

Features

- 3A200 RECEIVE relay
- 3A201 SEND relay
- 3A202 combined SEND & RECEIVE relay
- 3A203 2x 3A200 elements per case
- System immunity to AC voltages
- High isolation between coil & contacts & case up to 15KV
- High DC sensitivity
- High visibility mechanical hand reset or self reset flag
- Heavy duty self reset contacts with optional magnetic blowouts to further enhance DC switching capacity
- Made in Australia

Description

Intertripping over copper pilots using a DC signal is commonly employed. The 3A20 Series Relays are intended for the remote control of switchgear & associated equipment via pilot wires on which induced AC voltages could cause false tripping.

The 3A201 Send relay is used to interface a conventional protection relay to the pilot wire with suitable electrical isolation for the feeder voltage level.

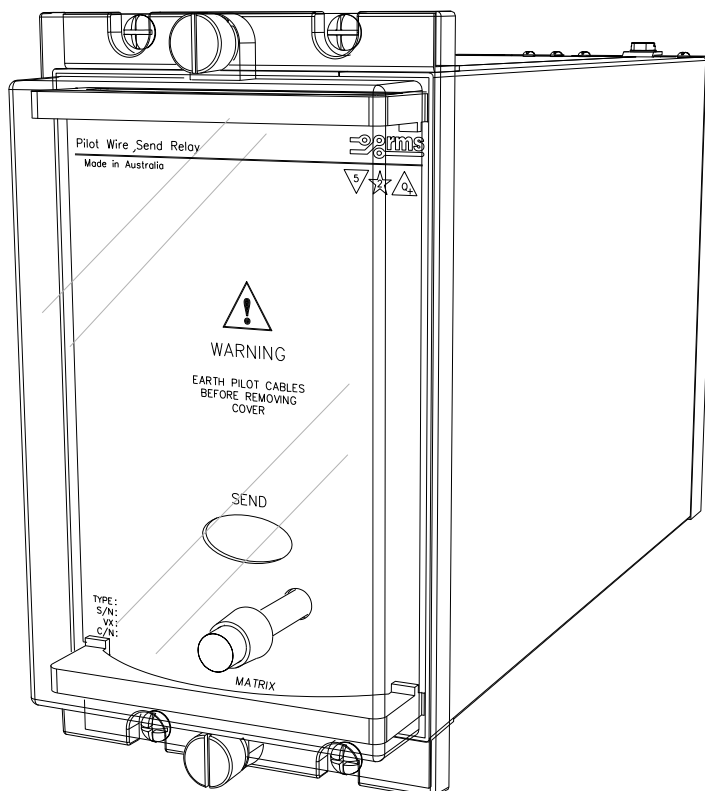
The 3A200 Receive relay is used to interface the pilot wire to the circuit breaker at the receive end with suitable electrical isolation for the feeder voltage level. The 3A200 employs an internal filter & a special relay coil fitted with a copper sleeve over the core which makes the relay element immune to AC voltages. The high DC sensitivity of the relay allows operation over pilot wires at nominal voltage with loop resistances of up to 2,700 ohms.

The 3A202 relay combines a 3A201 Send & a 3A200 Receive relay element in a single case for two way intertripping applications.

The 3A203 relay combines 2x 3A200 Receive relay elements in a single case to reduce panel space requirements.

Technical Bulletin

3A20 Series Pilot Wire Intertrip Send & Receive Relays



3A201 15KV version depicted in a size 4M case

Operation

Made in Australia

The operating element of the 3A20 Series is based on the well proven 6R heavy duty attracted armature control relay. The DC version of this relay is inherently immune to AC voltages & the addition of an AC filter circuit & copper shield over the core of the receive relay greatly enhances this attribute while maintaining high sensitivity to DC voltages.

A mechanical flag indicator is provided on both the send & receive elements which drops on pick up. Manual & self reset version available.

The 3A201 send element is used to apply a DC control voltage to the pilot wire which will be detected by the 3A200 receive element & the auxiliary contacts picked up.

The 3A202 version combines a 3A201 send & a 3A200 receive element in a single case (2KV & 5KV versions only).

The 3A203 version combines 2x 3A200 receive elements in a single case (2KV & 5KV versions only).

Application

HIGH VOLTAGE ISOLATION

Pilot wire relays require high levels of isolation between coil & contacts as the pilots may be subject to insulation break down & high induced voltages caused due to proximity to the high voltage cables.

