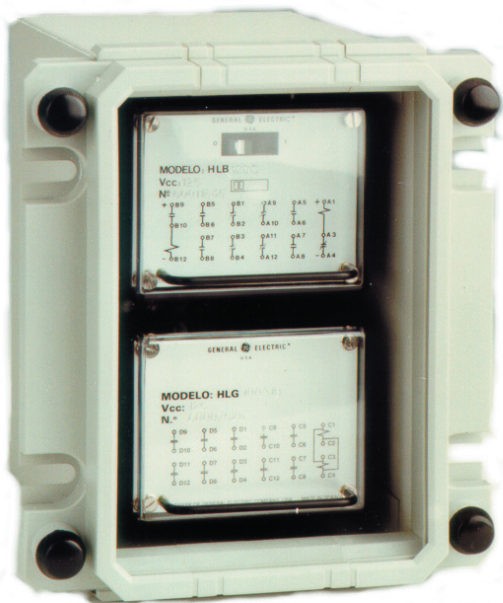




GE Consumer & Industrial
Multilin

RDB86

High Speed Trip and Lockout
Relay
GEK-106245B



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1 DESCRIPTION

RDB86 units are high-speed trip and lockout relays. They incorporate HLB lockout relays and HLG high-speed relays, and the following models are available:

RDB86A1A: It 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.

RDB86A2A It 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 It 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 It 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.

2 APPLICATION

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

Typical applications for these relays are: 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.

3 CONSTRUCTION

RDB86A relays are combinations of individual relays, which are plugged directly on double bases (one or more, depending on the model) housed inside the case, avoiding the need for case wiring.

HLB type relay is designed for application where it is necessary to commute currents (for example, in bus bar protection systems type BUS1000), in control circuits and breaker tripping, and, in general, in those applications requiring electrical blocking and resetting. It incorporates 8 contacts, configurable as normally open (NO) or normally closed (NC).

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

The operating time at rated voltage is inferior to 8 ms. HLG relays incorporate up to 10 NO contacts.

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

All dielectric materials used in this relay are of non-hygroscopic characteristic, fire-proof, and they do not include any chlorine compound 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.

4 TECHNICAL CHARACTERISTICS

Rated Voltage: 125 VDC
Please contact the factory for other voltage levels.

Operation Range: Between 80% and 120% of Rated Voltage

Consumption:

RDB86A1A:	0.3 A at Rated V.
RDB86A2A:	0.6 A at Rated V.
RDB86A3A:	0.95A at Rated V.
RDB86A2A:	1.01A at 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 resistive to 250 VAC
Opening of 375 VA inductive to 125 VDC
Opening of 250 VA inductive to 250 VDC.

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.

Ambient conditions:

Temperature Range: -20°C to +65°C.

Ambient Humidity: Up to 95% without condensing.

5 OPERATION

RDB86A trip and lockout relays incorporate pre-wired terminals, so that HLG high-speed relay coils are cut by the contact that cuts the HLB coil.

The lockout reset can be performed applying 125 VDC between terminals B9 (+) and B12 (-), or manually removing the transparent cover.

6 RECEPTION TESTS

Upon receipt, it is recommended to carry out an immediate visual check, as well as the tests described below, in order to make sure that the relay has not been damaged during transportation, and that the factory calibration has not been altered.

6.1 VISUAL INSPECTION

Make sure that the model indicated on the front plate matches the order data.

Unpack the relay and make sure that there are no broken parts and there are no signs that the relay has been damaged during transportation.

6.2 ELECTRICAL TESTS

Pre-wire the coils, using the indications from the internal connections diagrams (Figures 1 to 6).

Apply 125 VDC between terminals A1 (+) and A4 (-), and check that the contacts corresponding to the high-speed relay(s) (shown on the diagrams with letters C and D) take less than 8 ms to close.

Reset the bistable relay(s) manually and repeat the test checking that the contacts corresponding to the lockout relay(s) (shown on the diagrams with letters A and B) take less than 25 ms to close.

