Installation Manual

Peristaltic Dispenser

PD22 OEM

1 Table of Contents

2 Installation - General

This manual only relates to incorporation of the PD22 OEM into a filling machine.

Please refer to PD22 OEM operator's manual for daily use of the PD22 OEM.

The installation of the PD22 OEM consists of

- Installation of dispenser head and control unit
- Electrical connection of the various parts of the filling system
- Integration of the PD22 OEM into the filling machine control system

3 Installation of PD22 OEM dispenser head and control unit

3.1 Installation of PD22 OEM dispenser head

The dispenser head must be mounted through a solid wall. The wall must have a thickness of 17 to 19 mm.

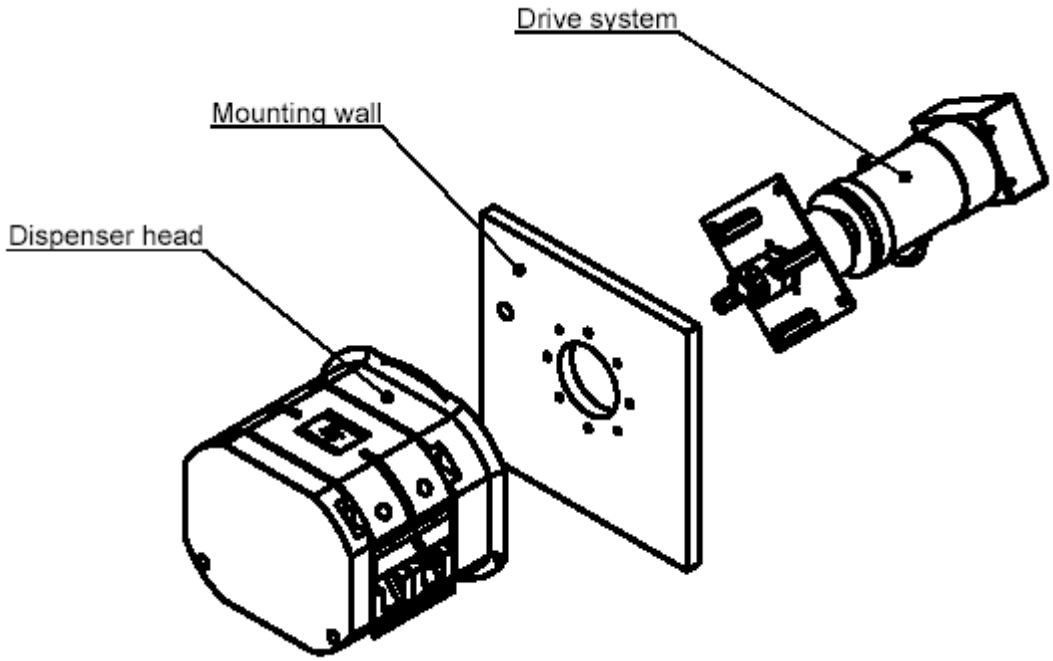


Fig. 3-1

The dispenser head can be mounted in either vertical or horizontal position. The only orientation that cannot be used is horizontal with the tube bridge facing downwards. All other orientations will not affect the performance of the dispenser.

It must be observed that sufficient space around the dispenser head is available to allow change and positioning of tubes. These minimum distances must also be observed, when installing more than one dispenser in the same wall.

