

DDM800 – Universal fire and gas detector module

Part No. 577.800.006 (PCB)

Installation information

DDM800 PROGRAMMING PORT FOR 801AP SERVICE TOOL



Fig. 1: DDM800 – Universal fire and gas detector module

Description

The DDM800 provides the ability to connect and interface 2 zones of 20 V DC 2-wire conventional fire detectors, or two 4-20 mA signalling sensors, to the MX fire alarm controller.

The DDM800 monitors the status of the detectors and the wiring to the detectors and signals detector and wiring status back to the controller.

The conventional detector circuits can be configured in one of two ways:

- To monitor 1 or 2 Class B spur circuits
 - To monitor a single Class A loop circuit
- The DDM800 supports the BS 5839 detector removal option.

The 4-20 mA signalling sensors may be one of two types:

- Current sinking
- Current sourcing

Technical specification

- Type Identification Value: 149
- System Compatibility: Use only with MX Fire Alarm Controllers
- Environment: Indoor Application only
- Operating Temperature: -25 to +70 °C
- Storage Temperature: -40 to +80 °C
- Operating Humidity: Up to 95 % RH non-condensing
- Dimensions (WxHxD)
 - PCB: 84x60x25 mm (includes LED on rear)
- Cable Termination: One cable up to 2.5 mm²
- Detector Circuits (x 2)
 - Detector Circuit Supply Voltage: 22 V nominal (22.5 V max.)
 - Detector Supply Voltage Low: 21 V, 14.5 V for Series 600 detectors in Loop Power mode
- Detector Circuit Current Limit:
 - 25 mA (22 min., 27 max.)
 - 52 mA max. when configured for Evac type call points
- EOLs (End of Line Devices)
 - Detector Current per Circuit: 2.5 mA max.
 - Detector Circuit Resistance: 50 Ohms max.
 - Conventional Circuit: 4,7 kOhms, 1 % standard
 - Detector Removal (BS 5839): 18 V, 2 % Zener diode

- 4-20 mA Current Sensing
 - Sense Resistor: Value 220 Ohms, 1 % 0.25 W
 - Internal to DDM800 for current sinking sensors
 - Fit to terminals for current sourcing sensors
- Insertion Voltage:
 - 5 V max. (Compliance Voltage)
 - 4.4 V/20 mA
 - Relative to 0 V when DDM800 sinking (i.e., for current sourcing sensor). Relative to DDM800 22 V supply when sourcing (i.e., for current sinking sensor).
- MX Loop Voltage
 - Max. Loop Voltage: 40 V DC
 - Min. Loop Voltage:
 - 28 V DC (all loop power modes except for only Series 600 detectors)
 - 21 V DC (external power or on Series 600 detectors on loop power)
- External 24 V PSU Voltage: 21.9 V to 29 V
- Battery Requirements – External Power Mode
 - From Addressable Loop

- Standby Current: 2.2 mA per DDM800 (1.1 mA per cct for Class B)
 - Alarm Current: 7.7 mA per DDM800 (Alarm LED on)
- From 24 V PSU
- Class B Standby Current, 4,7 kOhms EOL: 10 mA per DDM800/5 mA per cct (excludes detector load)
 - Class A Standby Current 4,7 kOhms EOL: 5 mA per DDM800, one cct only (excludes detector load)
 - Class B Standby Current, 18 V EOL: 18 mA per DDM800/9 mA per cct (includes detector load)
 - Class B Alarm Current: 52 mA per DDM800/26 mA per cct (or per DDM800 for Class A)

- Battery Requirements – Loop Power Mode
 - From Addressable Loop: 4.6 mA No load (both ccts open)
 - Class B Standby Current: 20 mA per DDM800 + det load x 1.82/10 mA per cct + det load x 1.82
 - Class B Alarm Current: 100 mA per DDM800 (2 ccts in alarm, Alarm LED on)
 - Class B S/C Fault Current: 95 mA per DDM800/48 mA per cct
- Electromagnetic Compatibility
 - The DDM800 complies with the following:
 - Product family standard EN 50130-4 for immunity
 - EN 61000-6-3 for emissions

Address setting

The DDM800 has a default factory set address of 255, that must be set to the loop address for the device. The DDM800 may be programmed prior to installation by using the 801AP MX Service Tool and the internal programming port (see Fig. 1).

A single DDM800 can be programmed after installation with the “Change Address” command in the MX controller or MX Loop Tester.

The DDM800 allocates up to 4 consecutive addresses on the MX addressable loop, dependant on configuration, starting from the chosen programmed address number.