7 CALIBRATION

If the user wishes to change the contact configuration of the HLB lockout relay, it is necessary to adjust the springs. Remove the RDB cover and unlock the screws regulating the springs strain. Adjust them so that the relay operates with 70 Vdc per coil and block again the adjusting screws.

8 MAINTENANCE

8.1 CONTACT CLEANING

Contacts must be cleaned with a flexible steel sheet, without cuts or edges. In no case must a cutting tool be used that can erode the contacts surface.

8.2 PERIODICAL TESTS AND MAINTENANCE

Given the important role that protection relays have in any installation, it is recommended that a periodic test program be followed. Given that the intervals between these tests vary for different types of relays and installations as well as the experience of the user performing the tests, it is recommended that the relay is tested at intervals of 1 to 2 years.

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- Figure 2:** External connections diagram for RDB86A2A
- Figure 3:** External connections diagram for RDB86A3A
- Figure 4:** External connections diagram for RDB86A4A
- Figure 5:** External connections diagram for RDB86P1A
- Figure 6:** Dimensions and drilling for RDB86A1A
- Figure 7:** Dimensions and drilling for RDB86A2A
- Figure 8:** Dimensions and drilling for RDB86A3A

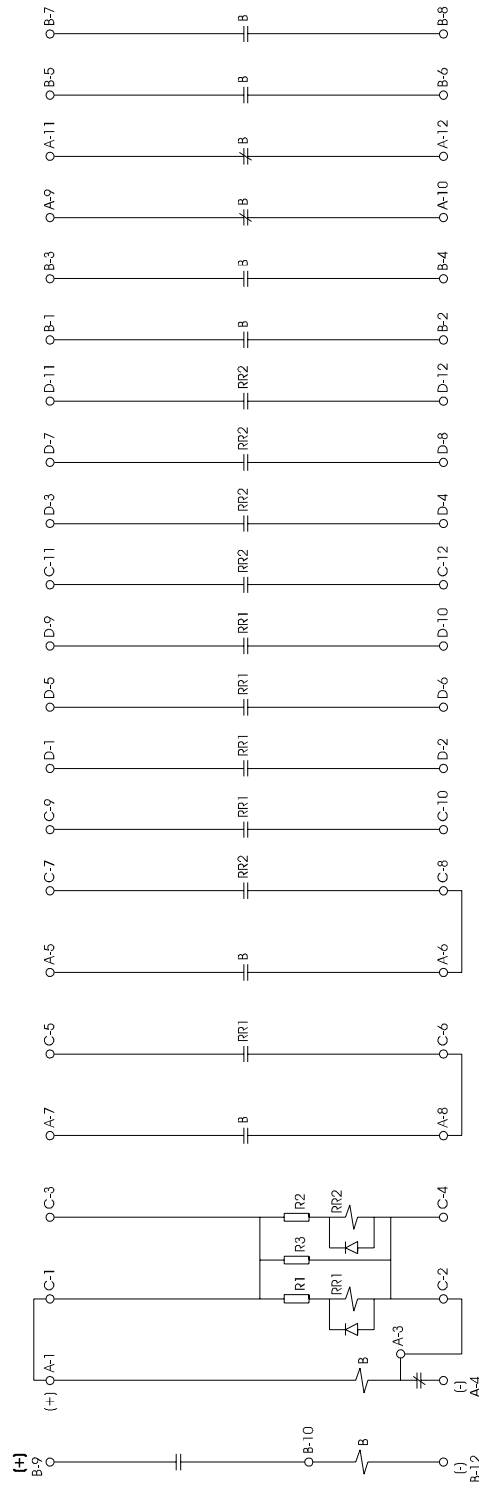


FIGURE 1: EXTERNAL CONNECTIONS DIAGRAM FOR RDB86A1A

NOTE: HLB contacts configuration is shown on the scheme in the front plate of the HLB, and this state is called state 0. To change their status the HLB relay should be activated (terminal A1-A4); contacts will change their status, and this new status is called state 1.