The 3A20 relays are available in three models depending on the isolation requirements of the particular application:

For system voltages up to 6.6KV a 2KV RMS insulation level is normally considered adequate;

For system voltages up to 22KV a 5KV RMS insulation level is normally considered adequate;

For system voltages above 22KV a 15KV RMS insulation level should be considered.

INSULATION RATING

2KV / 5KV / 15KV RMS between input & frame, outputs & frame, outputs & inputs.

1.2/50 5KV impulse between each terminal & earth, between circuits not normally connected together & between terminals of the same circuit.

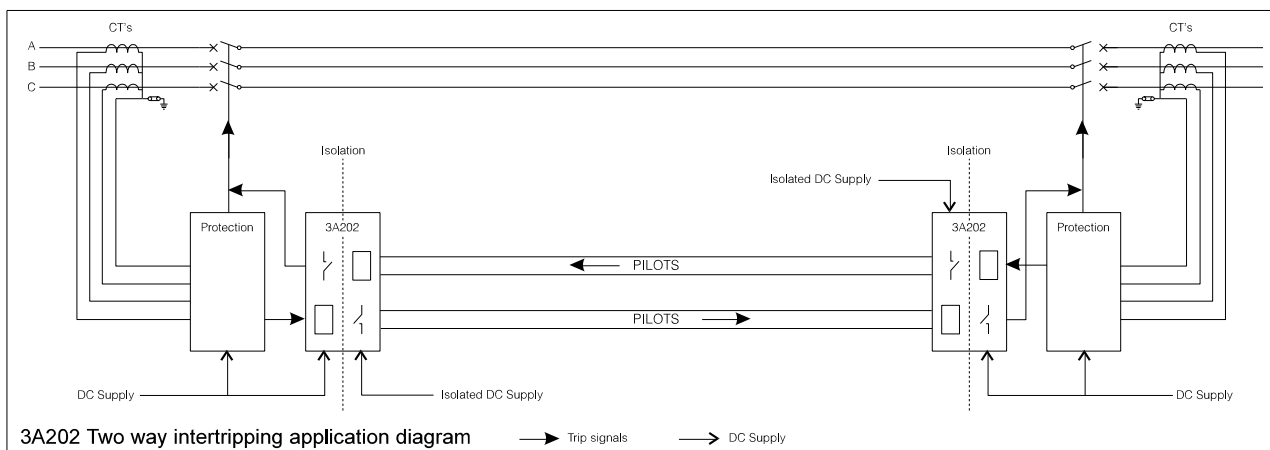
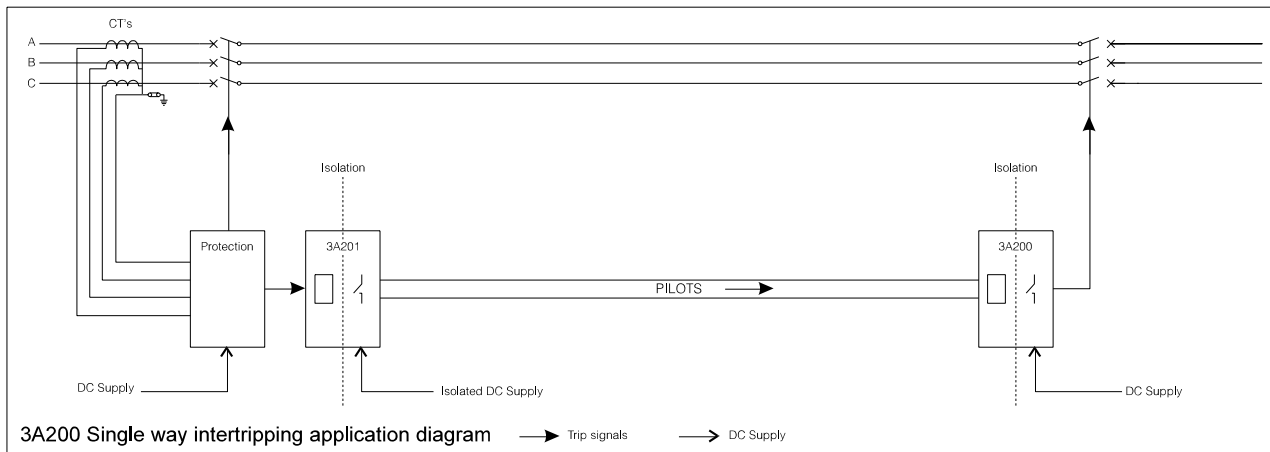
A clear polycarbonate terminal covers are supplied for 15KV isolated relay versions.