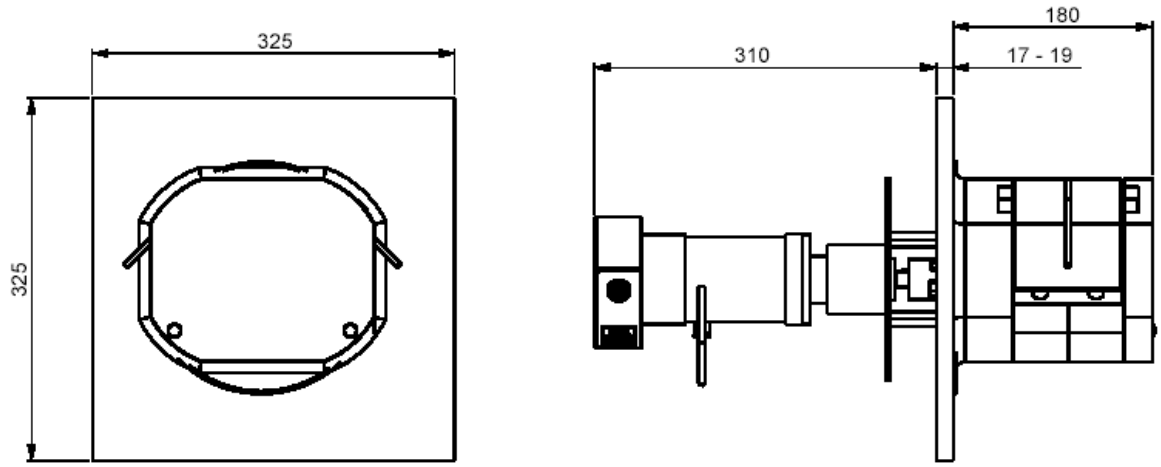


Fig. 3-2

Also the length of the dispenser head in front of the wall and the depth of the drive system behind the wall must be observed to allow mounting and service of the dispenser.

Use dimensions below for mounting holes.
Note that the drawing below shows the mounting holes looking from the side where the motor is to be mounted, and the position of the hole for the safety switch in relation to that.

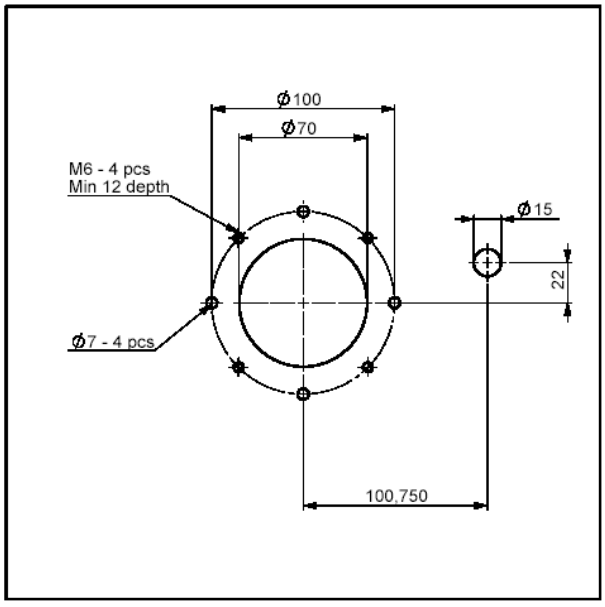


Fig. 3-3

3.2 Installation of PD22 OEM control unit

The PD22 OEM control unit is intended for mounting on a flat vertical surface inside the filling machine control cabinet. The control unit is intended for mounting on 3 pcs M6 Allen screws with cylindrical head.

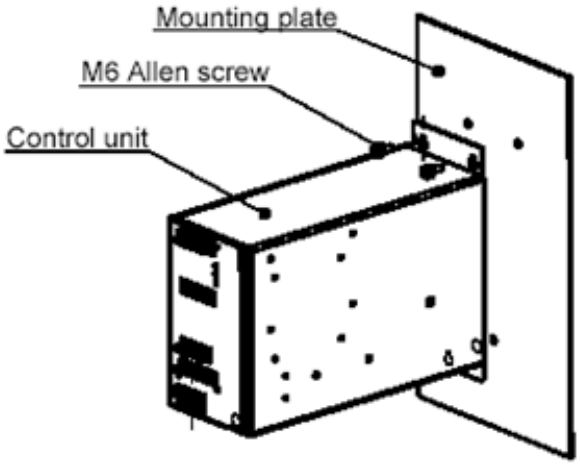


Fig. 3-4

It must be observed that sufficient space around the control unit is available to allow mounting of the unit and ventilation. The rear side of the control unit, that contains all electrical connections, must be accessible.

