



Termination Boards for Foxboro - EcoStruxure (Evo)



Common Specifications

General description

This instruction manual refers to the following termination boards that can be connected to the Foxboro - EcoStruxure (Evo) system:

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Common features to all models are redundant power supply.
They are supported by plastic adapters for installation on DIN-Rail.

Start-up

Before powering the unit check that all wires are properly connected, particularly supply conductors and their polarity.
Check conductors for exposed wires that could touch each other causing dangerous unwanted shorts.

Warning

Termination Boards are installed onto standard EN/IEC60715 TH 35 DIN-Rail located in Safe Area or Zone 2, Group IIC, Temperature T4 Hazardous Area within the specified operating temperature limits Tamb -40 to +70 °C. Termination Boards must be installed, operated and maintained only by qualified personnel, in accordance to the relevant national/international installation standards (e.g. EN/IEC60079-14 Electrical apparatus for explosive gas atmospheres - Part 14: Electrical installations in hazardous areas (other than mines)), following the established installation rules. De-energize power source (turn off power supply voltage) before plugging or unplugging the terminal blocks when installed in Hazardous Area or unless area is known to be nonhazardous.

Warning: substitution of components may impair suitability for Zone 2/Division 2. Avertissement: la substitution des composants peut nuire à l'aptitude à la Zone 2/Div. 2.

Explosion Hazard: to prevent ignition of flammable or combustible atmospheres, disconnect power before servicing or unless area is known to be nonhazardous.

Danger d'Explosion: pour prévenir une inflammation de l'atmosphère inflammable ou combustible, couper l'alimentation avant de réparer à moins de savoir que l'emplacement n'est pas dangereux.

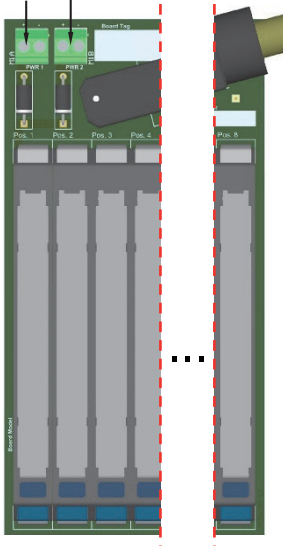
Failure of a proper installation or use of the equipment may risk to damage the unit or severe personal injury.

Termination boards cannot be repaired by the end user and must be returned to the manufacturer or his authorized representative. Any unauthorized modification must be avoided.

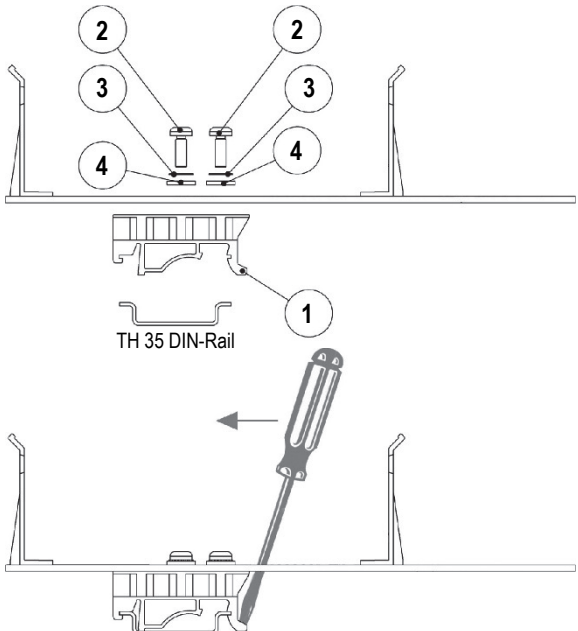
Common features

Redundant power supply connections are shown here below.

24 Vdc PWR 1 24 Vdc PWR 2



Models mounting and removing



Ref. nr.	Quantity	Description	Material
1	2	TH 35 DIN-Rail adapter	PA
2	6	3.5x9.5 self tapping screw	Stainless steel
3	6	M3 external tooth lock washer	Stainless steel
4	6	M3 washer	Stainless steel

Characteristics:**General description:**

This Termination Board (TB) provides direct connection between the I/O Card of the system and D5000 / D6000 Series modules.

