EOCR-3DD-SC
100 Amp Overload For Underground Mining Machines

Samwha

Application

■ Designed specifically for underground mining machine motor protection

Features

■ Microprocessor based
■ Over current, phase loss, phase unbalance protection
■ Locked rotor, phase reversal (selectable) protection
■ Fail safe operation (selectable)
■ Calibrated adjustment
■ Remote electrical reset, remote test
■ Digital display of motor currents, settings and faults

Benefits

■ Proven technology
■ Multifunction motor protection
■ Relay can be adjusted with no power applied
■ Safe remote reset, adjustments can be checked without opening flameproof enclosure
■ Ammeter function, assists in fault finding

The Samwha EOCR-3DD-SC overload relay has a current range from 10 amps to 120 amps used in conjunction with a 100/5 amp current transformer block. Fail safe operation and phase reversal functions are DIP switch selectable allowing more flexibility. The EOCR-3DD-SC has only two potentiometer adjustments and one fixed current range making it very simple to set. Although originally designed specifically for mining shuttles cars, it has been used successfully for a number of other mining applications.

The relay can be mounted remotely from the CT block allowing the digital display to be positioned behind a flameproof window for easy inspection. Another advantage of this is,should the relay need to be replaced for any reason, the motor leads and current transformer need not be disturbed.

Compact, robust design, advanced motor protection features and wide current range makes the EOCR-3DD-SC very suitable for all underground mining machine motor protection .

Ordering information

EOCR-3DD-SC-100-220

For further details please contact your Samwha distributor.

Specifications

TRIP TIMES
Overload	0.5-25 seconds (adjustable)
Phase loss	4 seconds (over 20A)
Phase reversal	0.1 seconds
Phase unbalance	8 seconds (UB>50%)
Locked rotor	10 seconds

CURRENT SETTING RANGE
10-120 amps

CONTROL VOLTAGES
220 (85-250 Vac/dc)

OUTPUT RELAY
1N/O,1N/C 5A/250Vac Resistive

OPENING CHARACTERISTIC
Definite time

TRIP INDICATION   4 digit display

FAULT INDICATION   4 digit display

TOLERANCE
Current +/- 5%, Time +/- 5%
(add 0.5 seconds for overload trip delay)

AMBIENT TEMPERATURE
Storage	-30 - 80 °C
Operation	-20 - 70 °C
Humidity	45 - 85% (without condensation)

INSULATION
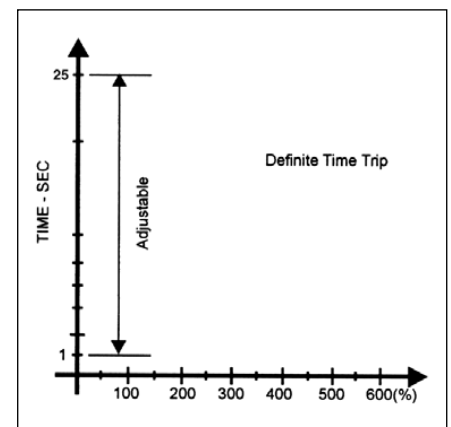Between casing and circuits
Over 10MΩ @ 500 Vdc

DIELECTRIC STRENGTH
Casing & circuit	2kV 60Hz,1 minute
Between contacts	1kV 60Hz,1 minute
Between circuits	2kV 60Hz,1 minute

POWER CONSUMPTION
Less than 3VA
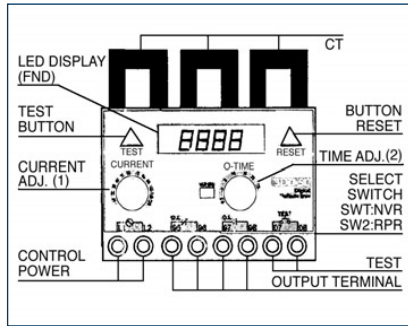
MOUNTING
35mm DIN rail/surface

N2256

Time current characteristics

Adjustments

The relay fascia has two adjustments:
1) Current adjustment
2) Trip time adjustment

Each adjustment potentiometer is calibrated so the relay can be accurately set with no control power applied.


Indication

The EOCR-3DD-SC gives full indication of motor status via a 4 digit display on the relay fascia. Motor trip status is displayed making fault finding very simple. In normal operation, the motor current in each phase is displayed in turn every 3 seconds. If an overload occurs, information such as "O" for overload, phase reversal "RP", phase unbalance "U", phase loss "PL" which phase is effected and the intensity of the overload in amps is displayed.

