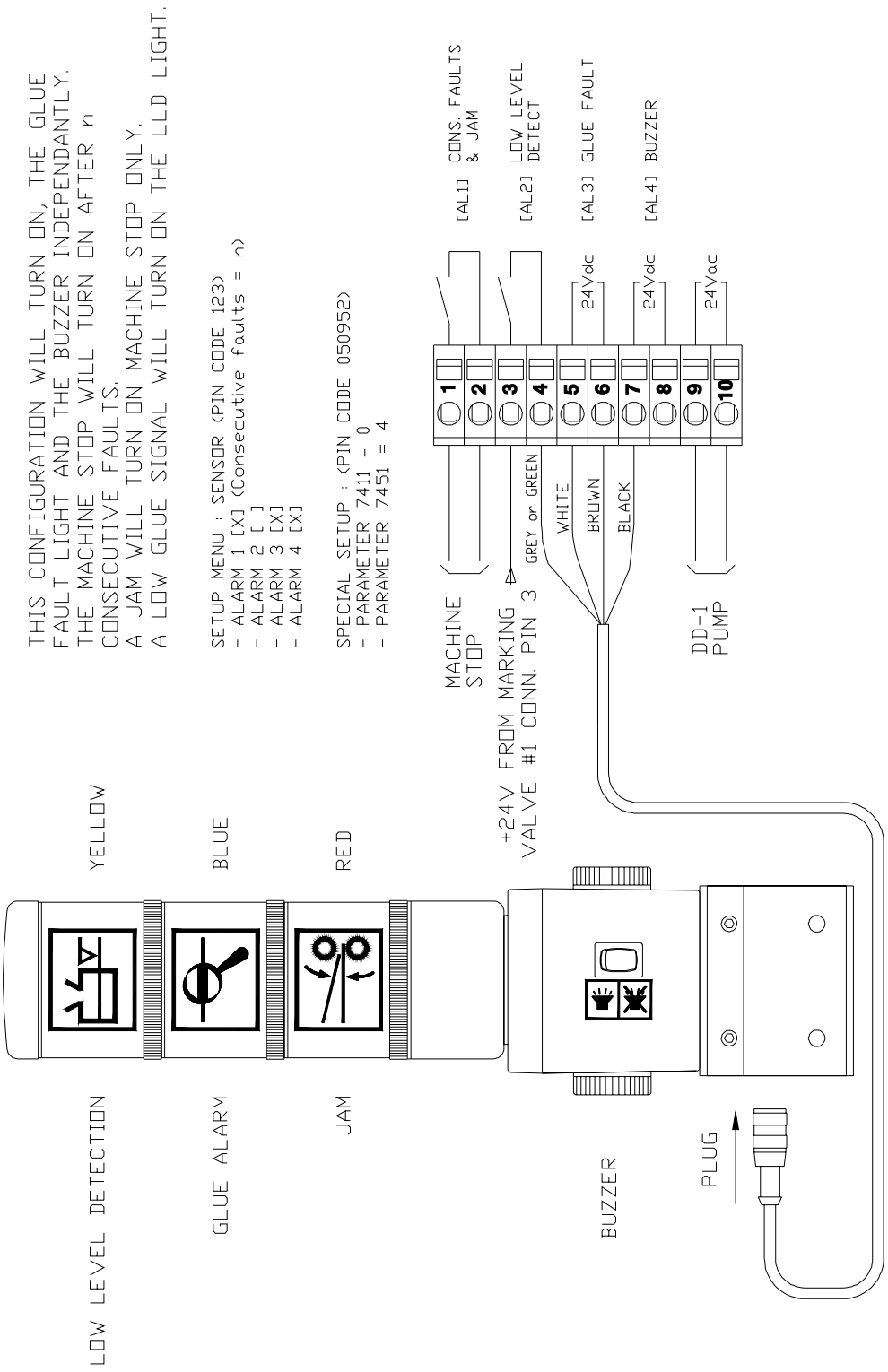


Figure 23 - Beacon Wiring MCP-25/MS (Example F)