Wiring and installation

How to connect the DDM800

- 1 If the DDM800 is to be loop powered, then move the header links on J2, J3 and J4 to pins 1 and 2.
 - 2 All conductors to be free of earths.
 - 3 All wiring must conform to current edition of IEE Wiring Regulations and BS 5839 Part 1.
 - 4 See Figs. 8 to 14 for simplified DDM800 wiring diagrams.
 - 5 For Class A wiring (see Fig. 10), detector circuit A is used, the return is to circuit B which is fitted with the EOL.
 - 6 For 4-20 mA gas sensors, connection of the loop and 24 V wiring is shown in Figs. 13 and 14.
- Maximum one sensor may be fitted to each circuit, both sensors must be of the same type (sinking or sourcing).

- 7 When using current sourcing 4-20 mA sensors, the 220 Ohms 1 % 0.25 W current sensing resistor must be fitted to the DDM800 terminals as shown in Fig. 14. For this reason (220 Ohms) the FV300 cannot source a DDM800 and so must be configured as a current sinking device with the DDM800 sourcing as per Fig 13.
- 8 Verify the correct polarity of all wiring before connecting the DDM800 to the addressable loop wiring, 24 V supply and detector circuits.
- 9 When using the Exd housing, all wiring must be in MICC or equivalent.
- 10 Conventional detector circuit resistance must not exceed 50 Ohms for BS 5839 (otherwise 100 Ohms).

Mounting

i Pre-mounted options

For pre-mounted options follow the ordering information (see section “Ordering information” on page 4).

Note that fitting the PCB to the D800 box and Exd housing each require a specialised mounting plate that is not available apart from ordering the appropriate Finished Goods Part Number (see section “Ordering information” on page 4).

Installation of DDM800 into an ANC8 ancillary housing

The ANC8 housing can accommodate up to eight ancillary PCBs. A stacking kit is available if a second layer of PCBs is required.

How to install DDM800 modules into an ANC8 ancillary housing

- 1 Assemble the required DDM800 PCBs onto the chassis plate as required, fixing as shown in Fig. 2.
- 2

- 2 Assemble the chassis plate into the housing and secure using fixing screw, as Fig. 3.
- 3 Connect the chassis plate earth lead to the housing, as Fig. 3.

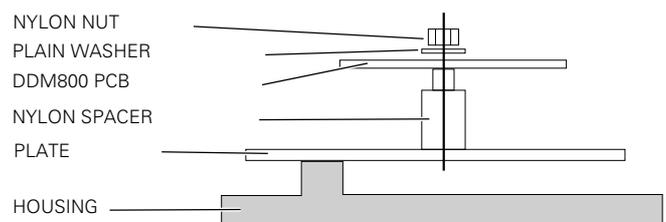


Fig. 2: ANC8 - PCB fixing detail

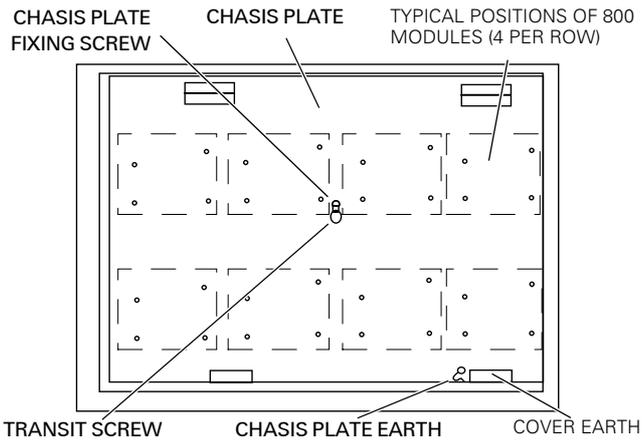


Fig. 3: ANC8 - Chassis plate

Mounting the DDM800 to an M520 ancillary cover

How to mount the DDM800 module to an M520 cover

- 1 Assemble the DDM800 to the M520 Double Gang cover, using the four screws and washers provided.
- 2 Fit the DDM800 and terminal identification labels to the protective cover (see Fig. 4).
- 3 Fit the protective cover.

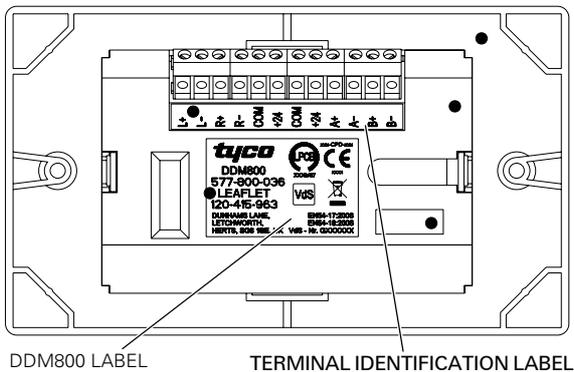


Fig. 4: DDM800 - Label positioning

Mounting the DDM800 into an D800 IP55 ancillary housing

How to mount the DDM800 into an D800 ancillary housing

- 1 Slide the four white stand-offs from the downside into the fixing holes of the mounting plate.
- 2 Mount the mounting plate into the housing and tighten the four fixing screws (see Fig. 5).
- 3 Fit the PCB to the stand-offs, push until the PCB firmly locks.
- 4 Install the cables through the appropriate cable inlets.
- 5 Fix the cover with the four screws.