ORDERING CODE, CASE TYPE & WIRING SCHEDULE

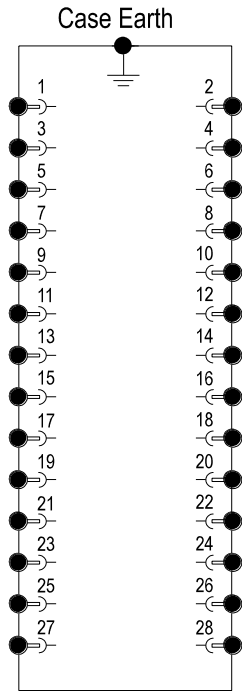
Ordering Code	Isolation Level	Case type	Wiring Schedule	Maximum Contacts M or B
3A200-x-x-A-A-x-x	2KV	2M28-S	A	4
3A200-x-x-B-A-x-x	5KV	2M28-S	A	4
3A200-x-x-C-A-x-x	15KV	4M10	B	4
3A201-x-x-A-A-x-x	2KV	2M28-S	D	4
3A201-x-x-B-A-x-x	5KV	2M28-S	D	4
3A201-x-x-C-A-x-x	15KV	4M10	B	4
3A202-x-x-A-A-x-x	2KV	2M28-S	E	4
3A202-x-x-B-A-x-x	5KV	4M28-S	E	4
3A203-x-x-A-A-x-x	2KV	2M28-S	E	4
3A203-x-x-B-A-x-x	5KV	4M28-S	E	4

Table 1

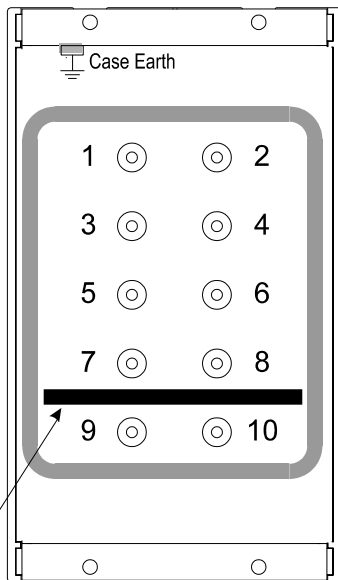
"x" indicates that all options are possible for this ordering code.



TERMINAL LAYOUT FOR 2M28 & 4M28 CASES



TERMINAL LAYOUT FOR 4M10 CASES



Wiring Schedules

3A200	Wiring Schedule	
	A	B
RECEIVE Coil	+27, -28	+9, -10
Contact 1-1	17, 19	1, 3
Contact 1-2	18, 20	2, 4
Contact 1-3	21, 23	5, 7
Contact 1-4	22, 24	6, 8

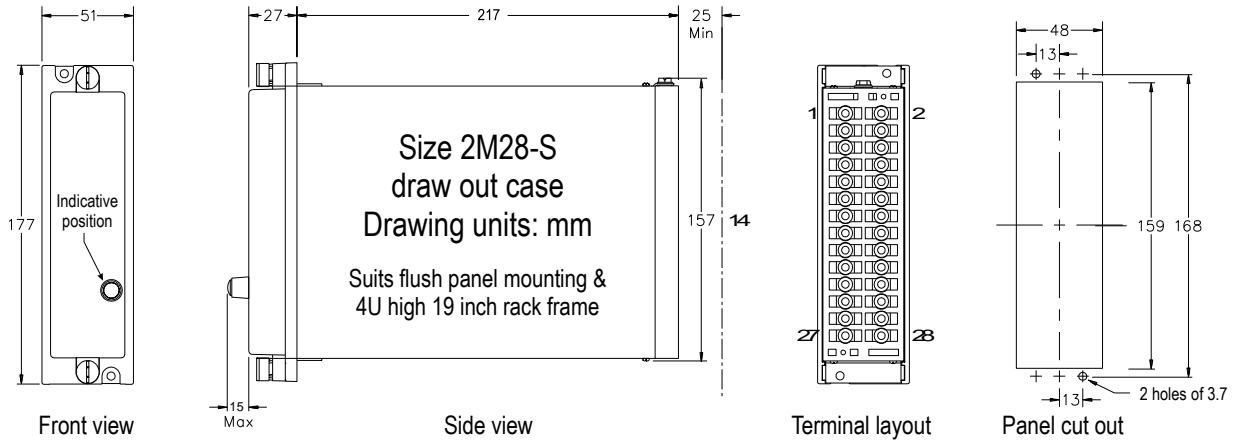
3A201	Wiring Schedule	
	D	B
SEND Coil	+11, -12	+9, -10
Contact 1-1	1, 3	1, 3
Contact 1-2	2, 4	2, 4
Contact 1-3	5, 7	5, 7
Contact 1-4	6, 8	6, 8