Setting Instructions

Once all connections to the EOCR-3DD-SC have been made in accordance with the typical wiring diagram, and the relay is in position:

- Set the current adjustment (1) to approximately 110-115% above the motor full load current rating. Each relay is individually calibrated with a black dot near the corresponding current value. If control power is available to terminals L1 and L2, the 4 digit LED display will indicate actual current value in amps.

- Set the trip time adjustment (2) according to the required trip time characteristic shown on page 1. If 5 is selected, the relay will trip in 5 seconds if the current setting is exceeded. During motor starting, an inbuilt auto delay time allows the motor to start without tripping. If the motor is stalled during starting, the maximum trip time is 10 seconds regardless of the overload setting.
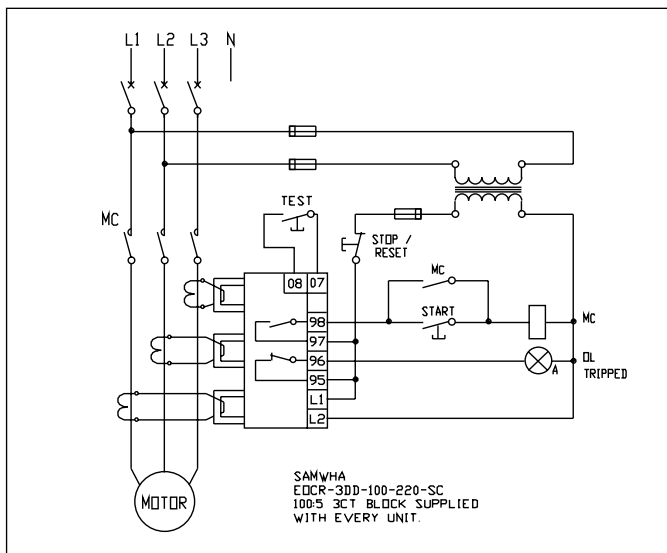
Typical wiring diagram
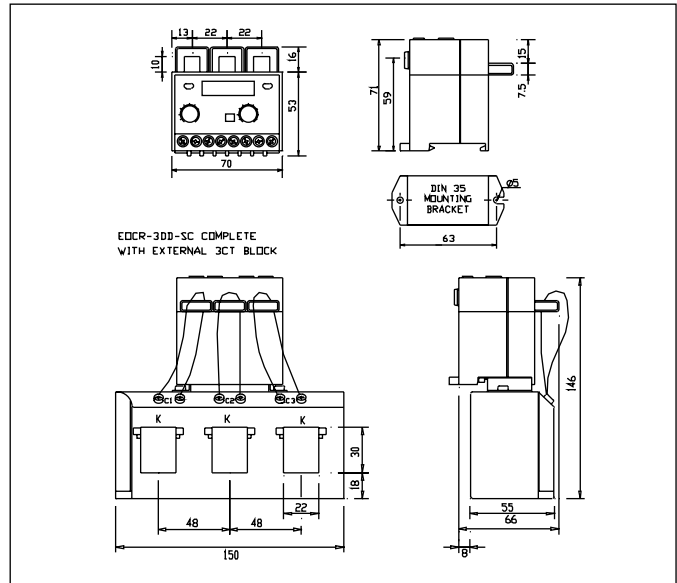
Dimensions

DIP Switch Selection

- **NVR:** When switched to the "on" position, **Fail Safe** operation of the relay output trip contacts is selected. With control power applied to terminals L1 and L2, contacts 95-96 open and contacts 97-98 close.

- **PRP:** When switched to the "on" position, phase reversal protection is selected. If this function is not required, PRP switch should be in the "off" position.

Test and Reset

A local TEST push button is located on the relay facia. For remote test, momentarily close a contact connected to the terminals marked "TEST". Each time the test button is depressed the EOCR-3DD-SC 4 digit LED will display the following:

1 Current adjustment setting (amps)
2 Trip time adjustment (seconds)
3 TEST

The relay will then count down until the trip time has elapsed, the output contacts change state and END is displayed. If the relay is in use and current is drawn by the motor, the adjustment settings will be displayed without tripping the relay. The EOCR-3DD-SC can now be reset ready for use.

Reset

A Local RESET push button is located on the relay facia. Remote electrical reset is carried out by interrupting the control power supplied to terminals L1 and L2.

Mounting

The EOCR-3DD-SC is 35mm DIN rail mounting and is supplied with a bracket for direct mounting to the 3CT block. It can be mounted remotely in any orientation without effecting performance.

Details may be subject to change without notice.
Doc EOCR-3DD-SC-Rev1, Feb 2000. © R&D Technology PTY LTD