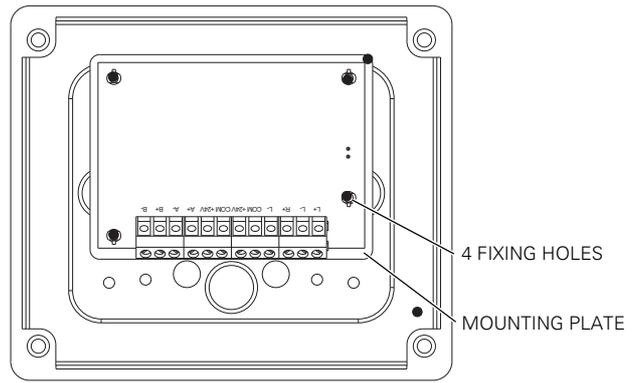


Fig. 5: DDM800 in the D800 housing

DIN rail mounting

Use DIN rail mounting bracket.

How to mount the DDM800 to a DIN rail

- 1 Mount the 35 mm “top-hat” DIN rail into a suitable electrical enclosure.
- 2 Fit the PCB to the stand-offs on the DIN rail mounting bracket (see Fig. 6).
- 3 Clip the mounting bracket onto the DIN rail.



Fig. 6: DDM800 on DIN rail mounting bracket

Mounting the Exd housing

Refer to the installation instructions supplied with the housing.

Sealing the LED

If an IP22 rating is required, additional sealing must be applied. Apply Loctite S1595 silicone sealant around the LED, as shown in Figure 7. Note how the sealant fills the small gap between the LED and its hole in the cover. Avoid smearing sealant over the LED surface. Using a fine nozzle is recommended.

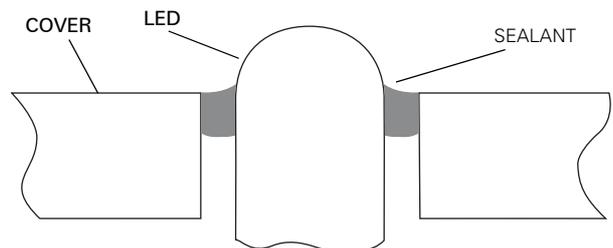


Fig. 7: Sealed LED

Simplified DDM800 wiring diagrams

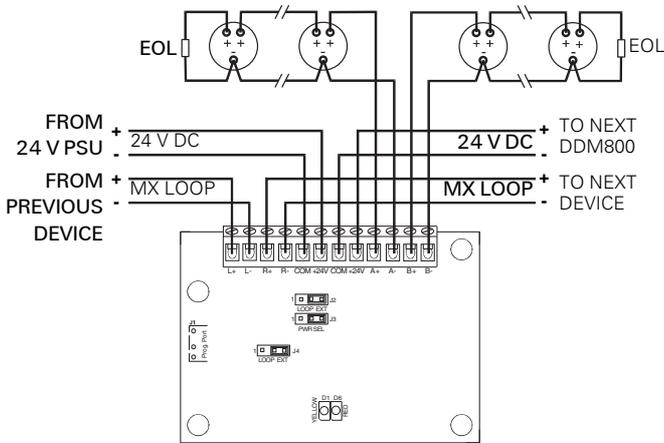


Fig. 8: Spur circuits with external 24 V

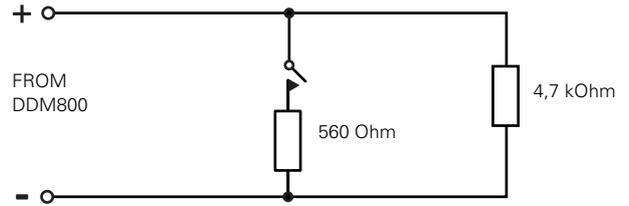


Fig. 12: Connection of an "Alarm" Clean Contact N.O.