The Intrinsically Safe protection and signal isolation between Safe and Hazardous Area, is provided by D5000 Series Associated Apparatus. The 24 Vdc Power Supply of the TB is connected to two plug-in terminal blocks, for a redundant power supply.

The power supply for modules is given by TB power bus.

Termination Board general characteristics:

Number of positions	Features
8	Power Supply voltage redundancy

Supported EVO I/O Cards:

Refer to DTS0496.

Installation:

TB-D5008-INV-005 is a Termination Board supported by an aluminum shell suitable for installation on EN/IEC60715 TH 35 DIN-Rail or on wall.

TB-D5008-INV-005 unit can be mounted with any orientation over the entire ambient temperature range.

Electrical connections are the following:

- PWR1, PWR 2 and M2: polarized screw terminal blocks for conductors up to 2.5 mm² (13 AWG) with a torque of 0.5-0.6 Nm.
- M3, M4 and M5: screw terminal blocks for conductors up to 2.5 mm² (13 AWG) with a torque of 0.4-0.5 Nm.
- CON1: SUB D25 connector with screws retaining method.

Electrical connection can be plugged in/out into a powered unit without suffering or causing any damage (**for Zone 2 installations check the area to be nonhazardous before servicing**). Connect only one individual conductor per each clamping point. Use only cables that are suitable for a temperature of at least 85°C.

Wiring has to be sized according to the current and the length of the cables. On the section "Function Diagram" a block diagram identifies all connections.

Installation and wiring must be in accordance to the relevant national/international installation standards (e.g. EN/IEC60079-14 Electrical apparatus for explosive gas atmospheres - Part 14: Electrical installations in hazardous areas (other than mines)), make sure that conductors are well isolated from each other and do not produce any unintentional connection.

The unit shall be installed in an area of not more than pollution degree 2 according to EN/IEC60664-1. When installed in EU Zone 2, the unit shall be mounted in a certified Ex enclosure that provides a minimum ingress protection of IP54 in accordance with EN/IEC60079-0. When installed in a Class I, Division 2 Hazardous Location, the unit shall be mounted in a supplemental enclosure that provides a degree of protection not less than IP54. The enclosure must have a door or cover accessible only by the use of a tool. The end user is responsible to ensure that the operating temperature of the module is not exceeded in the end use application.

Units must be protected against dirt, dust, extreme mechanical (e.g. vibration, impact and shock) and thermal stress, and casual contacts. If enclosure needs to be cleaned use only a cloth lightly moistened by a mixture of detergent in water.

Any penetration of cleaning liquid must be avoided to prevent damage to the unit.

Any unauthorized card modification must be avoided.

According to EN61010, TB-D5008-INV-005 unit must be connected to SELV or SELV-E supplies.

All circuits connected to TB-D5008-INV-005 unit must comply with the overvoltage category II (or better) according to EN/IEC60664-1.

Technical Data:**Supply:**

24 Vdc nom (20 to 30 Vdc), double terminal blocks for redundant power supply, with OR diodes to mix supply voltages.

Max allowed current consumption: 4 A (as total supply).

Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm².

I/O card interface:

Connection: one 25 poles SUB-D male connector (requires female mating connector).

Compatibility:

CE CE mark compliant, conforms to Directive: 2014/34/EU ATEX, 2014/30/EU EMC, 2014/35/EU LVD, 2011/65/EU RoHS.

Environmental conditions:

Operating: temperature limits – 40 to + 70 °C, relative humidity max 90 % non condensing, up to 35 °C.

Max altitude: 2000 m a.s.l.

Storage: temperature limits – 45 to + 80 °C.

Safety Description:

ATEX: II 3G Ex ec IIC T4 Gc

IECEx: Ex ec IIC T4 Gc

UL: NI / I / 2 / ABCD / T4

C-UL: NI / I / 2 / ABCD / T4

EAC-EX: 2Ex ec IIC T4 Gc X

CCC: Ex ec IIC T4 Gc

Approvals:

BVS 18 ATEX E 079 X conforms to EN60079-0, EN60079-7.

IECEx BVS 18.0066X conforms to IEC60079-0, IEC60079-7.

UL & C-UL E222308 conforms to UL 61010-1 and UL 121201 for UL and CAN/CSA

C22.2 No.61010-1-12 and CSA C22.2 No. 213 for C-UL.

EA3C RU C-IT.AA87.B.00796/21 conforms to GOST 31610.0, GOST 31610.7.

