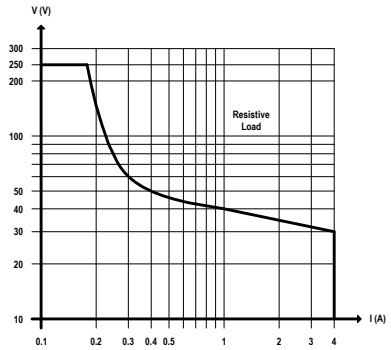
FM Control Drawing ISM0165 for D5293, D5294

Warning

D5293, D5294 series are isolated Apparatus located in Non Hazardous Locations or Class I, Division 2, Groups A, B, C, D,
Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA Temperature Code T4 Hazardous Locations (according to FM3600, FM3611, ANSI/ISA 60079-0, ANSI/ISA 60079-15, CSA-C22.2 NO. 213, CSA-C22.2 NO. 60079-0, CSA-C22.2 NO. 60079-15) within the specified operating temperature limits Tamb –40 to +70 °C (D5090, D5091) or Tamb –40 to +60 °C (D5290, D5291).
When installed in Class I, Division 2 or Class I, Zone 2 Hazardous Locations, the module must be mounted in supplemental enclosure meeting at least IP54 degree protection.
D5293, D5294 series must be installed, operated and maintained only by qualified personnel, in accordance to the relevant national/international installation standards (e.g. National Electrical Code NEC ANSI/NFPA 70 Section 501 and 505, Canadian Electrical Code CEC) 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 Locations or unless area is known to be nonhazardous.
Warning: substitution of components may impair suitability for Division 2, Zone 2.
Warning: de-energize main power source (turn off power supply voltage) and disconnect plug-in terminal blocks before opening the enclosure to avoid electrical shock when connected to live hazardous potential.
Explosion Hazard: to prevent ignition of flammable or combustible atmospheres, disconnect power before servicing or unless area is known to be nonhazardous.
The enclosure provides, according to EN60529, an IP20 minimum degree of mechanical protection (or similar to NEMA Standard 250 type 1) for indoor installation, outdoor installation requires an additional enclosure with higher degree of protection (i.e. IP54 to IP65 or NEMA type 12-13) consistent with the effective operating environment of the specific installation.
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 D5293, D5294 must be cleaned only with a damp or antistatic cloth.
Any penetration of cleaning liquid must be avoided to prevent damage to the unit.
Failure to properly install 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. If calibration requires the use of an adjustable power supply, current meter, or voltmeter, it should be only be performed when the area is known to be nonhazardous or with equipment suitable for the area classification.

D5293 Technical Data

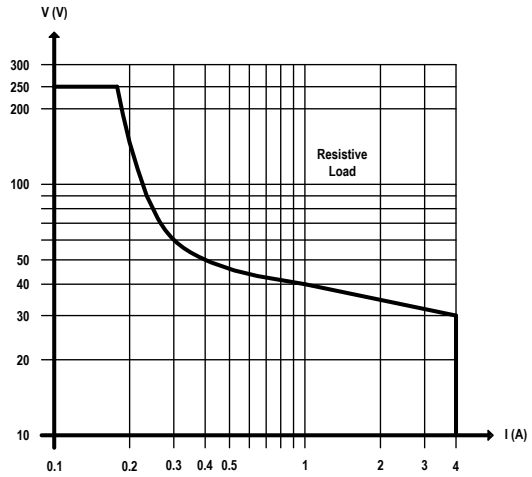
Supply: 24 Vdc nom (21.6 to 27.6 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp, 2 A time lag fuse internally protected.
Current consumption @ 24 V: 50 mA typical, with channel energized and no fault.
Power dissipation: 1.2 W typical.
Isolation (Test Voltage): Output/Input 2.5 KV; Output/Supply 2.5 KV; Output/Fault Outputs 2.5 KV; Output/RS485 Modbus 2.5 KV; Input/Supply 500 V; Input/Fault Output 1 500 V; Input/Fault Output 2 2.5 KV; Input/RS485 Modbus 500 V; Supply/Fault Output 1 500 V; Supply/Fault Output 2 2.5 KV; Supply/RS485 Modbus 500 V.
Input: 24 Vdc nom (21.6 to 27.6 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.
Line input monitoring: to allow DCS/PLC line monitoring function (pulse test).
Current consumption @ 24 V: 45 mA with relay energized, typical.
Power dissipation: 1.1 W with 24 V input voltage, relay energized, typical.
Output: voltage free 1 + 1 SPST relay contact at terminals 13-15 and 14-16, opens when relay de-energized (fail safe state), close in energized condition.
Contact material: Ag Alloy (Cd free) or $AgSnO_2$.
Contact rating: 4 A 250 Vac 1000 VA, 4 A 250 Vdc 120 W (resistive load).
DC Load breaking capacity:



