

## Gateway - Power Supply Unit for Multiplexer D2000M Series - Model D2050M for DIN-Rail Mounting

### Characteristics:

#### General description:

D2000M Series Intrinsically Safe Multiplexing System consists of 1 to 4 Analog-Temperature Multiplexer Units model D2010M, with up to 12 Expander Units model D2011M, and up to 4 Digital Multiplexer Units Model D2030M, mounted in Zone 0, 1, 2 Hazardous Area, Gas Group IIC T4, connected via single/redundant 2 wire data communication / Supply line to a Modbus Gateway Unit model D2050M, mounted in Safe Area and connected to a PLC, DCS, or PC.

The Power Supply Gateway Unit D2050M, mounted in Safe Area, provides Intrinsically Safe protection to the 2 wire communication link, and supplies power for Multiplexer Units D2010M, Expander Unit D2011M, and Digital Multiplexer D2030M Units installed in Hazardous Area, close to input sensors, for data acquisition and connects the field Multiplexers to a Safe Area PLC/DCS or other devices saving wiring cables and costs. The Unit is primarily intended to interface field Mux with the PLC/DCS systems via Modbus serial lines with redundant communication.

Units D2010M, D2011M and D2030M scan all enabled channels, using state of the art solid state isolated relays, and store all data in a memory buffer, where they can be rapidly accessed by the Modbus Gateway Unit D2050M. Each Mux Unit D2010M accepts directly up to 16 inputs channels and, by adding 1 to 3 Expander Units D2011M, is expandable to 64 channels. Four D2010M units, connected to twelve D2011M Expanders reach 256 inputs via one Modbus Gateway Unit D2050M. Unit D2030M accepts up to 32 Digital Input channels and 4 D2030M Units (128 channels) can be connected to the D2050M Unit. One D2050M Unit can support up to 256 input channels from D2010M-D2011M-D2030M Units (see example of possible configurations). Redundant communication is obtained by in built dual data/supply interface line.

Safety Parameters maintain compatibility with units mounted in Zone 0, 1, 2 Gas Group II C even with two lines in parallel for redundancy.

### Features:

Intrinsically Safe, as Associated Apparatus in Safe Area, to supply Multiplexers D2010M - D2011M - D2030M installed in Zone 0, 1, 2, 20, 21, 22 Gas Group IIC T4.

Supply for up to 256 input channels from D2010M - D2011M - D2030M Field Units.

Expandability up to 31 Systems on a single serial link for up to 7936 Temperature Channels, or 3968 Digital Channels.

Field Redundant communication.

Modbus interface RTU protocol on redundant RS-485.

RS-232 port for system configuration.

EMC according to EN50081-2, EN50082-2.

ATEX certification.

High Reliability, SMD components.

Software configuration.

Lower PLC/DCS I/O cards cost (just 1 serial port per 256 inputs).

Simplified installation using standard DIN Rail mounting Units.

Repeat Input Contacts - Proximity Detector in Safe Area via D2052M with relay Outputs.

Repeat Input Contacts - Proximity Detector in Safe Area via D2053M with O.C. Transistor Outputs.

### Technical Data:

#### Supply:

24 V nom. (20 to 30) reverse polarity protected, ripple within voltage limits  $\leq 5$  Vpp.

**Max. Power Consumption:** 5W.

#### Isolation:

I.S. Out/Serial line - Supply 1,5 KV; Serial line/Ground 500 V.

#### Inputs:

Modbus RTU protocol up to 38.400 baud with redundant connection.

**Outputs:** Dual Serial Communication proprietary protocol line and RS232 Supply.

#### Scan cycle Time:

For four D2030M Units (64 channels): 50 ms.

For four D2010M Unit + twelve D2011M (256 channels): 1600 ms.

#### Compatibility:

 CE mark compliant, conforms to 94/9/EC Atex Directive and to 89/336/CEE EMC Directive, EN60010-1.

