

INSTRUCTION MANUAL

SIL 3 Pass-Through Module,
Termination Board,
Models D6004S, D6004D



General Description:

The Pass-Through D6004 module puts into direct connection the system with the field for a flexible marshalling. It is suitable for applications requiring SIL 3 level in safety related systems for high risk industries. It also provides over-voltage and over-current protections and it supplies 3/4-wire transmitters through the power supply of the Termination Board. Mounting on customized Termination Boards, in Safe Area / Non Hazardous Location or in Zone 2 / Class I, Division 2.

Functional Safety Management Certification:

G.M. International is certified by TÜV to conform to IEC61508:2010 part 1 clauses 5-6 for safety related systems up to and included SIL3.



Technical Data

Supply:

24 Vdc nom (20 to 30 Vdc), from Termination Board.

Current rating: 0.5 A (resettable fuse protected), with linear derating down to 0.4 A, from 25 to 70 °C.

Max power dissipation: 160 mW @ 400 mA.

Input/Output:

Voltage rating: 30 V.

Current rating: 0.1 A (resettable fuse protected), with linear derating down to 0.05 A, from 25 to 70 °C.

Max power dissipation: 8.6 mW/17.2 mW (D6004S/D6004D) @ 24 mA, 37.5 mW/75 mW (D6004S/D6004D) @ 50 mA.

Compatibility:



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

Environmental conditions:

Operating temperature: temperature limits -40 to +70 °C.

Operating relative humidity: relative humidity 95 %, up to 55 °C.

Max altitude: 2000 m a.s.l.

Storage temperature: 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:

DEMKO 19 ATEX 2326 X conforms to EN60079-0, EN60079-7.

IECEx ULD 19.0032 X 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 KG417/039.IT.02.08239 conforms to GOST 31610.0, GOST 31610.7.

CCC n. 2024322310005795 conforms to GB/T 3836.1, GB/T 3834.3.

TUV Certificate No. TÜV IT 25 SIL 0634 SIL 3 conforms to IEC61508:2010 Ed. 2.

SIL 3 Functional Safety TÜV Certificate conforms to IEC61508:2010 Ed.2, for Management of Functional Safety.

Mounting:

on custom Term. Board.

Weight: about 100 g.

Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm² (13 AWG).

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.

Protection class: IP 20.

Dimensions: Width 12.5 mm, Depth 123 mm, Height 120 mm.

Ordering information

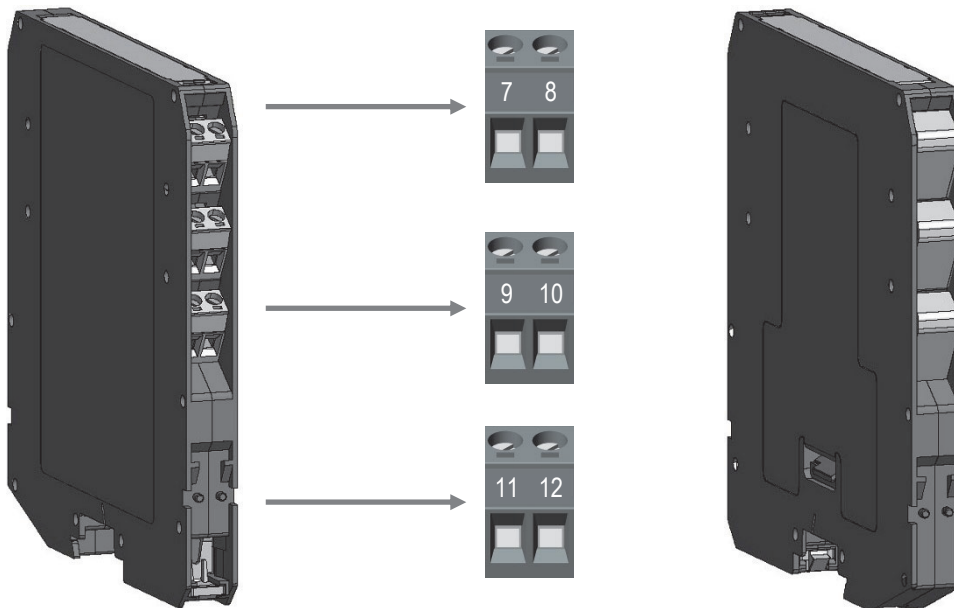
| | | |
|------------|-------|---|
| Model: | D6004 | |
| 1 channel | | S |
| 2 channels | | D |

Front Panel and Features



- SIL 3 (low demand mode of operation) according to IEC 61508:2010 Ed.2 with 20 years product lifetime.
- SIL 3 (high demand mode of operation) according to IEC 61508:2010.
- Installation in Zone 2/Div. 2
- Suitable for 2/3/4-wire transmitters
- High Density, two channels per unit