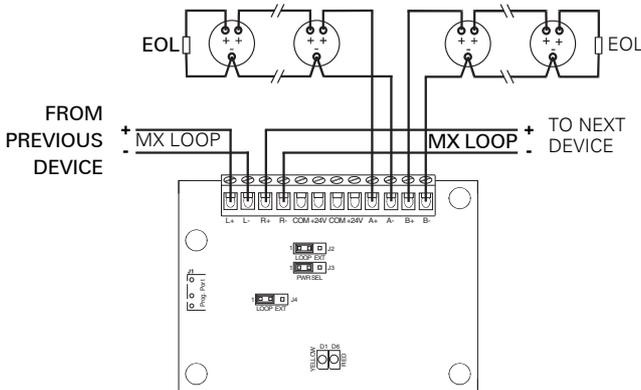


Fig. 9: Spur circuits loop powered

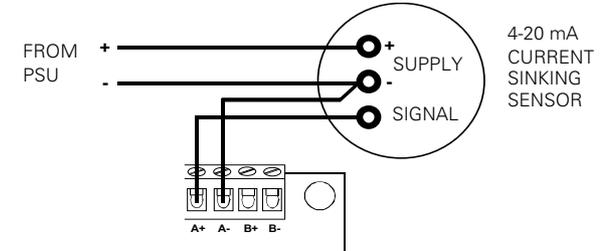


Fig. 13: Connection of a 4-20 mA current sinking sensor (only one circuit shown for clarity)

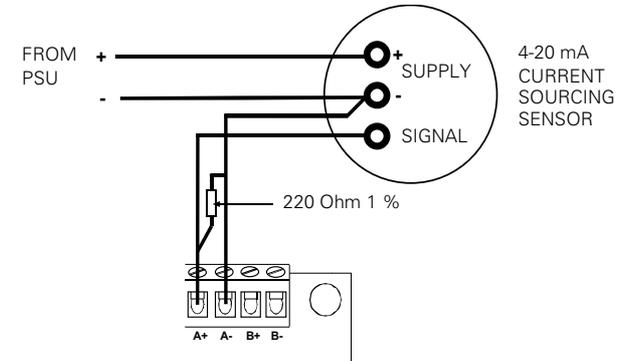


Fig. 14: Connection of a 4-20 mA current sourcing sensor (only one circuit shown for clarity)

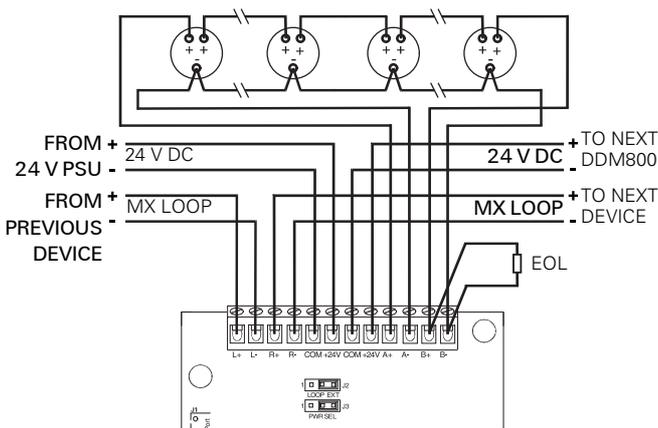


Fig. 10: Loop circuits (Class A wiring) with external 24 V

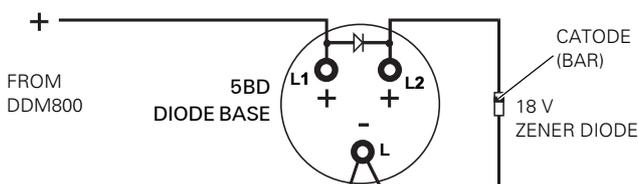


Fig. 11: Diode base and Zener EOL connection

CPR Information

 0832
Tyco Fire & Security GmbH Victor von Bruns-Strasse 21 8212 Neuhausen am Rheinfall Switzerland 15 DoP-2015-4034
<p>EN 54-17:2005 and EN 54-18:2005 Short-circuit isolator and input-output device for use in fire detection and alarm systems DDM800</p>
<p>Essential Characteristics EN54-18:2005 Response delay (response time): Pass EN54-17:2005 and EN54-18:2005 Performance under fire conditions: Pass Operational reliability: Pass Durability of operational reliability temperature resistance: Pass Durability of operational reliability; vibration resistance: Pass Durability of operational reliability; humidity resistance: Pass Durability of operational reliability; corrosion resistance: Pass Durability of operational reliability; electrical stability: Pass</p>
Installation Instructions 120.415.963_MZX-D-DDM-F Service Instructions MZX-P-S

Ordering information

■ DDM800 – Universal fire and gas detector module (PCB)	577.800.006
■ DDM800 – Universal fire and gas detector module c/w M520 cover	577.800.036
■ DDM800 – Universal fire and gas detector module IP55 D800 housing	577.800.056
■ DDM800 – Universal fire and gas detector module c/w Exd housing	577.800.066
■ DDM800 Zener diode EOL (Pack of 10)	557.800.057
■ DIN rail mounting bracket	547.004.002
■ M520 ancillary cover	517.035.007
■ ANC8 ancillary housing	557.180.096.A/T/Y