#### Environmental Condition:

**Operating:** - 20 to + 60 °C, Relative Humidity max 90 % non condensing, up to 35 °C.

**Storage:** 40 to + 80 °C.

#### Safety description of measuring inputs:



II (1) GD [EEx ia] II C associated electrical apparatus.

#### Approvals:

DNV-2005-OSL-ATEX-nnnn conforms to EN 60079-0, EN 60079-11, EN 60079-25, IEC 60079-27, EN 50281-1-1, EN 50284.

#### Mounting:

DIN Rail T35 according EN50022.

**Weight:** About 300 g.

**Connections:** By screw terminals for up to 2,5 mm<sup>2</sup>.

**Installation:** Safe Area.

**Protection Class:** IP 20.

**Dimensions:** 45 W x 220 L x 99 D mm.

**Parameters Table:**

Safety Description	Maximum External Parameters	
	Group Cenelec	Co/Ca ( $\mu$ F)

**Ordering Information:**

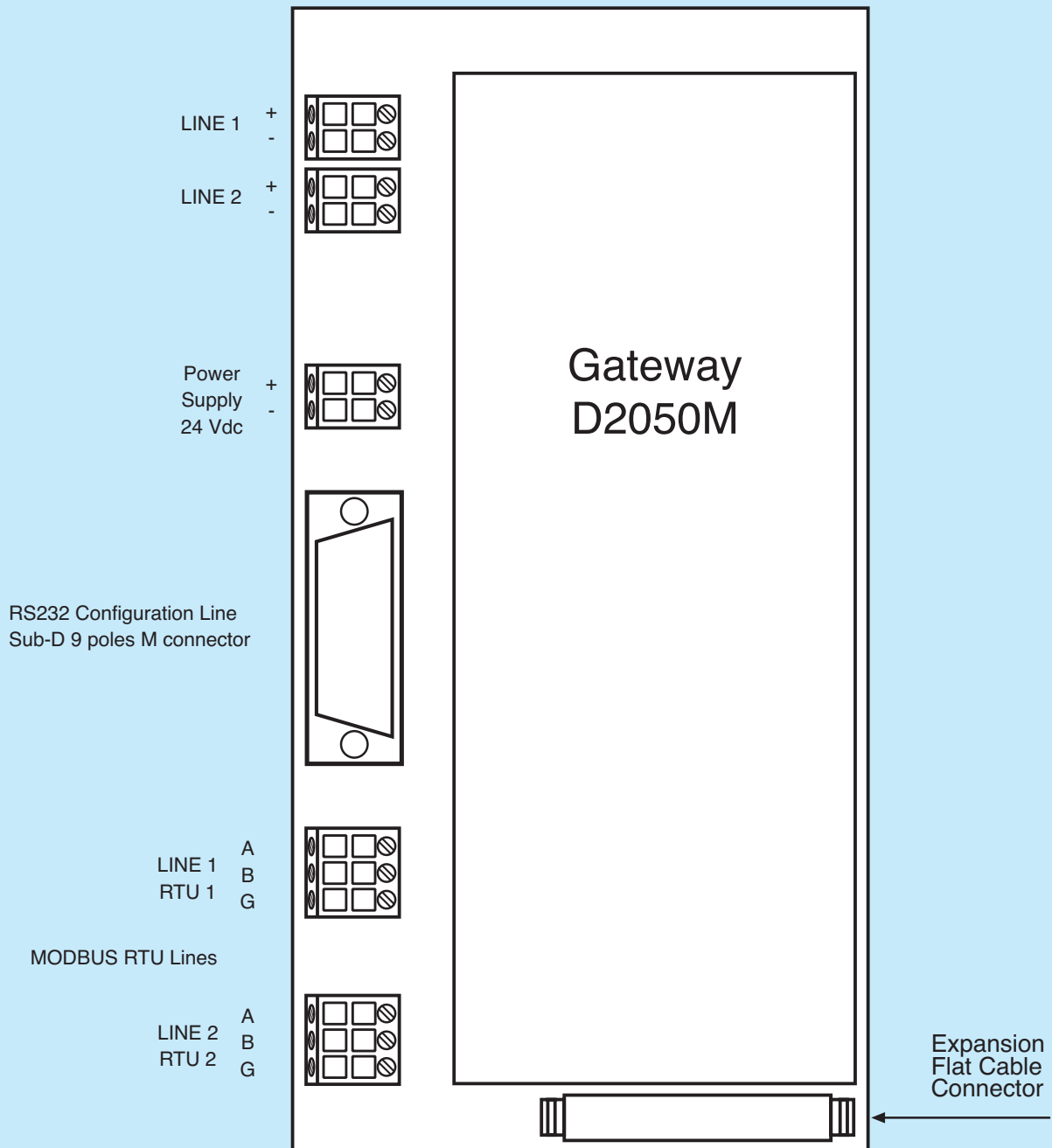
<b>Model:</b>	<b>D2010M</b>
16 channel	

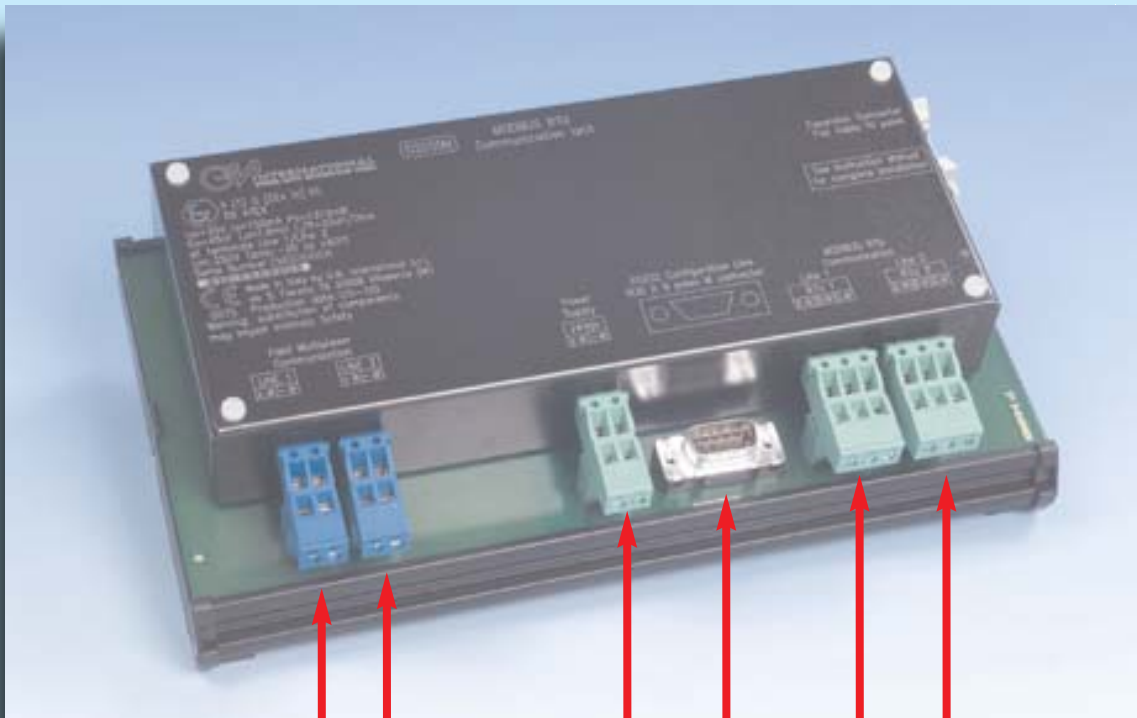
**NOTE for USA and Canada:**

II C equal to Gas Groups A and B

II B equal to Gas Groups C, D, E, F and G.

II A equal to Gas Groups D, E, F and G.





Redundant Communication  
Lines double Terminal  
Block Plug-in type

24 V dc Supply Line double  
Terminal Block Plug-in type

RS232 Serial Line Connector  
for Configuration

Redundant Modbus RTU Lines  
double Terminal Block Plug-in type