RDB86

High Speed Trip & Lock

High speed trip and lockout relays applicable where several tripping functions need to be performed by the same relay.

Features and Benefits

- Auto-cut contacts
- Electrically separated contact circuits
- Electrically or manually operated
- Semi-flush mounted case
- Back connected
- Custom mounted cases available

Applications

- Line breaker tripping & lockout
- Contact multiplication
- High speed breaker circuits
- Transformer lockout

Protection and Control

- Circuit opening and/or closing

Description

RDB86A units are high-speed trip and lockout relays that incorporate HLB lockout relays and HLG quick relays.

The HLB 100 is a bistable magnetic retention relay, with two independent operation coils, each of which has an auto-cut contact, so that the relay consumption is null in any of its two positions.

HLB relays have eight electrically separate contact circuits adaptable for either circuit opening or circuit closing applications, without the need to reset or realign the contacts.

The HLG 100 is a high speed multi-contact tripping relay that can include either one or two coils, each of which operates 5 normally open contacts.

HLG relays have incorporated, in parallel with the coil (or coils), a resistance that allows them to be installed in tripping circuits in series with 0.2 A seal-in targets.

HLB and HLG relays are plug-in devices with a transparent plastic cover that are designed to be installed in an RDB 1/4 rack case for semi-flush panel mounting. They can also be supplied in 19" four unit high racks.

Applications

RDB relays are applicable where several tripping functions need to be performed by the same relay.

Typical applications for these relays include: Line breaker tripping and lockout, lockout of all the line breakers in the same busbar, etc.

One of the most important applications of RDB relays is the combination with differential relays, where the lockout relay needs to be reset manually for avoiding accidental reclosings, when an internal fault has activated the differential relay.

The HLB relay is designed for applications where it is necessary to commute currents (for example, in bus bar protection systems: BUS1000), in control circuits and breaker tripping, and, in general, in those applications requiring electrical blocking and resetting.

The HLG is a high speed auxiliary voltage relay, appropriate for use with fast breakers.

The operating time at rated voltage is less than 8 ms.

RDB86PA1A is a special model, typically used for transformer lockout (86T). It includes a trip indicating lamp for trip coil supervision, with manual reset.

Available Models

RDB86A1A: Includes one (1) high-speed tripping relay (HLG) with 10 normally open contacts and one (1) bistable relay (HLB) with 8 configurable contacts.

The module is supplied with the following contact configuration:

- 10 n.o. contacts for HLG high-speed relay
- 2 n.c. contacts for HLB lockout relay
- 6 n.o. contacts for HLB lockout relay

1/4 19" rack case, 4 units high.

RDB86PA1A: Includes one (1) bistable relay (HLB) with 8 configurable contacts, plus an indicating lamp and a RESET press-button.

The module is supplied with the following contact configuration:

- 4 n.c. contacts
- 4 n.o. contacts

This model is used for transformer lockout (86T). It includes a trip indicating lamp for trip coil supervision, with manual reset.

1/4 19" rack case, 4 units high.

RDB86A2A: Includes two (2) high-speed tripping relays (HLG) with 10 normally open contacts each, and (20 n.o. contacts in total), and two (2) bistable relays (HLB) with 8 configurable contacts (16 contacts in total).

The module is supplied with the following contact configuration:

- 20 n.o. contacts for HLG high-speed relays
- 4 n.c. contacts for HLB lockout relays
- 12 n.o. contacts for HLB lockout relays

1/2 19" rack case, 4 units high.

RDB86A3A: Includes three (3) high-speed tripping relays (HLG) with 10 normally open contacts each, and (30 n.o. contacts in total), and four (4) bistable relays (HLB) with 8 configurable contacts (32 contacts in total).

The module is supplied with the following contact configuration:

- 30 n.o. contacts for HLG high-speed relays
- 8 n.c. contacts for HLB lockout relays
- 24 n.o. contacts for HLB lockout relays

19" rack case, 4 units high.

RDB86A4A: Includes three (3) high-speed tripping relays (HLG) with 10 normally open contacts each, and (30 n.o. contacts in total), and five (5) bistable relays (HLB) with 8 configurable contacts (40 contacts in total).

The module is supplied with the following contact configuration:

- 30 n.o. contacts for HLG high-speed relays
- 14 n.c. contacts for HLB lockout relays
- 26 n.o. contacts for HLB lockout relays

19" rack case, 4 units high.

The supplied cases are for semi-flush mounting. For other optional mountings, please contact our factory.

Construction

The RDB86A offering consists of a combination of individual relays, which are plugged directly on double bases (one or more, depending on the model) housed inside the case, so that no case

wiring is needed.

HLB bistable relays with 8 contacts configurable as n.o or n.c., are located at the top.

HLG high-speed tripping relays, with up to 10 n.o. contacts, are located at the bottom.

All dielectric materials used in this relay are non-hygroscopic, fire-proof, and do not contain chlorine compounds that could produce harmful gases for the contacts.

The materials used in the structural parts of the relay are highly stable and rigid, ensuring a long life even in extreme mechanical and ambient conditions.

Technical Specifications

POWER SUPPLY

Rated Voltage:	125 VDC Please contact the factory for further voltage levels
Operation Range:	Between 80% and 120% of rated voltage
Consumption:	RDB86A1A: 0.3 A to rated V RDB86A2A: 0.6 A to rated V RDB86A3A: 0.95 A to rated V RDB86A2A: 1.01 A to rated V
Performance Value:	60% of rated voltage
Operation Time:	Closing of a high-speed N.O. contact: <8 ms. Closing of a lockout N.O. contact: <25 ms. Overlapping time between a high-speed and a lockout contact: >10 ms. Time for a high-speed contact to remain closed: >35 ms.

CONTACTS

HIGH-SPEED RELAY

Close and carry for a tripping cycle (according to ANSI c37.90): 30 A
Opening: 180 VA resistive to 125/250 VDC
Opening: 60 VA inductive to 125/250 VDC

LOCKOUT RELAY

Make and Carry:	Continuous: 10 A During 1 minute: 20 A During 1 second: 50 A
Closing Capacity:	30 A
Breaking Capacity:	Opening of 5000 VA inductive to 250 VDC Opening of 375 VA inductive to 125 VDC Opening of 250 VA inductive to 250 VDC

TYPE TESTS

Dielectric Strength:	Between independent circuits: 2500 VAC during 1 second Between independent circuits and ground: 25000 VAC during 1 second Between terminals of an open contact: 1000 VAC during 1 second
Mechanical Life:	Over 10 million operations

ENVIRONMENTAL

Ambient Conditions

Temperature Range:	-20°C to +65°C
Ambient Humidity:	Up to 95% without condensing

Order Code

RDB86 A * A

1	1 HLG (10 n.o.) + 1 HLG (6 n.o. + 2 n.c.) for standard models 1/4 19" rack, 4 units high
2	2 HLG (20 n.o.) + 2 HLB (12 n.o. + 4 n.c.) 1/2 19" rack, 4 units high
3	3 HLG (30 n.o.) + 4 HLB (24 n.o. + 8 n.c.) One 19" rack, 4 units high
4	3 HLG (30 n.o.) + 5 HLB (26 n.o. + 14 n.c.) One 19" rack, 4 units high

Special Model RDB86PA1A: Includes one HLB relay (4 n.c. + 4 n.o.), an indicating lamp and a reset button. 1/4 19" rack 4 units high.

NOTE: The quantities between parenthesis refer to the number of contacts, and whether they are normally open (n.o.) or normally closed (n.c.)