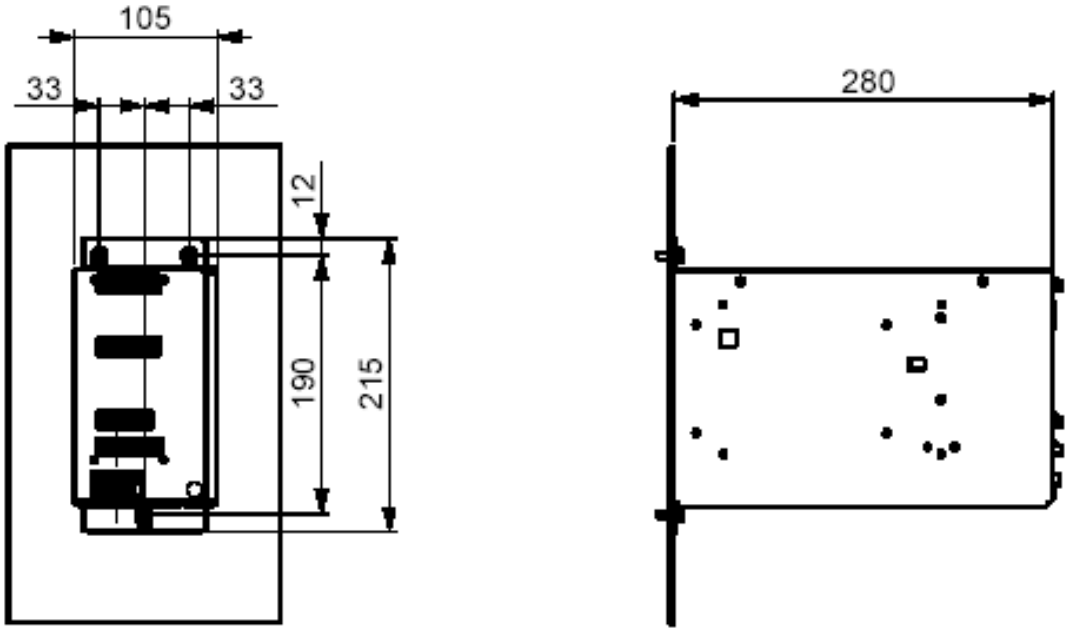


Fig. 3-5

4 Electrical connection of PD22 OEM

The various parts of the filling system must be connected as shown in the connection block diagram below.

All necessary connectors are supplied with the machine, but cables are not included.