Contact inrush current: 6 A at 24 Vdc, 250 Vac.
Mechanical / Electrical life: 5 * 10^6 / 3 * 10^4 operation, typical.
Bounce time NO / NC contact: 3 / 8 ms, typical.
Frequency response: 10 Hz maximum.
Fault detection: load and line short/open circuit monitoring
Short output detection: programmable load resistance (30 Ω to 5 KΩ typical).
Open output detection: programmable load resistance (30 Ω to 5 KΩ typical).
Fault signalling: voltage free NE 1 + 1 SPST relay contacts (closed in normal status), output de-energized (contacts opened) in fault condition.
Fault 1 output rating: 500 mA 30 Vac 15 VA, 500 mA 50 Vdc 25 W (resistive load).
Fault 2 output rating: 3 A 250 Vac 750 VA, 3 A 125 Vdc 120 W (resistive load).
Response time: 1 sec typical.
Modbus Output: measure data, load and line diagnostic monitoring.
Modbus RTU protocol up to 115.2 Kbit/s with RS-485 connection on terminal blocks and Power Bus connector.
Terminating impedance: 100 Ω DIP-switch selectable, pull-up and pull-down resistor DIP-switch selectable in addition to termination resistor.
Transmission speed: 4.8, 9.6, 19.2, 38.4, 57.6, 115.2 Kbit/s.
Transmission cable length: ≤ 1200 m up to 93.75 Kbit/s, ≤ 1000 m up to 115.2 Kbit/s.
Environmental conditions:
Operating: temperature limits – 40 to + 60 °C, relative humidity 95 %, up to 55 °C.
Storage: temperature limits - 45 to + 80 °C.
Safety Description: for use in Class I, Division 2, Groups A, B, C, D, Temperature Code T4; Class I, Zone 2, AEx nA nC IIC T4 Gc and CL I, ZN 2, Ex nA nC IIC T4 Gc Haz. Locations.
Approvals:
FM, FM-C according to FM3600, FM3611, ANSI/ISA 60079-0, ANSI/ISA 60079-15, CSA-C22.2 NO. 157, CSA-C22.2 NO. 213, CSA-C22.2 NO. 60079-0, CSA-C22.2 NO. 60079-15
Mounting: T35 DIN-Rail according to EN50022, with or without Power Bus or on customized Termination Board.
Weight: about 170 g.
Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm^2.
Location: Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4 installation.
Protection class: IP 20.
Dimensions: Width 22.5 mm, Depth 123 mm, Height 120 mm.

D5294 Technical Data

Supply:
24 Vdc nom (21.6 to 27.6 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp, 2 A time lag fuse internally protected.
Current consumption @ 24 V: 60 mA typical, with channel de-energized and no fault.
Power dissipation: 1.5 W typical.
Isolation (Test Voltage): Output/Input 2.5 KV; Output/Supply 2.5 KV; Output/Fault Outputs 2.5 KV; Output/RS485 Modbus 2.5 KV; Input/Supply 500 V; Input/Fault Output 1 500 V; Input/Fault Output 2 2.5 KV; Input/RS485 Modbus 500 V; Supply/Fault Output 1 500 V; Supply/Fault Output 2 2.5 KV; Supply/RS485 Modbus 500 V.
Input: 24 Vdc nom (21.6 to 27.6 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.
Line input monitoring: to allow DCS/PLC line monitoring function (pulse test).
Current consumption @ 24 V: 45 mA with relay energized, typical.
Power dissipation: 1.1 W with 24 V input voltage, relay energized, typical.
Output: voltage free 2+2 SPST relay contact (2 paralleled contacts in series) at terminals 13-15 and 14-16, close when relay energized, open in de-energized condition.
Contact material: Ag Alloy (Cd free) or $AgSnO_2$.
Contact rating: 4 A 250 Vac 1000 VA, 4 A 250 Vdc 120 W (resistive load).
DC Load breaking capacity:



Contact inrush current: 6 A at 24 Vdc, 250 Vac.
Mechanical / Electrical life: 5 * 10^6 / 3 * 10^4 operation, typical.
Bounce time NO / NC contact: 3 / 8 ms, typical.
Frequency response: 10 Hz maximum.
Fault detection: load and line short/open circuit monitoring
Short output detection: programmable load resistance (30 Ω to 5 KΩ typical).
Open output detection: programmable load resistance (30 Ω to 5 KΩ typical).
Fault signalling: voltage free NE 1 + 1 SPST relay contacts (closed in normal status), output de-energized (contacts opened) in fault condition.
Fault 1 output rating: 500 mA 30 Vac 15 VA, 500 mA 50 Vdc 25 W (resistive load).
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