



Type CDG 21/61
IDMT Overcurrent and Earth Fault Relay with Highset

ALSTOM

Type CDG 21/61

IDMT Overcurrent and Earthfault Relay with high-set instantaneous unit.

Features

- Identical time/ current characteristics on all taps.
- Self-powered, no necessity for separate auxiliary supply.
- High torque, ensuring consistent timing even under adverse conditions.
- Very low overshoot.
- Simple construction, easily accessible.
- Comprehensive range of high-set unit ratings.
- Dustproof drawout case and tropicalised finish.

Application

Selective phase and earthfault protection, in time graded systems for AC machines, transformers, feeders etc.

General description

A non-directional heavily damped induction disc relay, which has an adjustable inverse time/current characteristic with a definite minimum time. CDG 21 and CDG 61 are 1 & 3 pole versions of CDG11 with highset instantaneous unit respectively. The relay has a high torque movement combined with low burden and low overshoot. The relay disc is so shaped that as it rotates the driving torque increases and offsets the changing restraining torque of the control spring. This feature combined with the high torque of the relay

ensures good contact pressure even at currents near pick-up.

Damping of the disc movement is by a removable high retentivity permanent magnet. The unique method of winding the operating coil ensures that the time/current characteristics are identical on each of the seven current taps. Selection of the required current setting is by means of a plug setting bridge, which has a single insulated plug. The maximum current tap is automatically connected when the plug is withdrawn from the bridge, allowing the setting to be changed under load without risk of open circuiting the current transformers. The IDMT relay has an auxiliary unit which is powered by a secondary winding on the electromagnet through a rectifier and as such a separate auxiliary supply is not required. The disc unit operates and closes its contacts, the auxiliary element connected across the secondary winding on the electromagnet operates and one normally open contact of the auxiliary element reinforces the disc contact. Two other contacts of the auxiliary element are brought out to the terminals of the relay.

The relay operating time can be adjusted by movement of the disc backstop which is controlled by rotating a knurled moulded disc at the

base of the graduated time multiplier scale. A high-set instantaneous overcurrent/ earth fault unit is fitted in the same case to provide instantaneous protection under maximum short circuit conditions and to improve discrimination on time graded protective systems

Technical data

Current ratings

1A or 5A.

IDMT settings

- 50 - 200% in seven equal steps of 25%.
- 20 - 80% in seven equal steps of 10%.
- 10 - 40% in seven equal steps of 5%.
- Other setting ranges available on request.

Starting current

103 - 105% of current setting.

Closing current

Not more than 130% of current setting.

Instantaneous highset settings

- E/F 100 - 400%,
- O/C 400 - 1600%
- Other setting ranges available on requests
- For special applications highest unit with low transient overreach is also available as option. Please contact our application department for details.

Time settings

Operating time

0 - 3 seconds or
0 - 1.3 seconds at 10 times
current setting.

Resetting time

4 seconds for 1.3 seconds
relay and 9 seconds for 3
seconds relay with time
multiplier setting at 1.0

Overshoot

Overshoot time on removal of
20 times setting current.

- Less than 0.065 second
for 1.3 seconds relay
- Less than 0.04 second for
3 seconds relay.

Thermal rating

- Maximum continuous
current rating for 60°C
rise in coil temperature.

Operating Coil tap	1	2	3	4	5	6	7
Times current setting	4.5	3.7	3.2	2.7	2.6	2.4	2.2

- Withstand 20 times
maximum setting current
for 3 seconds.

Accuracy

Error class index
E7.5 as per BS 142-1966
7.5 as per IS 3231-1965

Frequency error

Timing error less than 8% for
2 Hz frequency variations.

Dimensions and weights

Relay	Case size	Maximum overall dimensions			Approximate gross weight Kg.
		Height mm	Width mm	Depth* mm	
CDG 21	1D Vert.	233	170	203	6.0
CDG 61	3D Horz.	233	454	203	15.5
	3D Vert.	524	170	203	15.0

* Add 76 mm for maximum length of terminal studs, alternatively, 29 mm for terminal screws.

The approximate gross weights given above are inclusive of cartons, mounting appendages and terminal details.

The relays comply fully with the requirements of IS 3231-1965 and are suitable for use in normal tropical environments.

Time grading unaffected by
such small error, since all
relays are similarly affected.

Temperature error

For 10 times setting current,
at ambient temperature
between
+45°C and $\pm 5^\circ\text{C}$,
percentage timing errors are
as follows:

- 3 seconds relay: $\pm 3\%$
and +4%
- 1.3 seconds relay: $\pm 4\%$
and +4%.

Auxiliary units and operation indicators

Self-powered auxiliary unit
will have following contact
combinations:

1. S/R - 2N/O or
2. H/R - 2N/O + 2 N/C.

Contact ratings auxiliary unit contact

Make and carry for 0.5
second 7500 VA with maxima
of 30 amps/ 660 volts ac/dc.

Insulation

The relay meets the
requirements of
IS 3231-1965/IEC.265-6
series C-2 kV for 1 minute.

Burden

3VA nominal
2VA on the lowest tap
3.5VA on high-set tap.

Case and finish

1D vertical or 3D vertical,
horizontal case suitable for
flush or projection mounting
and finished eggshell black
and tropicalised. Suitable trip
isolating switch and CT
shorting switches provided on
the cradle

Information required with Order

1. Current transformer
secondary
rating.
2. Current setting range.
3. Characteristic (0 - 3.0 sec.
or
0 - 1.3 sec. at 10 times
current
setting).
4. Operation indicator
inscription, if
required.
5. Auxiliary contacts - hand or
self
reset.
6. Current setting range of
high-set
unit, if required.
7. Case size.
8. Type of mounting - flush or
projection.



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