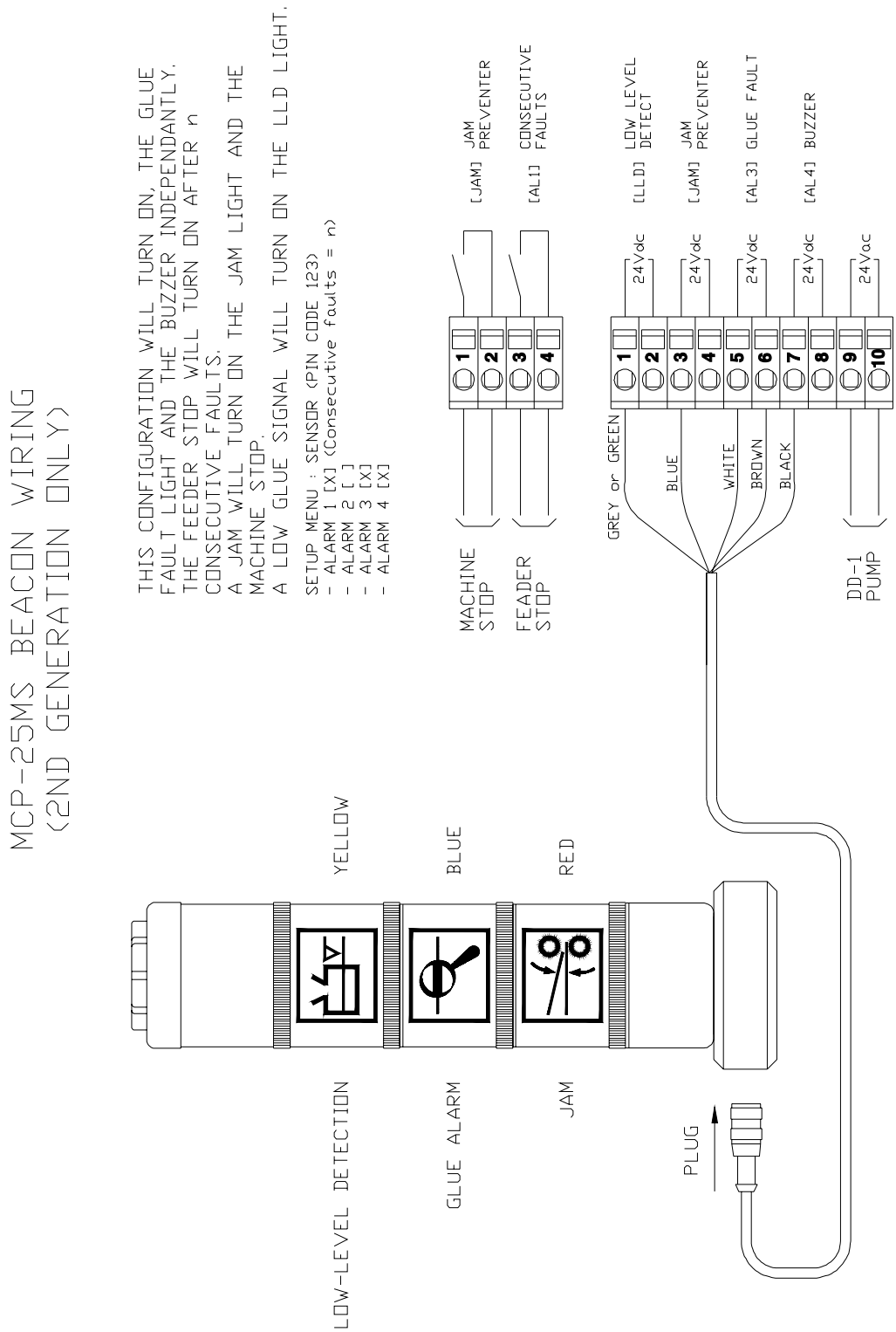


Figure 24 - Beacon Wiring MCP-25/MS (Example G)

