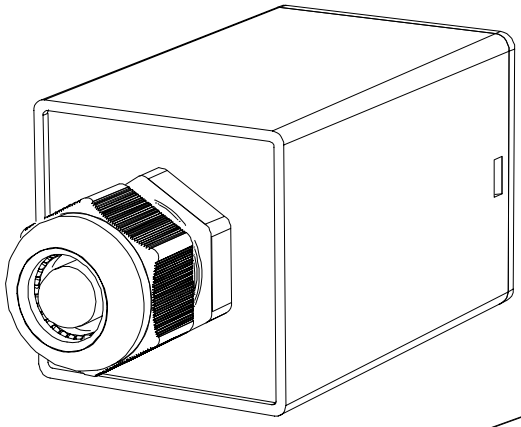
Technical Bulletin

1X10 / 1X20

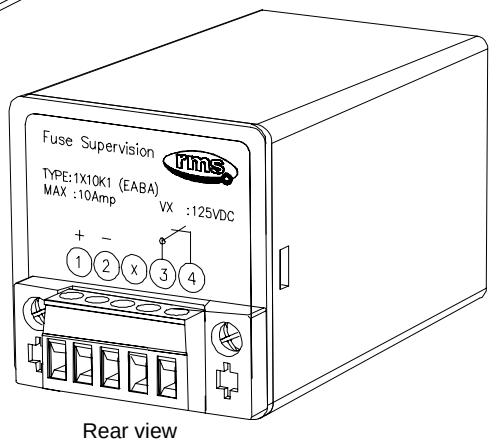
Fuse Supervision / CB Coil Supervision Relay

Features

- 1X10 fuse supervision version
- 1X20 trip circuit supervision version
- Compact design
- Simple through hole panel mount
- De-mountable terminal block with retention screws
- Extra large LED
- Remote indication via N/C or N/O relay output contact
- Custom front panel label
- Cost effective
- Range of supervision voltages



Front view



Rear view

Application

The 1X10 Fuse Supervision relay has been designed as a simple & cost effective device for monitoring the condition of fuses & DC supplies protection & control circuits.

In addition to the DC supply supervision function, the 1X20 relay also supervises the CB coil.

Local visual indication of DC supply, fuse or circuit failure is provided by a large LED. Remote indication is made possible through a single alarm relay output contact.

Both the 1X10 & 1X20 relays are characterized by their compact size, plug in connection base & simple panel mounting configuration. A number of models are available to cover a range of system voltages & circuit applications.

Operation

Made in Australia

The 1X10 & 1X20 relays comprise an electromechanical output relay which is wired across the circuit being monitored. The relay may be specified to operate with a N/O or N/C alarm output contact:

N/C Alarm Output Contact Version

Under normal conditions the supervision relay remains picked up, the alarm contact remains open & the 'healthy' LED illuminated. Loss of the auxiliary supply or an open circuit will cause the supervision relay to drop out, the 'healthy' LED to be extinguished & the alarm contact to close signaling an abnormal condition.

N/O Alarm Output Contact Version

Under normal conditions the supervision relay remains dropped out, the alarm contact remains open & the 'alarm' LED extinguished. Failure of the fuse or circuit being supervised will cause the supervision relay to pick up, the 'alarm' LED to be illuminated & the alarm contact to close signaling an abnormal condition.

The 1X20 version relay incorporates an electronic time delay to avoid nuisance alarm signals during normal operation of the circuit breaker.