4.1 Connecting a system with PD22 OEM and MC12

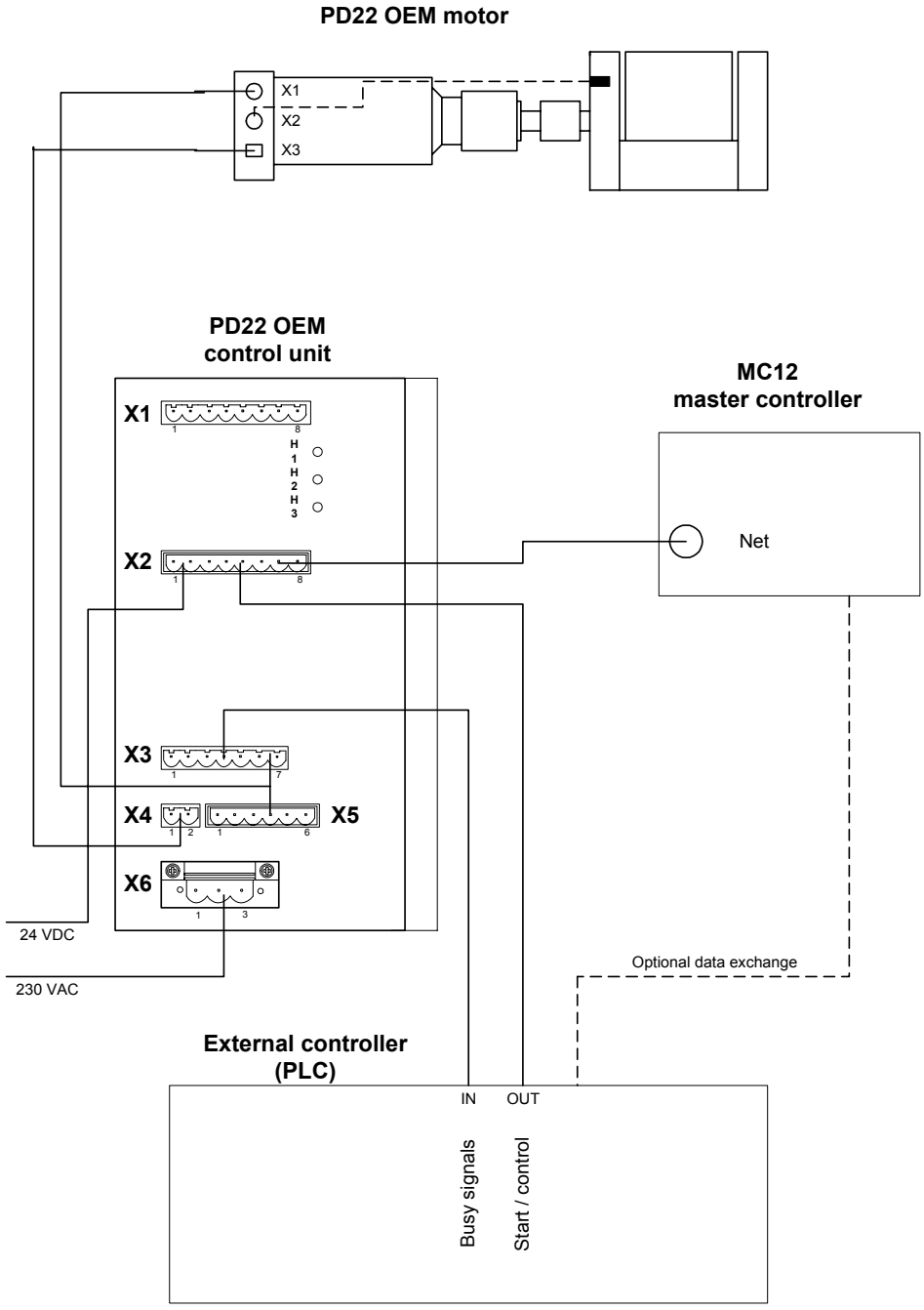


Fig. 4-1

4.2 Connecting a system with PD22 OEM and MC100

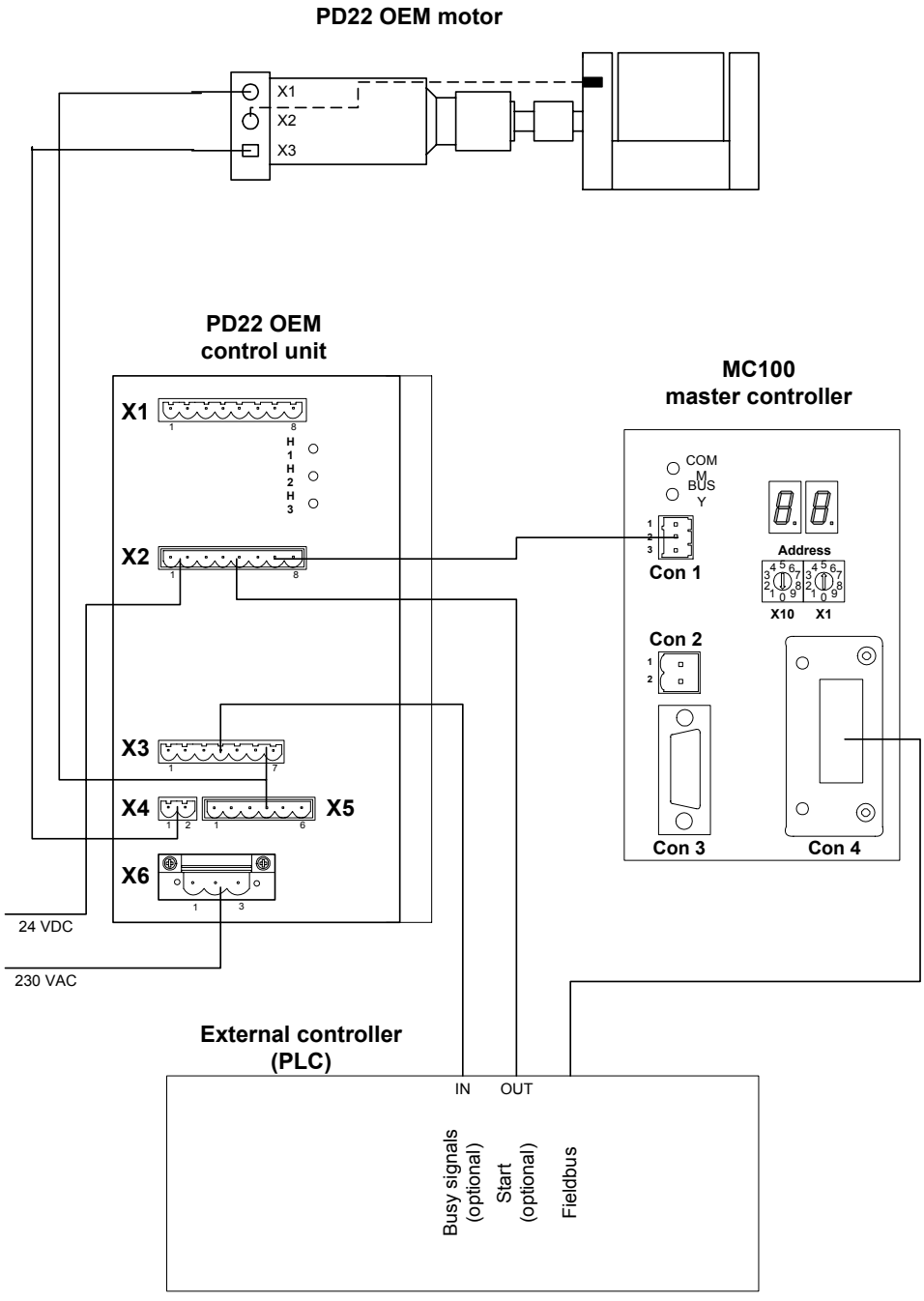


Fig. 4-2

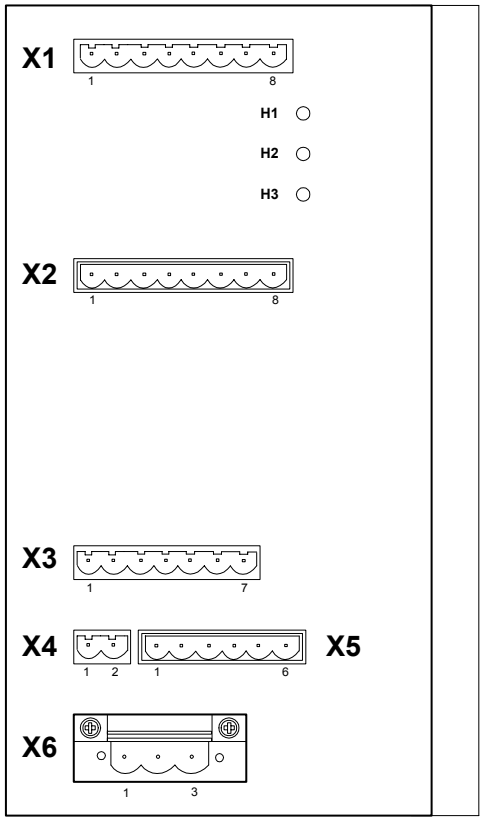
Each connector and corresponding electrical and functional specification is described in the following section.

5 Integration of the PD22 OEM into the filling machine control system

Integration of the PD22 OEM into the filling machine control system must be carried out according to the technical description of the electrical interface below.

The PD22 OEM has the electrical interface on the rear side of the cabinet. It consist of 6 PHOENIX connectors, connecting to DC Motor, Inputs, Outputs and Mains power.

Rear view



LED Indicators

H1	+24V Power to Pump Controller
H2	Communication to Master Controller
H3	BUSY 3 Indicator

X1 Not Used

X2 Pin No.

1	External Supply	0V
2	External Supply	+24V
3	DISABLE Input	(EXT 2)
4	START Input	(EXT 1)
5	PRIME Input	
6	FlexNet	DATA
7	FlexNet	GND
8	FlexNet	/DATA

X3 Pin No.

1	Mains Supply	OK	+24V Out
2	BUSY 3	PNP Output	+24V / max. 300 mA
3	BUSY 2	PNP Output	+24V / max. 300 mA
4	BUSY 1	NPN Output	0V / max. 300 mA
5	SAFETY Sensor	Output	+24V / max. 200 mA
6	SAFETY Sensor	Input	+24V
7	SAFETY Sensor	GND	0V

X4 Pin No.

1	DC Motor	+
2	DC Motor	-

X5 Pin No.

1	Encoder Supply	0V
2	Encoder RS485	CHA-
3	Encoder RS485	CHA+
4	Encoder RS485	CHB-
5	Encoder RS485	CHB+
6	Encoder Supply	5V

X6 Pin No.