CCC n. 2023322308005685 conforms to GB/T 3836.1, GB/T 3834.3.

Mounting:

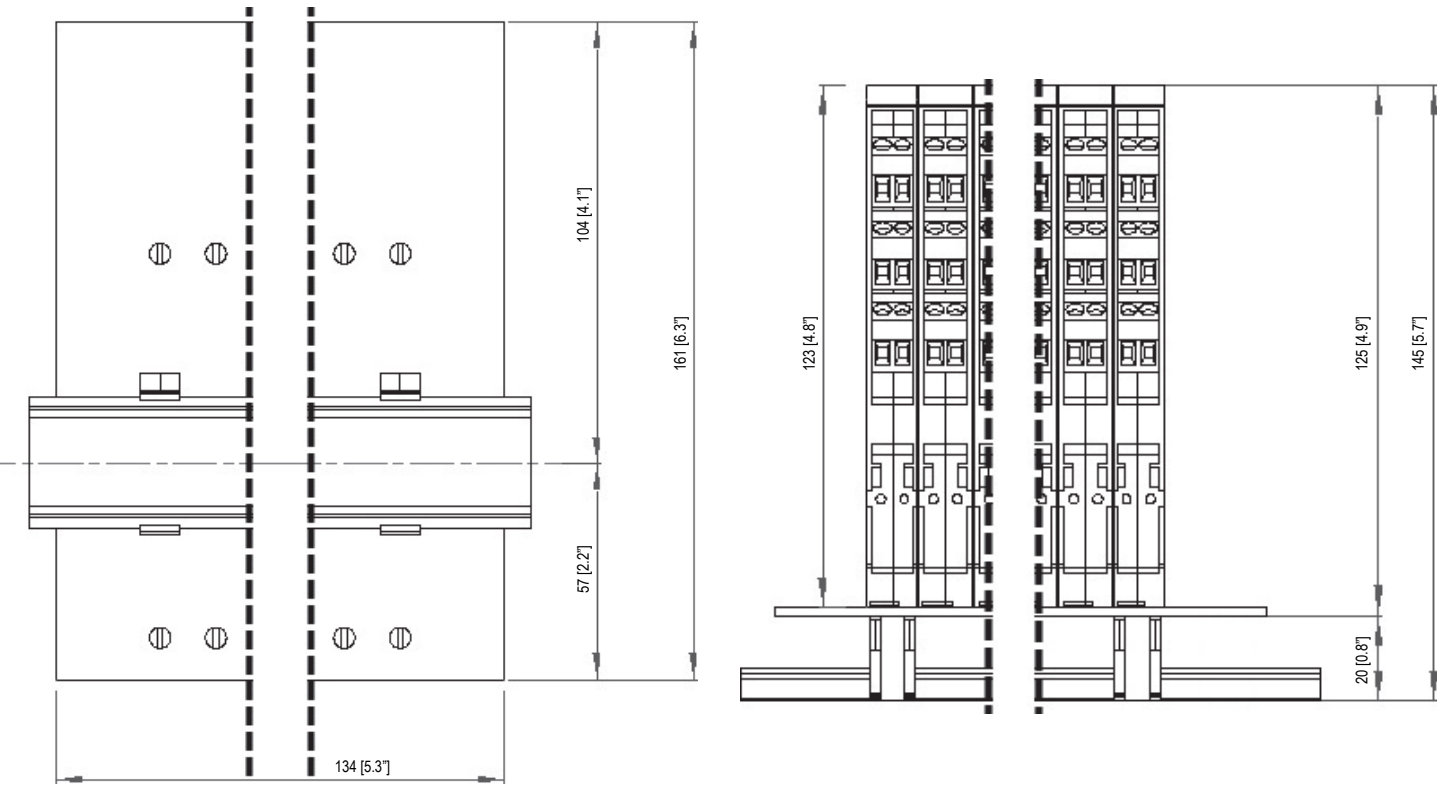
Hardware included for mounting on single DIN rail.

Weight: about 200 g (excluding modules and mounting options).

Location: installation in Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4 or Class I, Division 2, Group A,B,C,D, T4.

Dimensions: Width 134 mm, Depth 161 mm, Height 125 mm.