RDB86 HIGH SPEED TRIP & LOCKOUT RELAY



FIGURE 2: EXTERNAL CONNECTIONS DIAGRAM FOR RDB86A2A

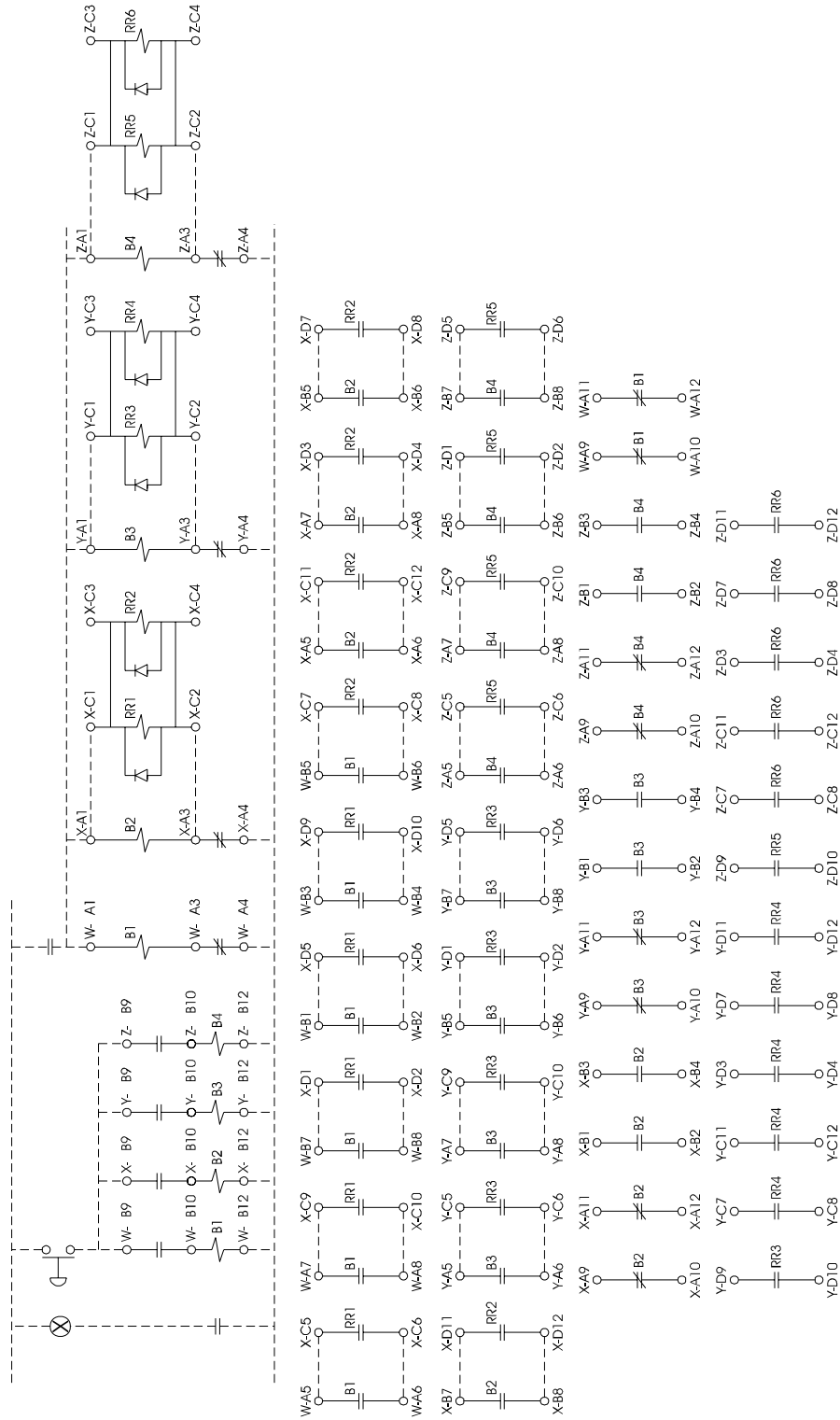