1	Mains Supply	FASE
2	Mains Supply	EARTH
3	Mains Supply	ZERO

Fig. 5-1

5.1 Stepper Motor Connector – X1

The stepper motor X1 is not used on PD22 OEM.

5.2 Inputs Connector – X2

Pin 1 External Supply 0V
Pin 2 External Supply +24V

The external DC supply for Controller PCB is normally supplied by the controlling equipment, for example the main power supply from the machine, the PD22 OEM is mounted in. See chapter 6 for changing to internal DC supply.
This supply makes it possible to turn OFF the Mains Supply connected to X6, when for example an emergency stop requires to power to be removed from the stepper motor and still have the Master Controller (MC12 or MC100) communicating with pump controller, so avoiding a restart of the filling system.

Pin 3	DISABLE input	This Input can be used for disabling the pump from reacting on a START signal on Pin 4 or used for special functions +24V / max. 5 mA load.	
Pin 4	START input	This Input is used for START signal to the pump to make a dispense. +24V / max. 5 mA load.	
Pin 5	PRIME input	This Input is used for PRIMING (Purging), the pump will run with approx. 125 rpm when applying +24V on this pin, stops when the +24V is removed +24V / max. 10 mA load.	
Pin 6	FlexNet	RS485 Connection	DATA
Pin 7	FlexNet	RS485 Connection	GND
Pin 8	FlexNet	RS485 Connection	Inverted DATA

The FlexNet is used for serial communication between the PD22 OEM and the Master Controller (MC12 or MC100). The cable can be twisted pair or screened with a max length of 100 m.