Terminal block connections

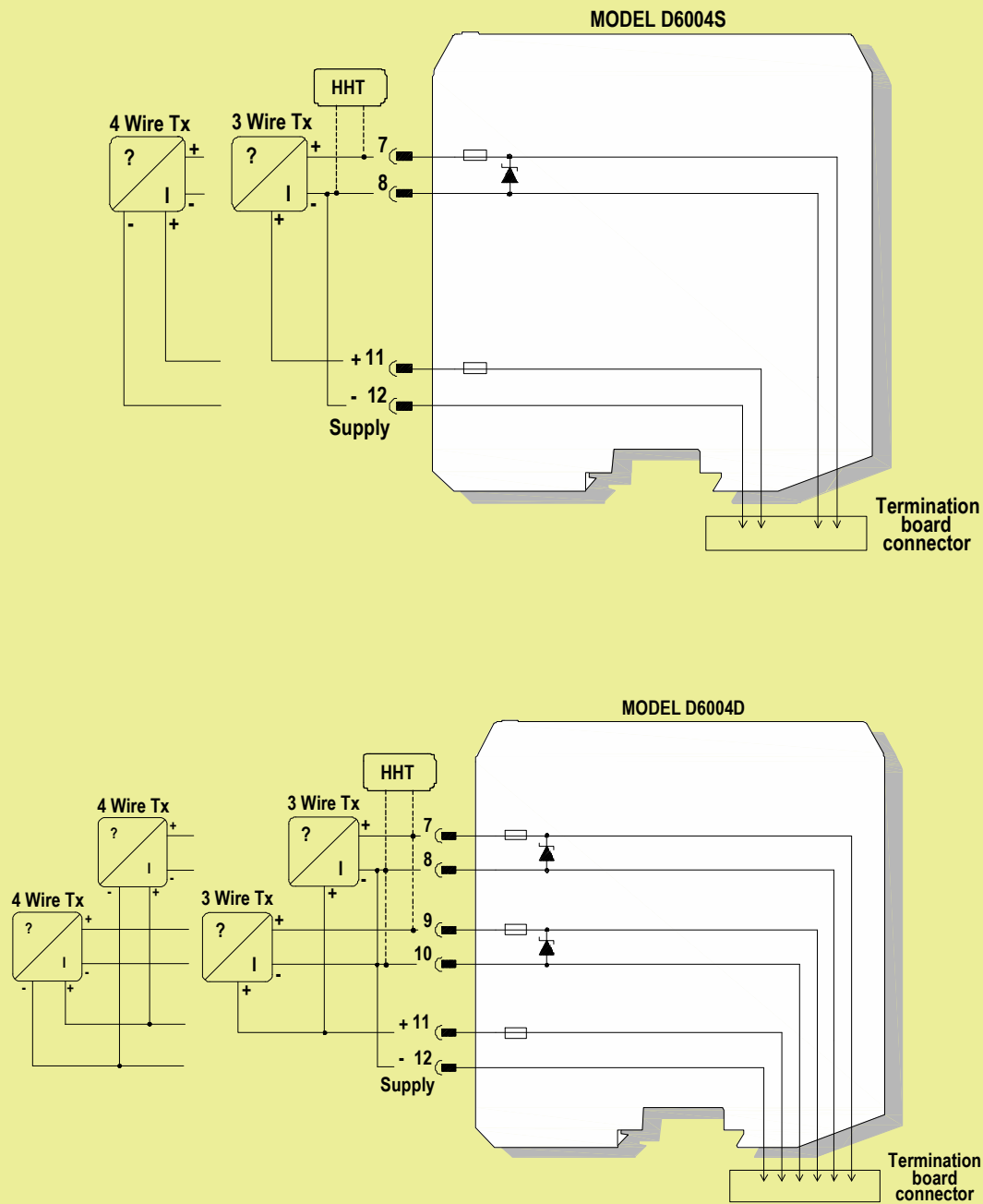


SAFE AREA

| | |
|-----------|---|
| 7 | 1st pole of channel 1 |
| 8 | 2nd pole of channel 1 |
| 9 | 1st pole of channel 2 (only for D6004D) |
| 10 | 2nd pole of channel 2 (only for D6004D) |
| 11 | + Loop power supply 24 Vdc |
| 12 | - Loop power supply 24 Vdc |

Function Diagram

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



Warning

D6004 series is electrical apparatus installed into standard EN/IEC60715 TH 35 DIN-Rail located in Safe Area or Zone 2, Group IIC, Temperature Classification T4 or Class I, Division 2, Group A, B, C, D, T4 Hazardous Area within the specified operating temperature limits Tamb - 40 to +70 °C.

D6004 series must be installed, operated and maintained only by qualified personnel, in accordance to the relevant national/international installation standards (e.g. IEC/EN60079-14 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 plug or unplug 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 atmospheres, disconnect power before servicing or unless area is known to be nonhazardous. Danger d'Explosion: pour éviter l'inflammation d'atmosphères inflammables, débrancher l'alimentation avant l'entretien ou à moins que région est connue pour être non dangereuse.

Provision shall be assured, external to the equipment by the installation location, to provide a transient protection not exceeding 120V or 140% of the peak rated voltage (whichever is the greater) at the power supply terminals.

Failure to properly installation or use of the equipment may risk to damage the unit or severe personal injury. The unit cannot be repaired by the end user and must be returned to the manufacturer or his authorized representative. Any unauthorized modification must be avoided.

Installation

D6004 series are dummy pass-through modules housed in a plastic enclosure suitable for installation on customized Termination Board.

D6004 unit can be mounted with any orientation over the entire ambient temperature range.

Electrical connection are accommodated by polarized plug-in removable screw terminal blocks which 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 conductors up to 2.5 mm² (13 AWG) and a torque value of 0.5-0.6 Nm. Use only cables that are suitable for a temperature of at least 85°C. The wiring cables have to be proportionate in base to the current and the length of the cable. On the section "Function Diagram" and enclosure side a block diagram identifies all connections.

Installation and wiring must be in accordance to the relevant national or international installation standards (e.g. IEC/EN60079-14 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 enclosure provides, according to EN60529, an IP20 minimum degree of protection. The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1. When installed in EU Zone 2, the unit shall be installed in an enclosure that provides a minimum ingress protection of IP54 in accordance with IEC 60079-0. 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. **Electrostatic Hazard: to avoid electrostatic hazard, the enclosure of D6004 must be cleaned only with a damp or antistatic cloth.** Any penetration of cleaning liquid must be avoided to prevent damage to the unit. Any unauthorized card modification must be avoided.

All circuits connected to D6004 unit must comply with the overvoltage category II (or better) according to EN/IEC60664-1.

Start-up

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