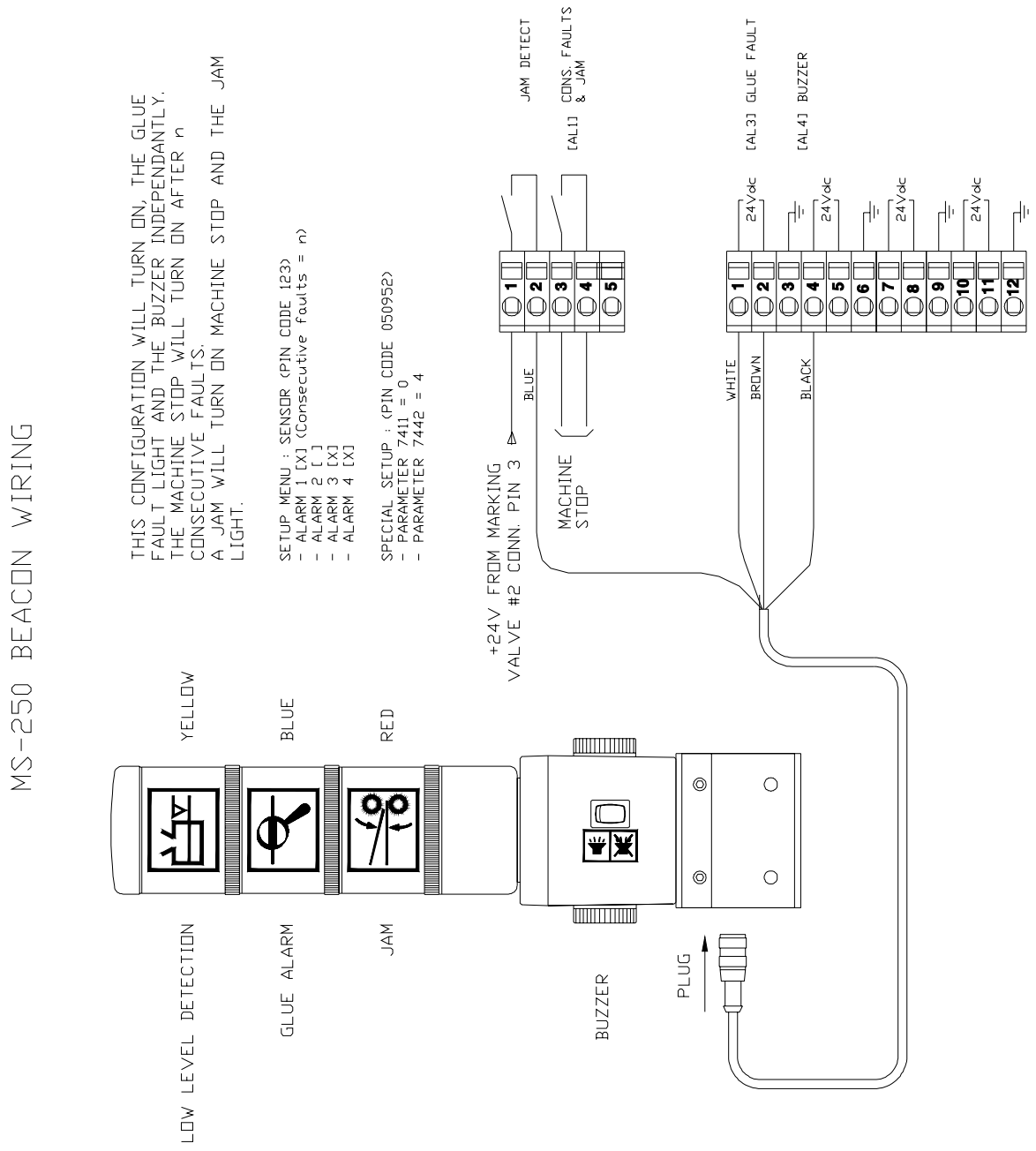


Figure 25 - Beacon Wiring MS-250 (Example A)