FIGURE 3: EXTERNAL CONNECTIONS DIAGRAM FOR RDB86A3A

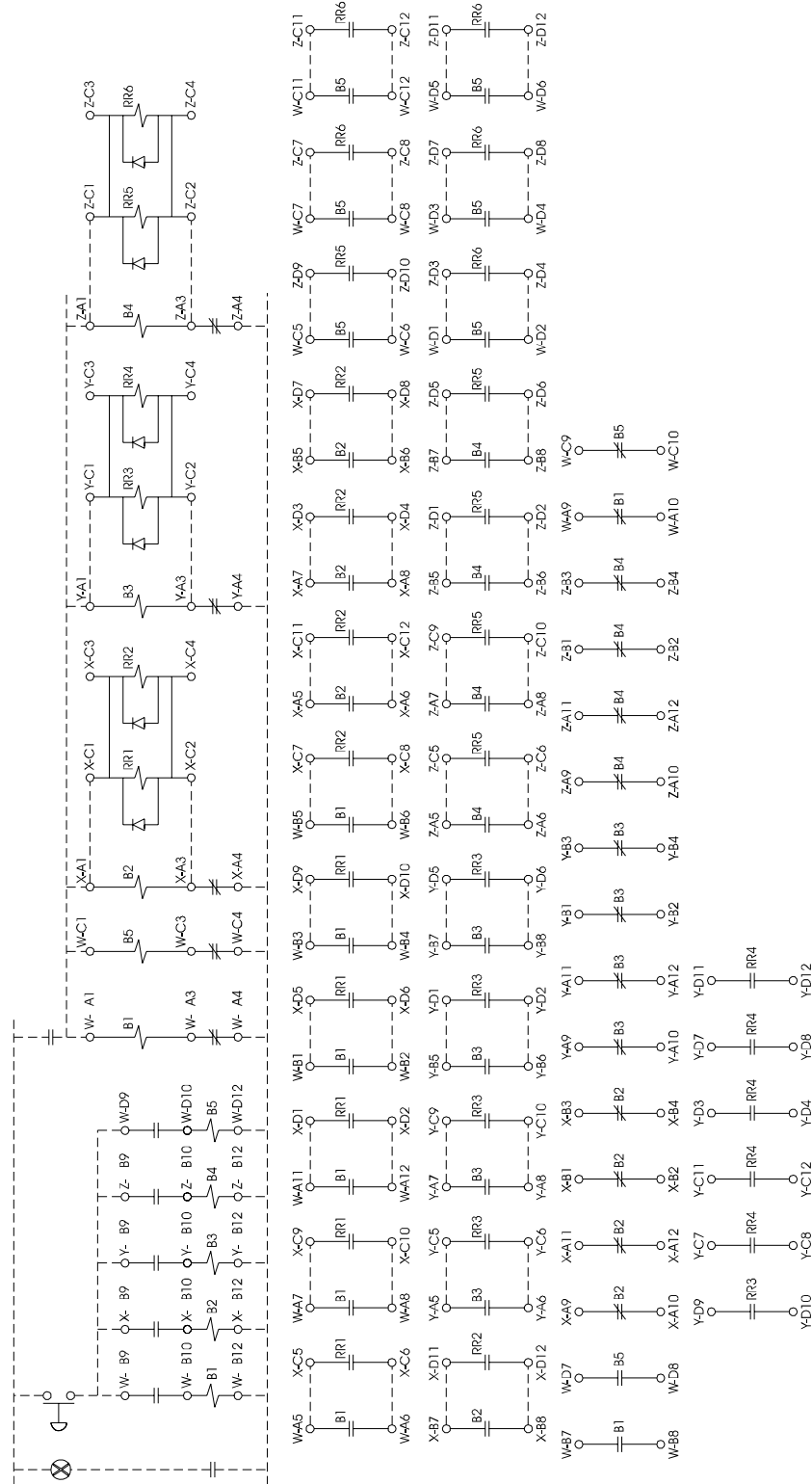


FIGURE 4: EXTERNAL