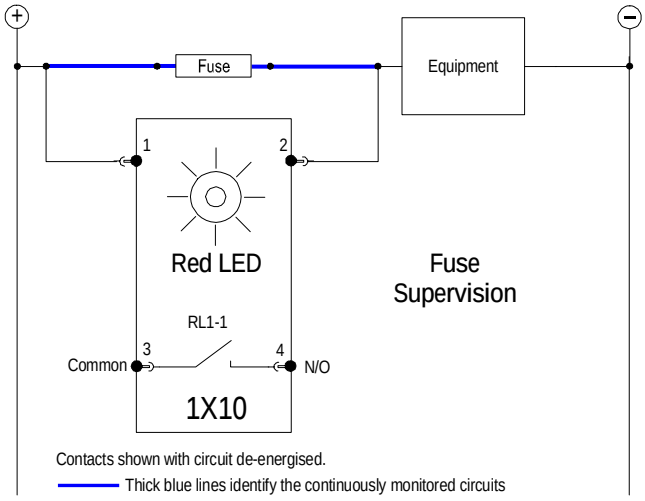
The relay is designed for flush mounting utilizing the single 25mm mounting point which also houses the large LED indicator. Electrical termination is made via four screw terminals on the rear of the case. This terminal block is of a plug in type with integrated retention screws further simplifying installation.

FUSE SUPERVISION
In this application the 1X10 is being applied to supervise a fuse.

In this example the N/O Alarm Output Contact version is employed with a red 'alarm' LED.

Order code: 1X10 [x][A][A][x]

Under normal conditions the supervision relay remains dropped out, the alarm contact remains open & the red 'alarm' LED extinguished. Failure of the fuse will cause the supervision relay to pick up, the alarm contact to close & the red 'alarm' LED to be illuminated provided the trip supply has not been lost to the 1X10 relay.

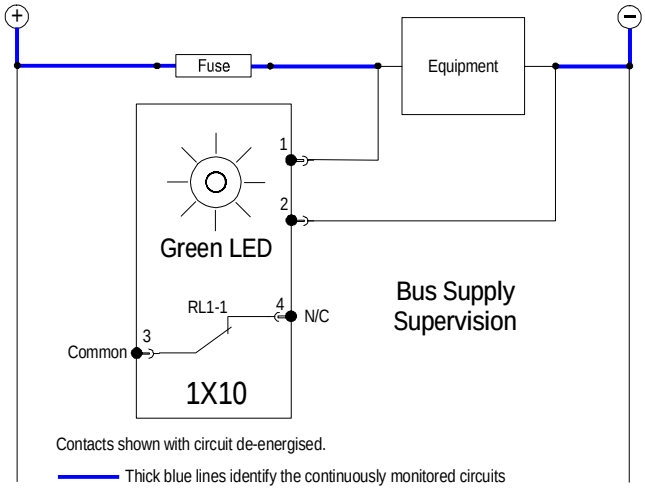


BUS SUPPLY SUPERVISION
In this application the 1X10 is being applied to supervise a DC BUS supply.

In this example the N/C Alarm Output Contact version is employed with a green 'healthy' LED.

Order code: 1X10 [x][B][B][x]

Under normal conditions the supervision relay remains picked up, the alarm contact remains open & the green 'healthy' LED illuminated. Failure of the DC BUS supply or an open circuit will cause the supervision relay to drop out, the 'healthy' LED to be extinguished & the alarm contact to close signaling an abnormal condition.



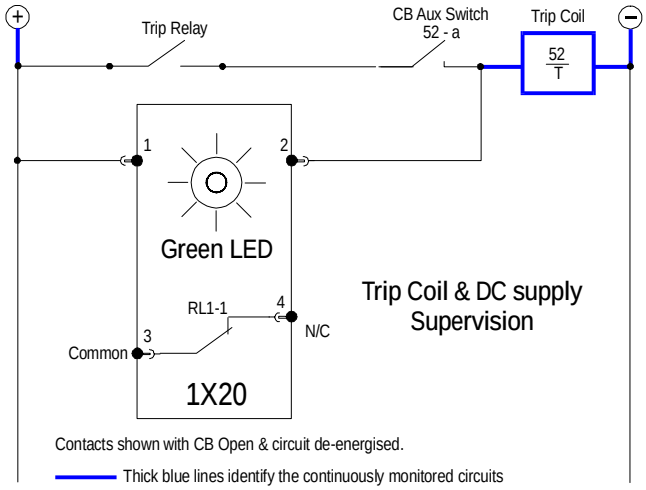
TRIP COIL & DC SUPPLY SUPERVISION
In this application the 1X20 is being applied to supervise the CB trip coil & the DC supply.

In this example the N/C Alarm Output Contact version is employed with a green 'healthy' LED.