All Inputs can be wired in parallel, so a double terminal connector is used for X3 to ease these connections.

5.3 Outputs Connector – X3

Pin 1 Mains supply Indicator output +24V max. 300 mA load.

This output is used to monitor the mains internal fuse and mains supply for the pump controller.

Pin 2–4 Status Outputs
These outputs are all active, when the pump is priming, dispensing or pumping.

Pin 2 BUSY 3 PNP Output +24V max. 300 mA load.

For PD22 OEM is BUSY 3 equal to BUSY 2.

Pin 3 BUSY 2 PNP Output +24V max. 300 mA load.

This output is active when the Controller PCB is active and includes the functionality from Timer 18 and Timer 19 (see MC12 Manual)

Pin 4 BUSY 1 NPN Output OC to 0V max. 100 mA load.

This output is active when the Controller PCB is active and includes the functionality from Timer 18 and Timer 19 (see MC12 Manual)

Pin 5 Tube-bridge sensor output +24V max. 200 mA load.

Pin 6 Tube-bridge sensor input +24V max. 5 mA load.

Pin 7 Tube-bridge sensor ground 0V

The tube-bridge sensor input is normally used to inhibit the pump from starting priming, dispensing or pumping, when the tube-bridge is not mounted.
If the +24V is remove during either priming, dispensing or pumping, the pump will stop immediately.

The master controller has information of the status of the tube-bridge sensor input.

5.4 X4 DC motor supply connector

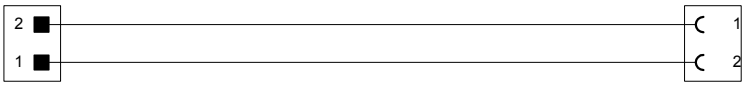
Pin 1 DC motor supply + X VDC

Pin 2 DC motor supply - X VDC

5.4.1 DC motor supply cable

The DC motor supply is connected to X3 on the DC motor and X4 on the control unit by a 2 wire 1,5 mm^2 straight cable. Connectors are supplied with PD22 OEM.

Mounting of 2 wire straight cable.



2-pin male flat connector

2-pin female flat connector

Fig. 5-2

5.5 X5 Motor control connector

Pin 1	Encoder supply	0V
Pin 2	Encoder RS485	CHA-
Pin 3	Encoder RS485	CHA+
Pin 4	Encoder RS485	CHB-
Pin 5	Encoder RS485	CHB+
Pin 6	Encoder supply	5V

5.5.1 DC motor control cable

The DC motor control is connected to X1 on the DC motor and X3 and X5 on the control unit by a 2 x 4 wire 0,25 mm^2 twisted cable. Connectors are supplied with PD22 OEM.

Mounting of 2 x 4 wire twisted cable:

- Color coding according to DIN 47100 and IEC 757.
- Note that white/brown and green/yellow must be twisted pairs.