CONNECTIONS DIAGRAM FOR RDB86A4A

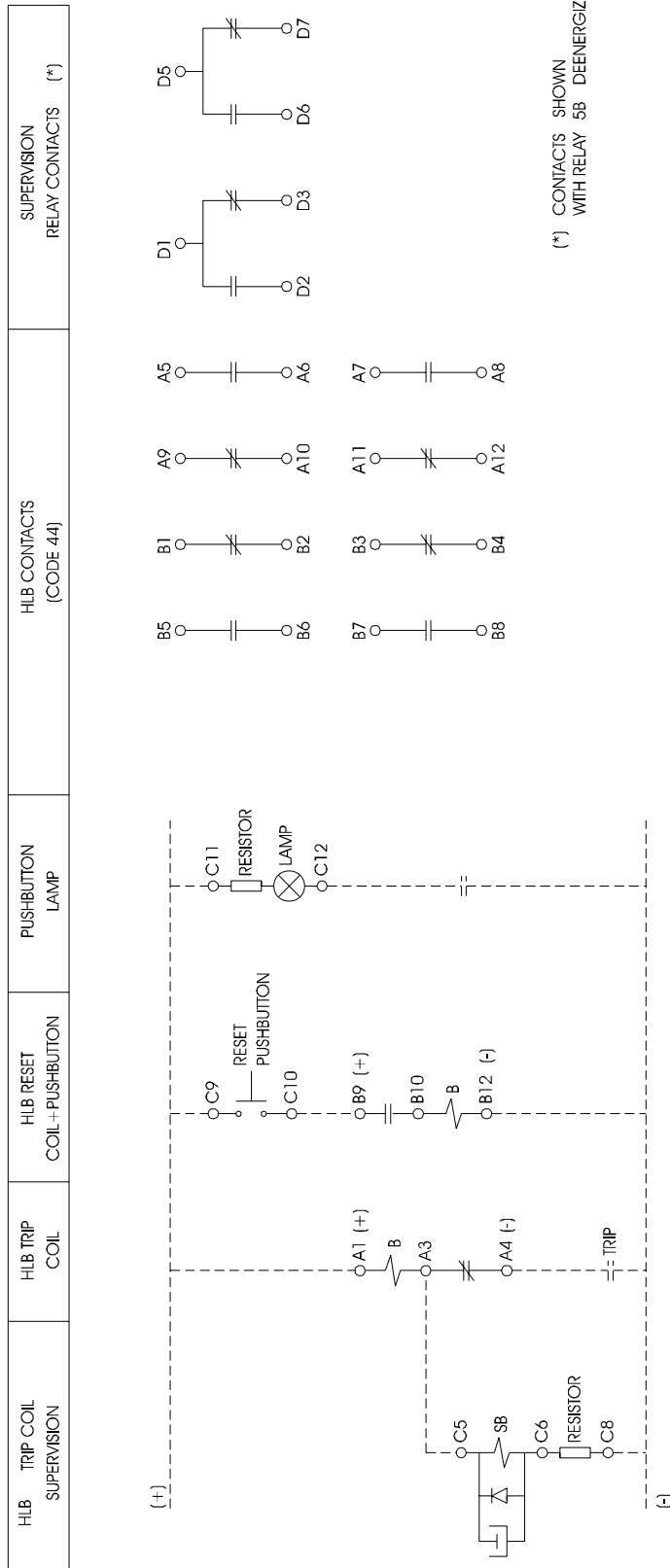


FIGURE 5: EXTERNAL CONNECTIONS DIAGRAM FOR RDB86P1A