Overall dimensions:



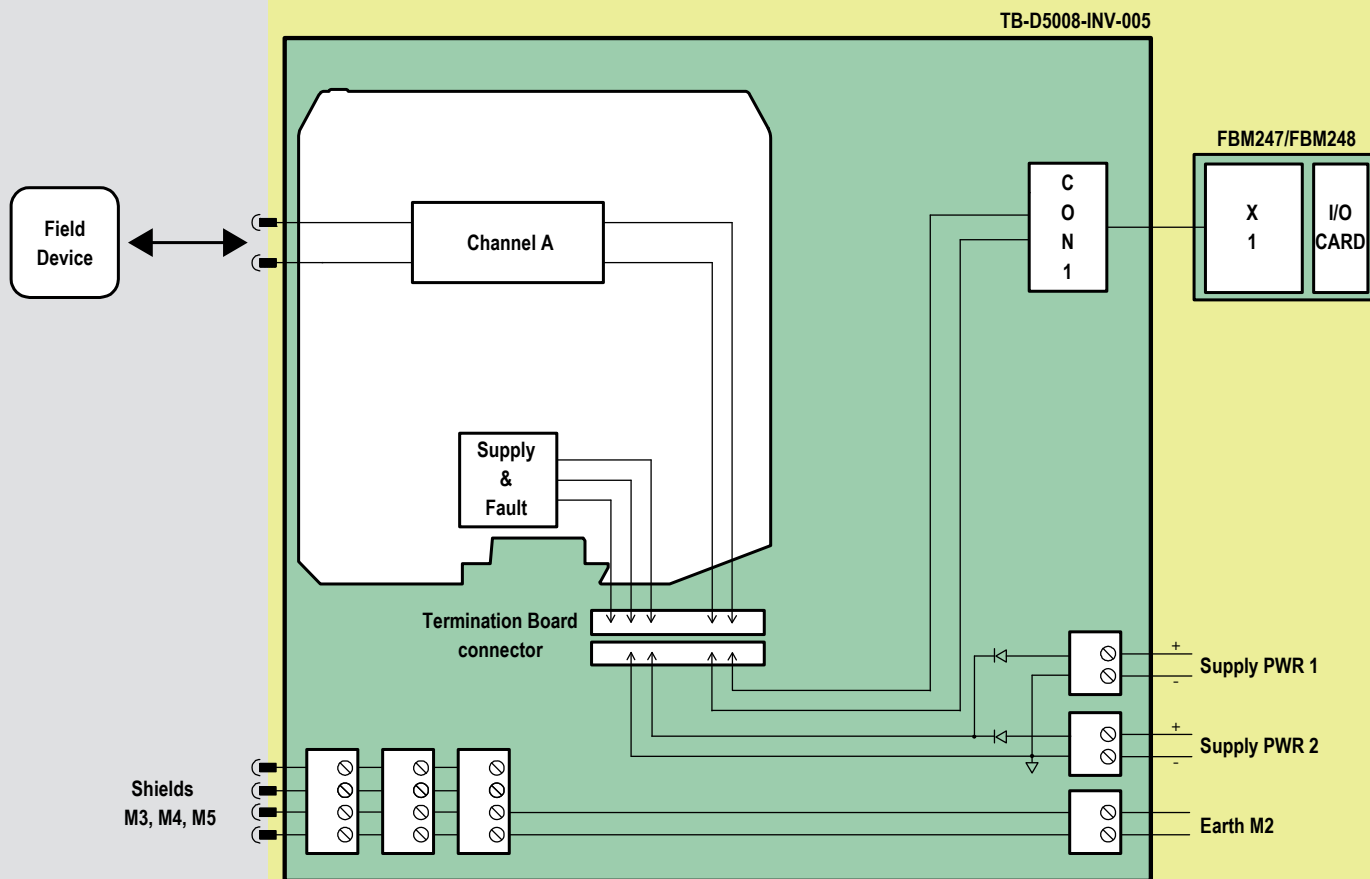
All dimensions are expressed in millimeters [inches]