3A202	Wiring Schedule
	E
SEND Coil	+11, -12
Contact 2-1	1, 3
Contact 2-2	2, 4
Contact 2-3	5, 7
Contact 2-4	6, 8
RECEIVE Coil	+27, -28
Contact 1-1	17, 19
Contact 1-2	18, 20
Contact 1-3	21, 23
Contact 1-4	22, 24

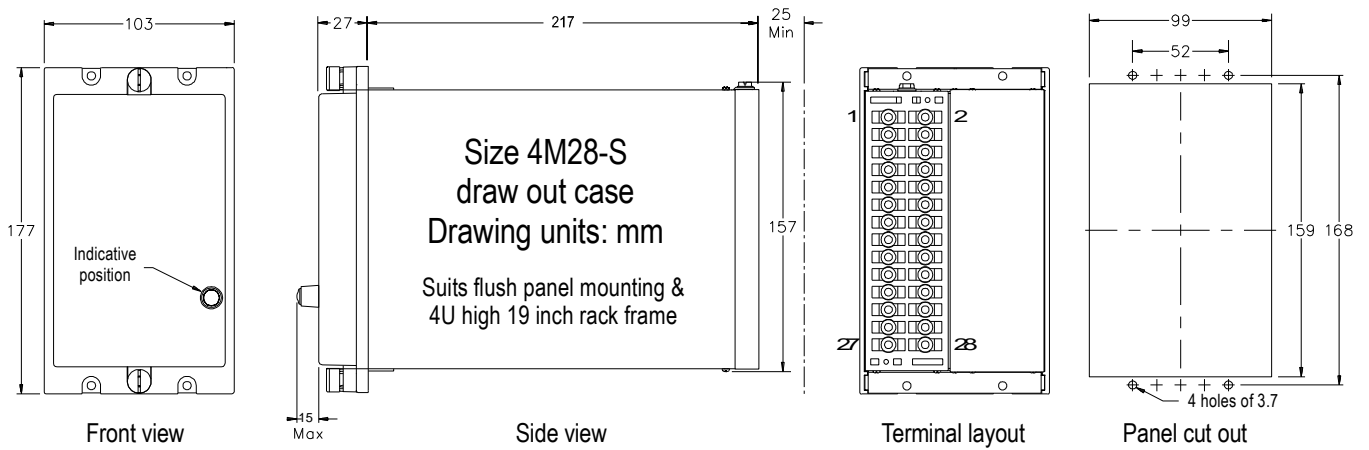
3A203	Wiring Schedule
	E
RECEIVE Coil	+11, -12
Contact 2-1	1, 3
Contact 2-2	2, 4
Contact 2-3	5, 7
Contact 2-4	6, 8
RECEIVE Coil	+27, -28
Contact 1-1	17, 19
Contact 1-2	18, 20
Contact 1-3	21, 23
Contact 1-4	22, 24

