

HDM - PROFIBUS DP MANUAL

Heavy-Duty Multimach - Profibus DP valves can be used to link HDM islands to a Profibus network. They comply with Profibus DP DIN E 19245 specifications, feature diagnostic functions and are available with up to 16 outputs.

1. FEATURES

1.1 POWER SUPPLY

An M8 connector is used for the power supply, which is separate from that of the bus, which means the power can be switched off if there is an alarm while the bus line remains active. The EXT FAULT red light comes on when the power supply is cut off. The fault is relayed to the Master, which must provide adequate alarm management.

1.2 PROTECTIONS

The Slave is protected against polarity inversion and overloads by a resettable fuse, and output drivers provide extra short-circuit protection for each valve. Short-circuits are indicated by the EXT FAULT red light. In the event of a short-circuit, only the faulty valve is disconnected. The fault is relayed to the Master, which must provide adequate alarm management. After the fault has been rectified, the Master signal resets automatically but the local signal, EXT FAULT, remains active. To reset the alarm, press the reset button briefly or switch off the power supply. The fuse and reset button are located under the rectangular cover. The rotary switches for addressing and the dip-switches for activating the terminating resistances are located under the same cover.

1.3 CONNECTIONS

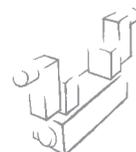
The Bus connectors are M12 with type B coding, in accordance with Profibus standards. Pre-wired Profibus cables available from the trade can also be used for connection in order to avoid malfunctions due to faulty wiring.

An M8 4-pin female connector must be used for connection to the power mains. As an alternative to pre-wired cables, for the bus connection you can use M12 metal male connectors in which the cable shield is connected to the body of the connector. The BUS IN and BUS OUT connector shields are connected via the M12 threading of the metal cover of the module.

The Slave must be earthed. This can be done using one of the threaded holes in the metal body not used for securing the island.

WARNING

- Failure to earth the Slave properly may cause malfunctions and serious damage in the event of electrostatic discharge.
- In order to guarantee the protection degree IP65 it's necessary that the exhausts are conveyed and that - in case of no use - the BUS OUT connector gets plugged.



2. CONNECTING AND SIGNALLING ELEMENTS

2.1 ELECTRICAL CONNECTIONS: CONNECTOR PIN CONFIGURATION

M8 connector for powering the node and outputs

- 1 = +24Vdc Profibus node power supply
- 2 = +24Vdc auxiliary valve power supply
- 3 = GND
- 4 = GND

M12 connector for connection to the Profibus network

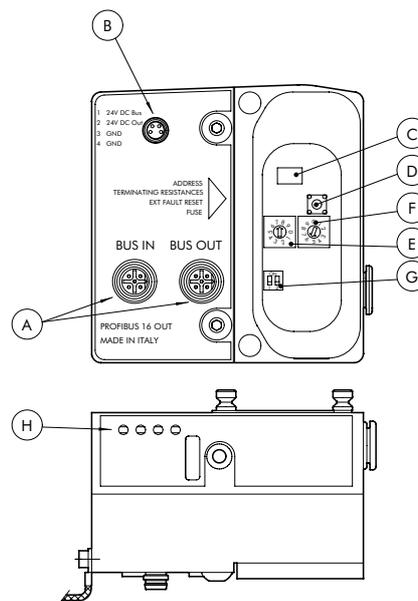
- 1 = +5Vdc
 - 2 = A
 - 3 = GND
 - 4 = B
- Metal ring nut = shield

IMPORTANT

For correct communication, use Profibus cables at least 1 metre long.

2.2 NODE CONNECTION AND CONFIGURATION

- (A) Connection to the Profibus DP bus
- (B) The node and the output power connection
- (C) Resettable fuse
- (D) Reset button
- (E) Tenth selector for node addressing
- (F) Unit selector for node addressing
- (G) Terminating resistance switches
- (H) Indicator lights



2.3 DIAGNOSTICS

The diagnostics of an HDM-Profibus module is defined by the status of the interface lights.

Green power ON light	Green BUS OK light	Red BUS error light	Red EXT fault light	MEANING
ON 	ON 	ON 	ON 	The module is operating correctly
OFF 	OFF 	OFF 	OFF 	The module is not powered on
ON 	OFF 	ON 	OFF 	The module is not communicating with the network
ON 	ON 	ON 	ON 	No auxiliary power supply or output failure

3. NODE INSTALLATION AND CONFIGURATION

The elements required for the configuration and resumption of correct operation are situated below the cover, which can be removed by unscrewing the two screws using a 2.5 mm hexagonal wrench.

WARNING

- Power off the system before inserting or removing the connectors (risk of functional damage).
- Earth the module using the correct wire. Use one of the free holes, if necessary. **Failure to earth the system properly may cause malfunctions and serious damage in the event of electrostatic discharge.**
- Only use fully assembled valve units.
- Only use power supply units to IEC 742/ EN60742/VDE0551 standards with a minimum insulation resistance of 4kV (PELV).

3.1 ADDRESSING

Before connecting a Slave to the bus system, it is advisable to assign it an address. The node address is configured by entering the desired number on the selectors for tenths (**E**) and units (**F**).

3.2 ACTIVATION OF TERMINATING RESISTANCES

The last node of each branch of the Profibus network must be terminated with the required resistances. This is to avoid reflection errors during Master-Slave communication, which can generate malfunctions. They can be activated by pressing ON on the two switches (**G**).

IMPORTANT

To improve immunity to disturbance, keep the communication speed as slow as possible, depending on the specific application.

3.3 ALLARM RESET

In the event of an output short-circuit or overload, the safety circuit disconnects the output but all the others remained active. At the same time, the local signal is activated, and the EXT FAULT light comes on, as well as the Master signal.

The Master signal resets automatically when the fault has been rectified. To reset the EXT FAULT local signal, press the reset button (**D**) under the cover, or power off (24Vdc valves).

If the auxiliary power supply to the outputs is interrupted, the local signal is activated, and the EXT FAULT light comes on, as well as the Master error signal. The signal resets automatically when the power comes back on.

If the maximum simultaneous current is exceeded, the resettable fuse (**C**) cuts off power to the node. If this happens, disconnect the power cable, remove the cause of the fault and then reconnect it.