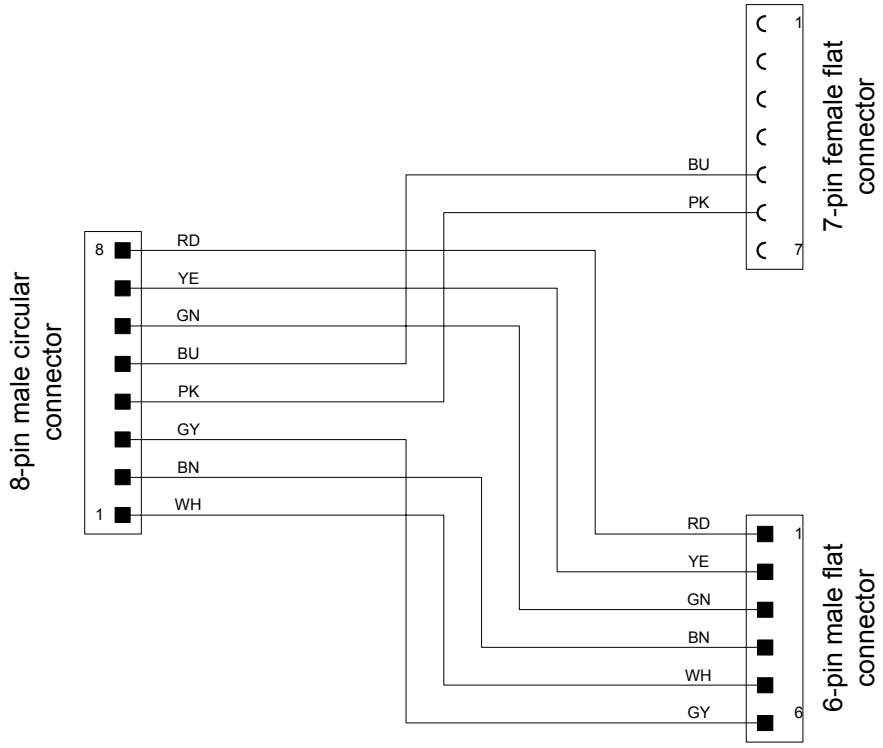


Fig. 5-3

5.6 X6 Mains supply connector

Pin 1 Mains supply PHASE

Pin 2 Mains supply EARTH

Pin 3 Mains supply ZERO

5.7 Addressing of filling station

Address	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SW1	1	0	1	0	1	0	1	0	1	0	0	1	0	1	1	0
SW2	1	1	0	0	1	1	0	0	1	1	0	1	1	0	0	0
SW3	1	1	1	1	0	0	0	0	1	1	1	0	0	0	0	0
SW4	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0

Fig. 5-4

Address "1" is the factory setting of PD22 OEM.

If the PD22 OEM is one of several filling stations in a system, none of the stations may have the same address and it must therefore be changed.

Change of address is performed via a dip-switch placed at the side of the PD22 OEM control unit. This change may only be carried out when the machine is turned off at the main isolator.

Addresses between 1 and 16 may be chosen, and Fig. 5-4 shows the various combinations.

5.8 Connection to NET connector on Master Controller

5.8.1 Connection to MC12

The PD22 OEM control unit must be connected to NET connector on Master Controller MC12 by use of a 4-pin DIN connector (supplied with MC12).

The NET connector on MC12 has following pin configuration.

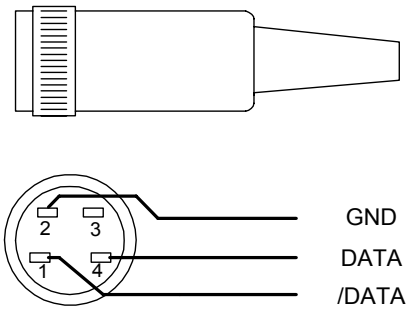


Fig. 5-5

Pin 1	/DATA	Connect to X2.8
Pin 2	GND	Connect to X2.7
Pin 3	Not used	NA
Pin 4	DATA	Connect to X2.6

5.8.2 Connection to MC100

The PD22 OEM control unit must be connected to NET connector on Master Controller MC100 by use of a 3-pin PHOENIX connector (PHOENIX FK MC 0,5/ 3 –ST 2,5 supplied with MC100).

The NET connector on MC100 has following pin configuration.

Pin 1	/DATA	Connect to X2.8
Pin 2	GND	Connect to X2.7
Pin 3	DATA	Connect to X2.6

6 Selection of internal or external supply for Controller PCB

During manufacture of the PD22 OEM, external 24 VDC supply for Controller PCB is chosen, but internal 24 VDC supply of Controller PCB can be chosen.
Note that if internal supply is chosen, restart of master controller will be necessary in the event of missing or disabled power supply of PD22 OEM.

