MTL MTL Series Service Manual

IOP32

1. Description

MTL IOP range

3. Product Information

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MTL IOP range

Cost effective surge protection

for digital and analogue I/O

The IOP was conceived to offer protection for both digital I/O and analogue I/O. The IOP range is the most economical surge protection solution for I/O offered by Eaton. High packing-density, high protection level and low price combine to make the IOP a value solution.

The IOP range is cost-effective and still retains a hybrid circuit comprising 20kA gas discharge tubes and solid state components. This impressive product is designed to exhibit exceptionally low line resistance and therefore adds only a tiny voltage drop to the circuit.

Removable terminals are used on the IOP range for ease of installation, maintenance and for providing a loop disconnect by simply unplugging the terminals from the side of the module. Wire entry is angled to assist wiring within limited space enclosures.

The IOP HC32 is ideal for applications requiring up to 5A of load current. Protection of circuits to drive solenoids, relays, and actuators is now possible. The IOP AC is ideal for 120V and 240V AC circuit loops

Fully automatic in operation, IOP devices react immediately to make sure that equipment is never exposed to damaging surges between lines or the lines and ground. Reacting instantaneously, the IOP redirects surges safely to ground and then resets automatically.

The versatile design minimizes space. The IOP32D and IOP-AC models have protection for two loops in a package that is only 12mm wide. The effective space taken, per loop, is therefore only 6mm. For customers desiring single channel integrity, the IOP32 fits this need exactly.

One simple manual operation clamps modules securely onto DIN rail, which automatically provides the essential high integrity ground connection.

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A 10 Year ‘No Fuss’ warranty is available, as standard, for the IOP, so if a correctly connected device should fail for any reason, simply return it for a free replacement.

‘Top-hat’ (T-section) DIN rail is generally suitable for mounting IOP modules although for adverse environments, a specially-plated version is available from Eaton’s MTL Surge Technologies.

• IOP32D and IOP-AC each provide surge protection for two loops or 4 wires

• IOP32 provides surge protection for one loop or 2 wires

• IOP HC32 provides surge protection for one high current loop, up to 5A

• IOP-AC provides surge protections for two 120V or 240V AC loops

• Hybrid protection circuit - 20kA rated surge current

• ATEX & FM certification for IOP32 and IOP32D

• Space saving - width per loop:

IOP32D & IOP-AC 6mm

IOP32 & IOP HC32 12mm

SPECIFICATION

All figures typical at 25°C (77°F) unless otherwise stated

Maximum surge current

20kA (8/20µs waveform) per line

Leakage Current

<1µA @ working voltage

Maximum rated load current

0.675A (5A for IOP HC32)

Loop resistance

IOP32 & IOP32D: 4 ohm

IOP-AC: 1 ohm

IOP HC32: 0 ohm

Bandwidth

6.5 MHz (N/A for IOP HC32)

Attenuation

< –0.3dB @ < 1MHz

–3.0dB @ 6.5MHz

Response time

<1ns

Ambient temperature

Working & Storage

-40°C to +80°C (-40°F to +176°F)

(see also “Approvals” below)

Humidity

5 to 95% RH (non-condensing)

Terminals

2.5mm2

(12 AWG)

Electrical connections

Plug/header screw terminal strip

Mounting

T-section DIN-rail (35 x 15mm rail)

Weight

140g approx. (5oz.)

Case flammability

UL94-V0

EMC compliance

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BS EN 61326-1:2006

Electrical Safety

BS EN 60950-1:2006+A12:2011

BS EN 61010-1:2010

Model IOP32D

Nominal voltage 32V

Rated voltage (MCOV 36V

Nominal current 675mA

Nominal discharge current (8/20µs) 3kA

Max discharge current (8/20µs) 20kA

Lightning impulse current(10/350µs) 2.5kA

Residual voltage@ isn 45V L-L 78V L-G

Voltage protection level @ 1kV/us <38V

Bandwidth 6.5MHz

Series resistance 2Ω

Category tested A2, B2, C1, C2, C3, D1

Overstressed fault mode in=3kA 22kA

Impulse durability (8/20µs) 10kA

Degree of protection IP20

AC durability 1Arms, 5T

Service conditions 80kPa - 160kPa 5% - 95% RH