Order code: 1X20 [x][B][B][x]

Under normal conditions the supervision relay remains picked up, the alarm contact remains open & the green 'healthy' LED illuminated. Failure of the DC BUS supply or an open circuit in the trip coil will cause the supervision relay to drop out, the 'healthy' LED to be extinguished & the alarm contact to close after a short time delay signaling an abnormal condition.

The time delay is incorporated in the 1X20 version to hold in the alarm contact during CB operation.

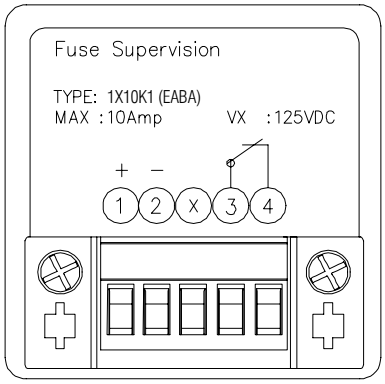


SUPERVISION OPERATING CURRENT
The 1X10 & 1X20 circuit designs are optimized to minimize the supervision current in the circuit being monitored. The following supervision currents & burdens apply when the relay & LED are energized.

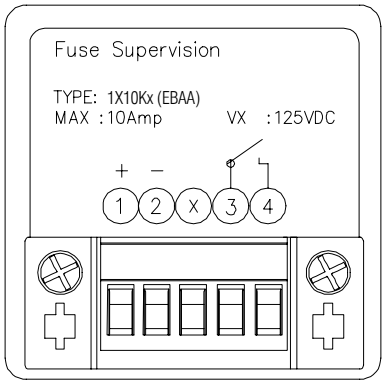
Nominal supply	Supervision Circuit		
	Resistance (ohms)	Supervision current	Nominal burden
24V DC	640	<40mA	<0.9W
32V DC	1,200	<30mA	<1.0W
48V DC	2,600	<20mA	<1.0W
110V DC	13,600	<10mA	<1.2W
125V DC	16,000	<10mA	<1.3W
220V DC	16,000	<10mA	<2.5W
250V DC	16,000	<10mA	<2.6W

Table 1

Technical Data



Typical rear terminal layout – N/C alarm contact option depicted



Typical rear terminal layout – N/O alarm contact option depicted

OPERATING RANGE
Pickup: 80% Max
Dropout: Not less than 15%

Maximum voltage: 120% of nominal continuous

BURDEN
Normal conditions: Refer Table 1
Fault conditions: Zero

INSULATION WITHSTAND in accordance with IEC 255-5:
2KV RMS & 1.2/50 5KV impulse between input & output

NOISE IMMUNITY
Withstands the high frequency interference test detailed in IEC 255-22-1.

ALARM DELAY (1X20 version only)
>150ms

OUTPUT CONTACT
One N/O or N/C contact with 1 KV isolation across open contacts

CONTACT RATINGS

Rated load
AC 1 10A / 250V AC
DC 1 10A / 24V DC

Rated current
10A

Maximum inrush current
20A

Maximum break capacity
3,000VA

ELECTRICAL LIFE
>500,000 operations at 5A 240VAC resistive

WIRING
Screw terminals mounted in moulded plug in base for easy wiring & removal.