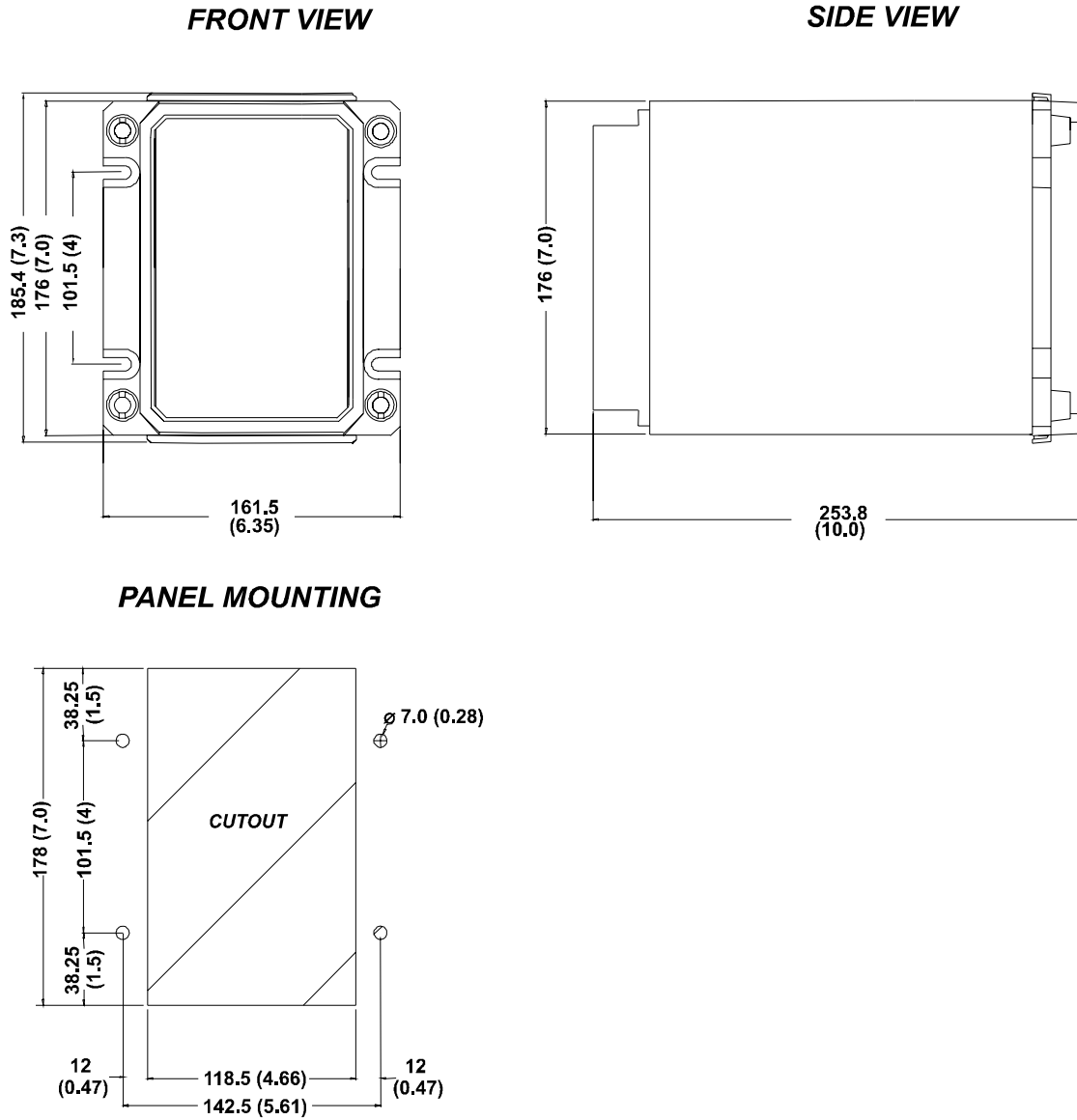
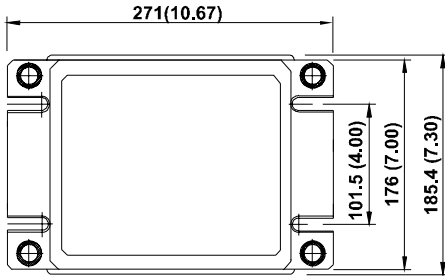
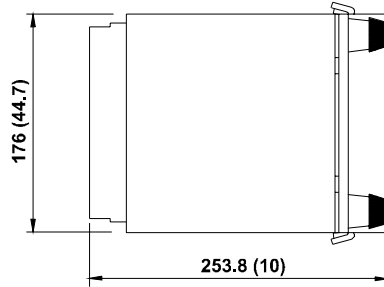