Case & Wiring Details

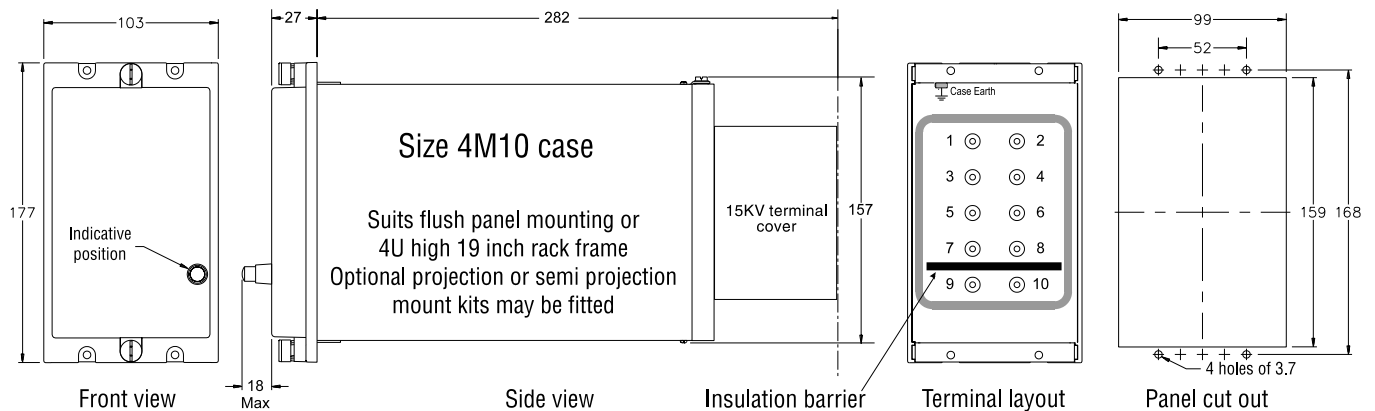
2M28-S CASE DRAWING



4M28-S CASE DRAWING



4M10 CASE DRAWING



Technical Data

TRIP SUPPLY BURDEN

3A200	<2.5W per coil & resistor circuit
3A201	<7W at nominal
3A202	As per 3A200 & 3A201
3A203	As per 3A200

FLAG INDICATION

High visibility electromechanical flag indicator drops when a fault is detected (Coil energisation). A hand reset version is available with a front panel mounted hand reset push button. Alternatively a self reset version is available.

OPERATE TIME (Zero pilot loop resistance)

3A200	~50ms on application of nominal DC
3A201	~30ms on application of nominal DC
3A202	As per 3A200 & 3A201
3A203	As per 3A200

AC IMMUNITY – 3A200

The 3A200 element is immune to induced AC voltages -
 48V DC version: 140V 50Hz immunity
 110V & 125V DC versions: 300V 50Hz immunity

INSULATION WITHSTAND

In accordance with IEC 255-5:

2KV / 5KV / 15KV RMS between input & frame, outputs & frame, outputs & inputs. 1.2/50 5KV impulse between each terminal & earth, between circuits not normally connected together & between terminals of the same circuit.

NOISE IMMUNITY

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

OUTPUT CONTACTS

Maximum M or B: Refer Table 1.
 Optional: With magnetic blowouts fitted

TERMINAL COVERS

4M flush mount case: Clear polycarbonate cover supplied for 15KV model in 4M flush mount case.

6R RELAY CONTACT RATINGS

Make & Carry Continuously

3,000 VA AC resistive with maximums of 660V & 12A
 3,000 VA DC resistive with maximums of 660V & 12A

Make & Carry for 0.5 Seconds

7,500 VA AC resistive with maximums of 660V & 30A
 7,500 VA DC resistive with maximums of 660V & 30A

AC Break Capacity

3,000 VA AC resistive with maximums of 660V & 12A

DC Break Capacity (Amps)

Voltage			24V	48V	125V	300V
Resistive rating		B	12	12	10	5
		A	12	2	0.5	0.3
L/R=40ms	Maximum break	B	30	15	5.5	3.5
		A	12	1	0.25	0.15
	1K operations (N3 Rating)	B	12	12	5	2.5

A = Without magnetic blowouts B = With magnetic blowouts

All data relates to both the 3A200 & 3A201 unless otherwise stated. The 3A202 is a combined 3A200 & 3A201 mounted in a single case.

3A20 Ordering Codes

Generate the required ordering code with reference to Table 1:

e.g. 3A200-DBBAA-2M2B

3A20	1	2	3	4	5	6	7

1 RELAY FUNCTION

- 0 RECEIVE relay
- 1 SEND relay
- 2 Combined SEND & RECEIVE relay (2KV & 5KV isolation only)
- 3 2x 3A200 RECEIVE relay elements per case

2 NOMINAL OPERATE VOLTAGE (75 to 120% of nominal)

- C 48V DC
- D 110V DC
- E 125V DC

3 CONTACT DUTY

- A Magnetic blowouts fitted
- B Heavy duty contacts

4 HIGH VOLTAGE INSULATION WITHSTAND

(refer Table 1 for applicable models)

- A 2KV RMS
- B 5KV RMS
- C 15KV RMS (in 4M10 case, 3A200 and 3A201 models only)

5 CASE TYPE

- A M Series case – Flush or projection mount rear connect

6 FLAG OPERATION

- A Hand reset flag (Default)
- B Self reset flag
- C Flag not required

7 CONTACT ARRANGEMENT

Specify the number of "MAKES" followed by M; i.e. 2M
 Specify the number of "BREAKS" followed by B; i.e. 2B

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