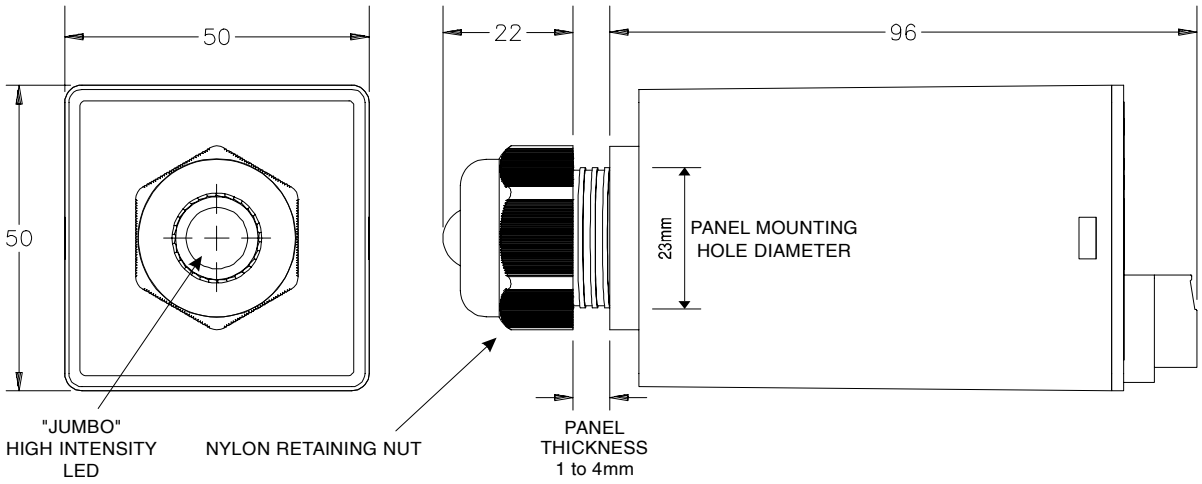
VISUAL INDICATOR
Panel mounted extra large red or green LED.

MOUNTING
Panel mounting through LED indicator assembly.

CASE STYLE
Double insulated high impact plastic case moulded in polystyrol.

TEMPERATURE RANGE
-5 to +55 deg C

CASE DIMENSIONS



Ordering Information

Generate the required ordering code as follows: e.g. 1X10-DABA

1X	M	1	2	3	4

M MODEL

10 Instantaneous operation
20 Time delayed operation

1 SUPERVISION VOLTAGE

A	24V DC	B	32V DC
C	48V DC	D	110V DC
E	125V DC	F	250V DC

2 LED COLOUR

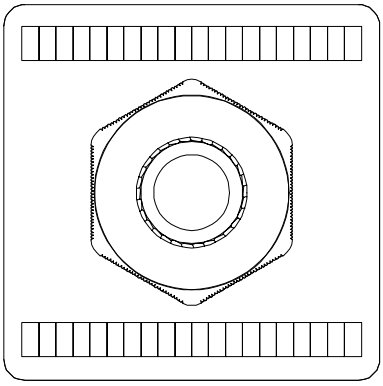
A Red
B Green

3 ALARM CONTACT OPERATION MODE

A N/O alarm output contact
B N/C alarm output contact

4 CUSTOM FRONT PANEL LABEL

A Not required
B Required Advise 2 x 20 characters (Maximum) of custom text for custom front panel label with order.



Maximum 2 X 20 characters

Australian Content

Unless otherwise stated the product(s) quoted are manufactured by RMS at our production facility in Melbourne Australia. Approximately 60% of our sales volume is derived from equipment manufactured in house with a local content close to 90%. Imported components such as semi-conductors are sourced from local suppliers & preference is given for reasonable stock holding to support our build requirements.

Quality Assurance

RMS holds NCSI (NATA Certification Services International), registration number 6869 for the certification of a quality assurance system to AS/NZS ISO9001-2000. Quality plans for all products involve 100% inspection and testing carried out before despatch. Further details on specific test plans, quality policy & procedures may be found in section A4 of the RMS product catalogue.

Product Packaging

Protection relays are supplied in secure individual packing cardboard boxes with moulded styrene inserts suitable for recycling. Each product & packing box is labeled with the product part number, customer name & order details.

Design References

The products & components produced by RMS are based on many years of field experience since Relays Pty Ltd was formed in 1955. A large population of equipment is in service throughout Australia, New Zealand, South Africa & South East Asia attesting to this fact. Specific product & customer reference sites may be provided on application.

Product Warranty

All utility grade protection & auxiliary relay products, unless otherwise stated, are warranted for a period of 24 months from shipment for materials & labour on a return to factory basis. Repair of products damaged through poor application or circumstances outside the product ratings will be carried out at the customer's expense.

Standard Conditions of Sale

Unless otherwise agreed RMS Standard Terms & Conditions (QF 907) shall apply to all sales. These are available on request or from our web site.

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