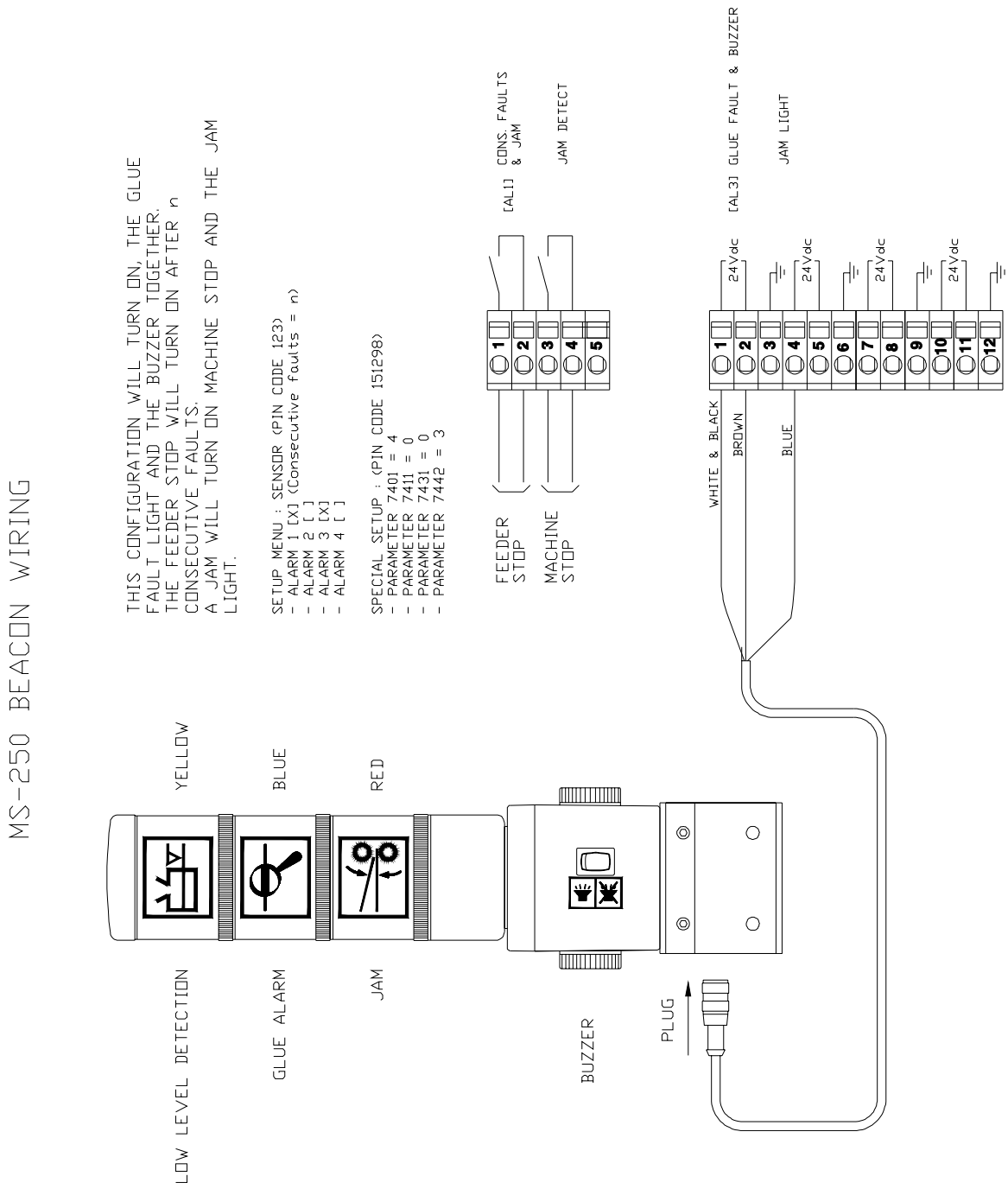


Figure 26 - Beacon Wiring MS-250 (Example B)