



Omniterm FCX Contact Repeater

Omniterm Bidirectional Fibre Optic SIL2 Contact Repeater

Model Number
C2477B

DATASHEET

- Send digital contacts over a Fibre Optic link.
- One contact each way on a fibre pair.
- 850nm multi-mode / 1300nm single mode options
- Distance up to 20km on single mode fibre
- Potential free contacts in and out
- 10-30Vdc powered
- Fail-safe 2oo2 output relay configuration
- Complies with IEC61508 SIL2 Safety Standard



Features

- DIN Rail or surface mountable
- Narrow 22.5mm module width
- 10-30Vdc powered
- Fail-safe 2oo2 input receiver configuration
- Multi-mode 850nm or single mode 1300nm
- 0-60°C operating temperature range
- CE and UKCA Mark Compliant
- Fail-safe 2oo2 output relay configuration

Overview

The OMNITERM FCX module provide the ability to safely send contact signals in both directions up to 20km over a pair of optical fibres. Connect two FCX modules together over a duplex fibre optic link and when the contact on the one module is closed, the relay output on the other module will be energised.

LED indication is provided to show the state of the input and output contacts, the presence of instrument power, and any detected fault condition within the module.

The module's output contact is designed with dual signal detector relays in a 2oo2 configuration with fault indication.

The input receiver is also designed with dual signal receivers in a 2oo2 configuration with fault indication.

Fail Safety

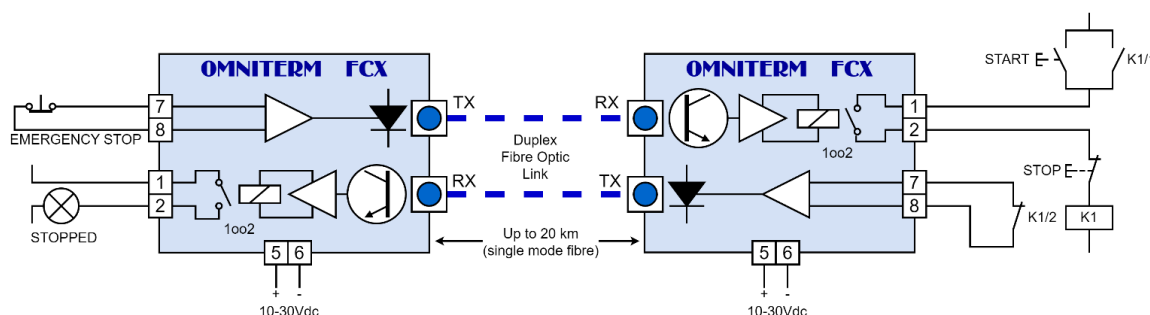
Fail safety is a key feature of the design. This allows this module to be used, for example, for remote stop or interlock functions over a fibre cable.

The FCX output contacts are normally energised (closed) and de-energise (open) on fault or cable break for fail-safe operation.

The Omniterm Range

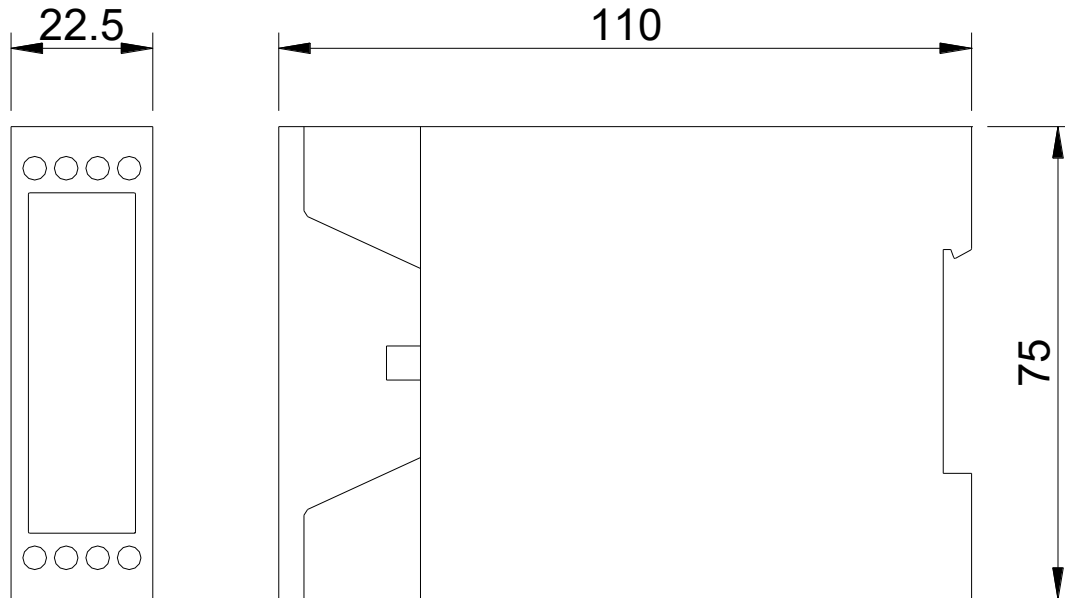
Forming part of Omniflex's extensive Omniterm range of industrial instrumentation, the Omniterm FCX is designed to be DIN rail or surface mounted and is an economical 22.5mm wide with a wide operating power supply range of 10-30Vdc.