FIGURE 6: DIMENSIONS AND DRILLING FOR RDB86A1A

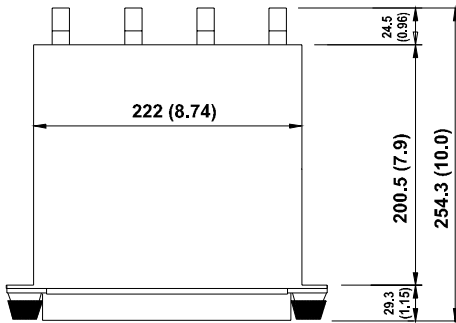
FRONT VIEW



SIDE VIEW



ABOVE VIEW



PANEL MOUNTING

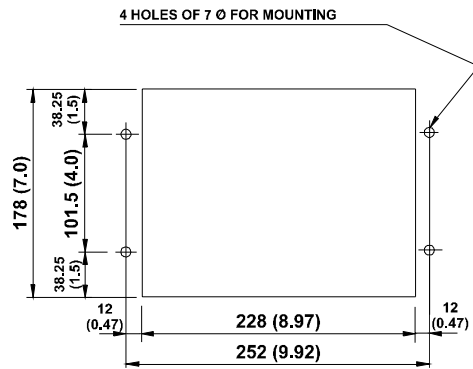


FIGURE 7: DIMENSIONS AND DRILLING FOR RDB86A2A

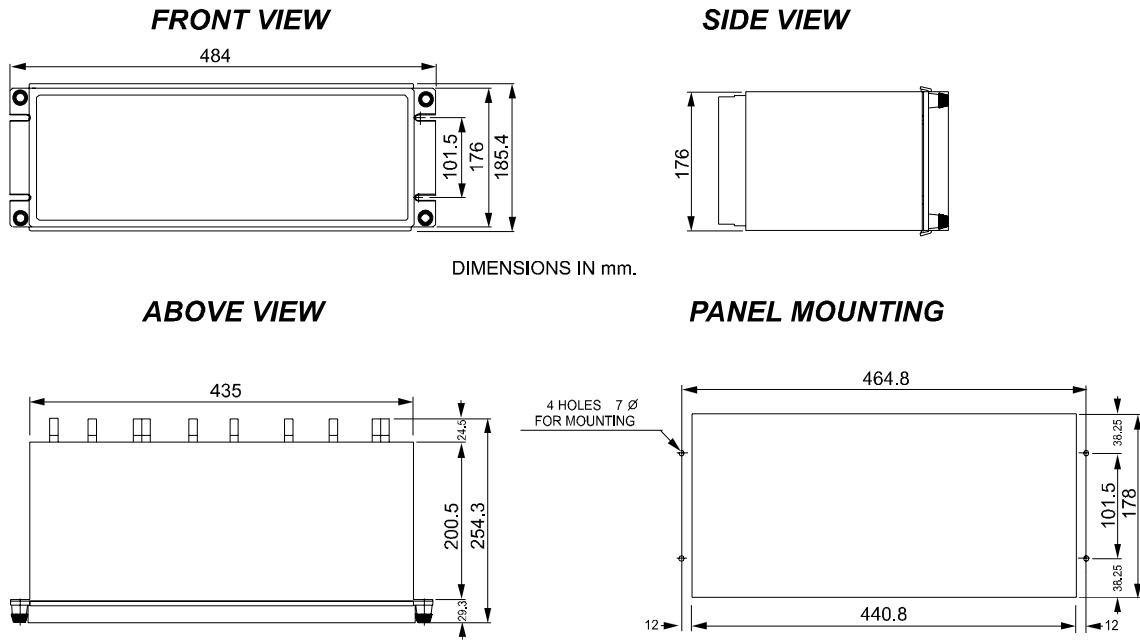


FIGURE 8: DIMENSIONS AND DRILLING FOR RDB86A3A