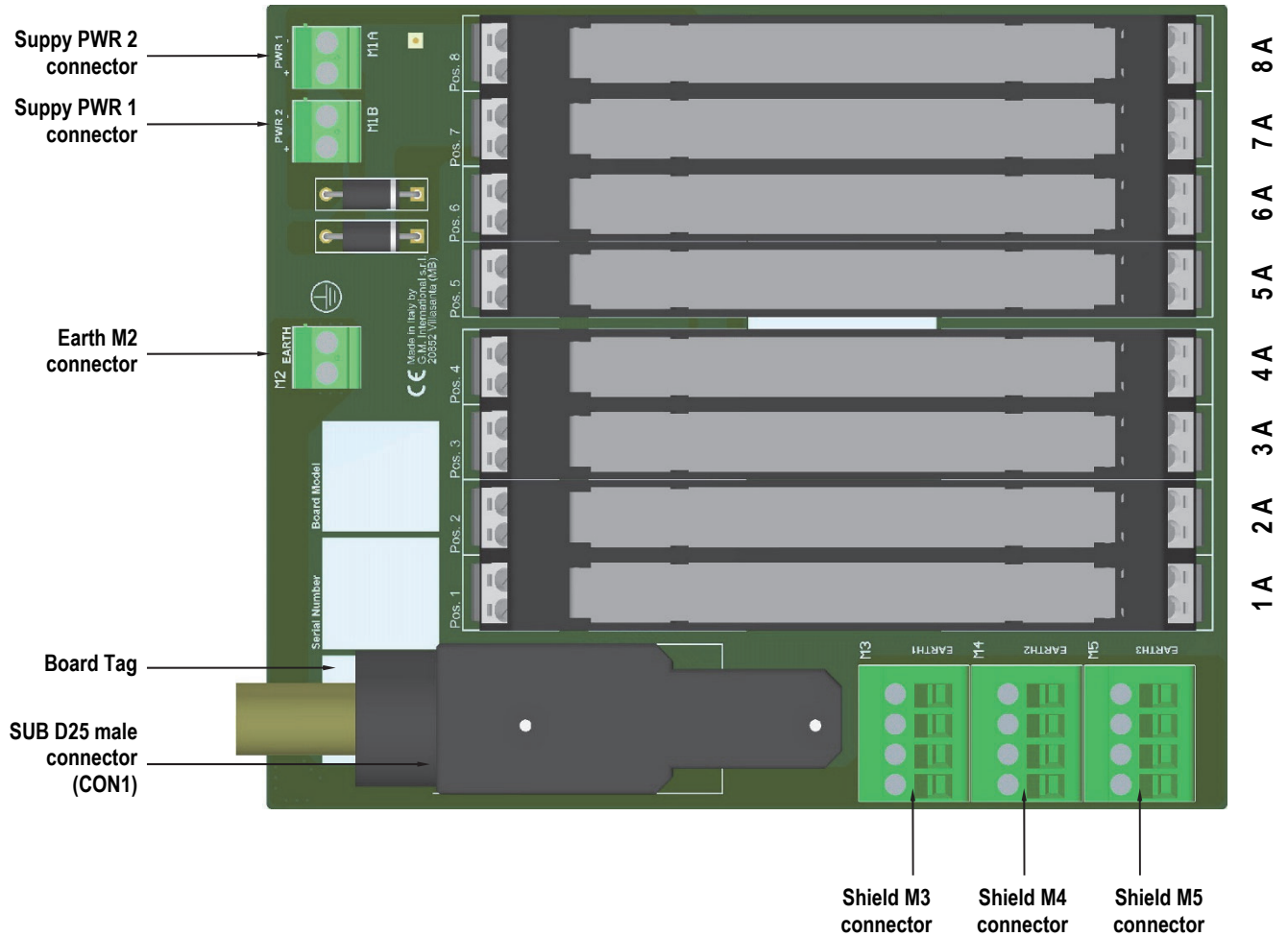
Function Diagram

FIELD

SAFE AREA, ZONE 2 GROUP IIC T4,
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2, GROUPS A, B, C, D T-Code T4

Note : Do not mix D5000 Intrinsically Safe barriers with D5000 Relay modules or D6000 isolators on same termination board.





Connections Table to Interface Cards

Module position	Module channel number	Interface card(s) channel number	Module channel 1st connection (CON1)	Module channel 2nd connection (CON1)	Notes
1	1A	1	12	13	CON1: • Unconnected poles: 1, 2, 5, 8, 11, 16, 19, 22, 25.
2	2A	2	23	24	
3	3A	3	9	10	
4	4A	4	20	21	
5	5A	5	6	7	
6	6A	6	17	18	
7	7A	7	3	4	
8	8A	8	14	15	