Typical Application Example



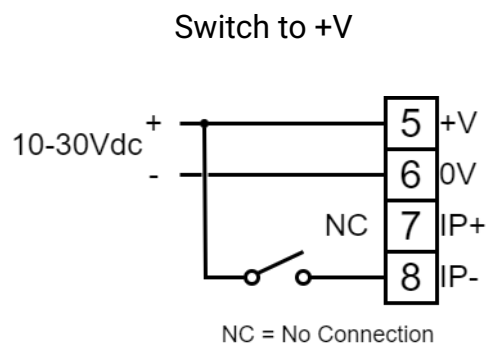
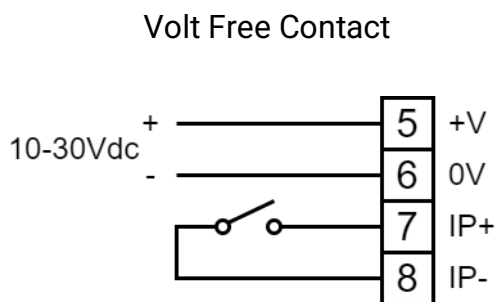


Mechanical Dimensions



Input Wiring Options

The input to the FCX can be wired in the following ways and retain the fail-safety nature of the circuit:





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Specifications

Power Supply

Operating Range	10-30Vdc
Supply Current	150mA maximum at 10V
Typical Supply Current at 24V	
Standing Current	10mA
Input contact closed	Add 10mA
Output relays closed	Add 20mA
I/P contact closed, O/P Relay ON	40mA
Surge at power-on	1,1A (10ms average)

Input

Type	Volt free Contact (Switch to +V to operate)
Open circuit voltage	30Vdc maximum
Closed circuit current	<10mA
Allowable Series resistance	50 ohms maximum

Output

Type	Form A (Normally Open) contact
Switching voltage	250VAC/220Vdc max.
Switching current	0.25A max.
Mechanical Life	100 000 000 operations
Electrical Life	100 000 operations at full load

Optical Link

Model	C2477B-1	C2477B-2
Centre Wavelength	850nm	1300nm
Transmission mode	Multi-mode	Single mode
Connector	SC	SC
Tx Output Power	-12dBm min -9dBm typical -6dBm max	-7dBm min, -5dBm typical -3dBm max
Rx Sensitivity	-16dBm max	-20dBm max
Rx Overload	-12dB min	-7dBm min
Extinction Ratio	9dB min	9dB min
Min. Power Budget	-4dBm min	-13dBm min
Example Distance	1km @ 3.5dB/km	20km @ 0.4dB/km
Distance Calculation	Distances shown are calculated using typical cable attenuation. Actual distance achieved will also depend upon cable splices and additional connectors.	

Compliance to Standards

Functional Safety	IEC61508 SIL1 and SIL2
Human Safety	IEC 60950
Immunity – ESD	IEC 61000-4-2 4kV
Immunity – RF Fields	IEC 61000-4-3 10V/m
Immunity – Fast Transients	IEC61000-4-4 2kV dc power, 1kV inputs/outputs
Emissions	EN55011 Group I, Class A

Reliability Data

Model	C2477B-1	C2477B-2
MTBF	20.5 years	11.2 years
PFD (TI = 1 year)	Tx: 5.91E-5 Rx: 1.88E-4	Tx: 5.91E-5 Rx: 1.88E-4
SFF	Tx: 99.51 % Rx: 98.6 %	Tx: 99.86 % Rx: 99.57 %

Temperature

Storage	-10 to +70 °C
Operating	-10 to 60 °C

Weight

Unpacked	140g approx.
Packed	165g approx.
Packed	165g approx.

Housing

Width	22.5mm (1.18")
Height	75mm (2.95")
Depth (from panel)	110mm (4.33")

Ordering Information

Order Code	Description
C2477B-1	Omniterm FCX Bidirectional Fibre Optic SIL2 Contact Repeater (850nm multi-mode)
C2477B-2	Omniterm FCX Bidirectional Fibre Optic SIL2 Contact Repeater (1300nm single mode)