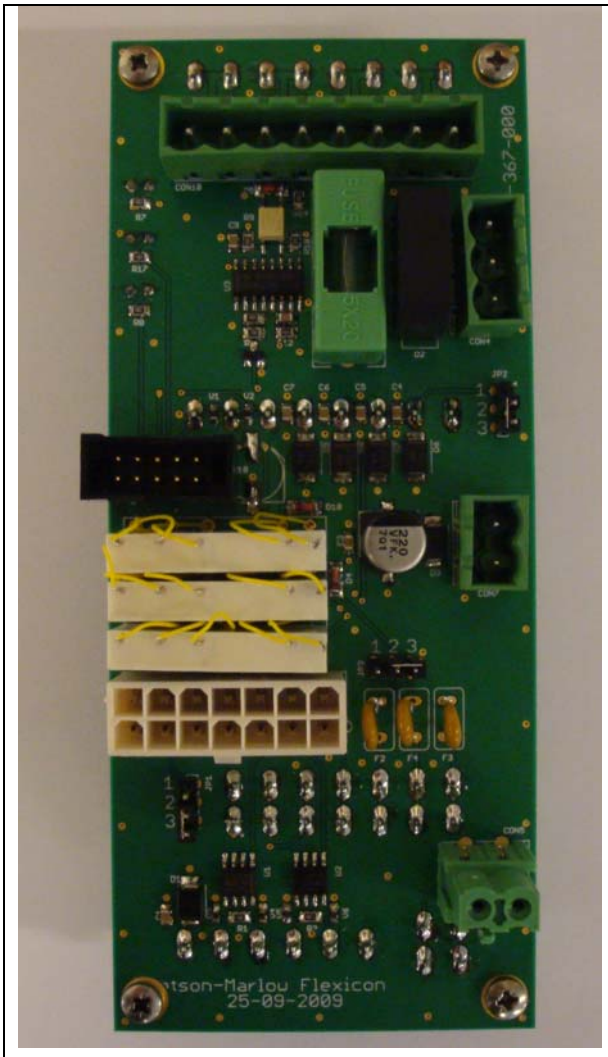


Fig. 6-1

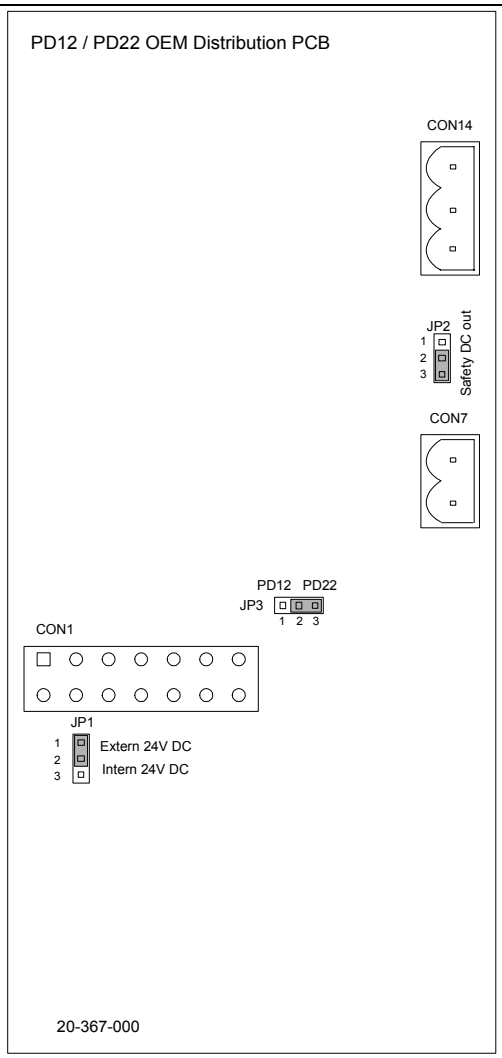


Fig. 6-2

On the distribution PCB the Jumper JP1 (located between CON1) is used to select the 24VDC supply for the Controller PCB.

Position	Description
1-2	Internal 24VDC supply
2-3	External 24VDC supply on X2 (default)

7 Change of voltage

7.1 Change of voltage

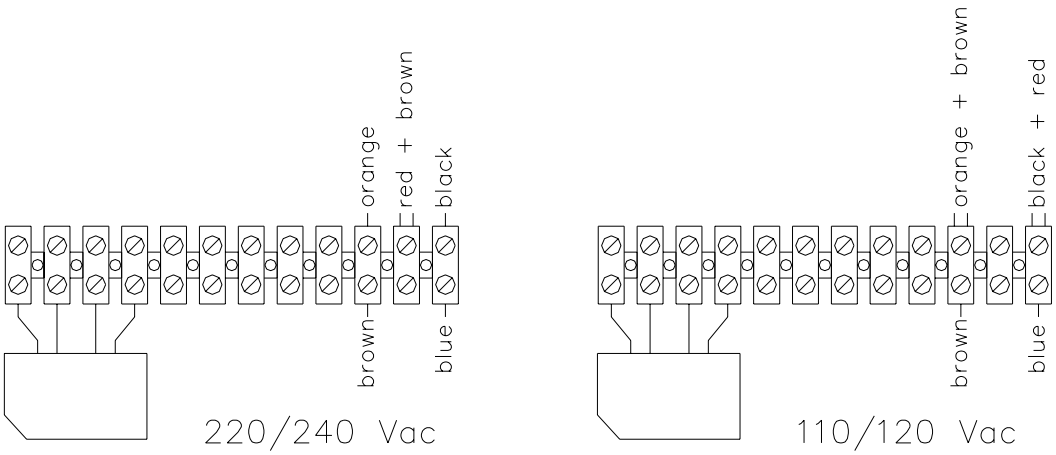


Fig. 7.1

The PD22 OEM can be converted to accept another supply voltage.
The conversion can be made inside the machine by moving the cables of the transformer clamps.

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