



REL 352 SPECIFICATIONS

TECHNICAL

Principle of Operation

Phase Comparison, Single-Comparator and Dual Comparator using Low Speed Power Line Carrier (ON-OFF and FSK), Audio Tone and Microwave

INPUT RATINGS

Nominal ac Voltage

(VLN) at 60 Hz 69.3 V rms

Nominal ac Current (In) 1 or 5 A rms

Rated Frequency 50 or 60 Hz

Maximum Permissible ac Voltage

Continuous 160 V rms
(limited by maximum input to A/D converter)

10 Second 240 V rms
(limited by input transformer flux density)

Maximum Permissible ac Current

Continuous 15 A rms
(limited by thermal characteristics)

1 Second Operational 160 A rms-5A nominal
32 Arms-1A nominal
(limited by maximum input to the A/D converter)

Thermal 500 A

dc Battery Voltages

Nominal	Input Range
60/48 V dc	38 - 70 V dc
110/125 V dc	88 - 150 V dc
220/250 V dc	176 - 280 V dc

dc Burdens

Battery 15 W normal
40 W tripping

ac Burdens

Volts per Phase 0.02 VA at 70 V ac
Current per Phase 0.45 VA at 5 A

EXTERNAL CONNECTIONS

Terminal blocks located on the rear of the chassis suitable for #14 square tongue lugs. Wiring to FT-14 switches suitable for #12 wire lugs.

CONTACT DATA

Trip Contacts - make and carry 30 A for 1 second, 10 A continuous capability, break 50 watts resistive or 25 watts with L/R =.045 seconds

Non-Trip Contacts - 1 A dc make and continuous, break 25 watts resistive or 10 watts with L/R = 0.045 from 38 to 280 V dc

Contacts also meet IEC-255-6A, IEC-255-12, IEC-255-16, BS142-1982

COMMUNICATION EQUIPMENT INTERFACE

Inputs

Optoisolated (7500 V peak) jumper configurable for 20 V, 48 V, 125 V external dc Power Supply Operation

“On” State Current:

20 V 15 mA

48 V 6 mA

125 V 6 mA

Interfaces to Power Line Carrier (ON-OFF and FSK) Audio Tone and Microwave

Mark 1

Space 1

Channel Failure 1

Mark 2

Space 2

Channel Failure 2

} 3-Terminal Application

Output

Optoisolated (7500 V peak) Power Transistor Output (Rated 400 V) supporting external dc power supply operation in the range of 20 - 150 V dc

Interfaces to

Carrier on/off (for ON-OFF PLC) or Carrier mark / space (for FSK PLC) control

OPTIONAL COMPUTER NETWORK INTERFACE

RS232C/PONI - with IRIG input port for single point computer communications

INCOM/PONI - for local network communications using INCOM network

CHASSIS DIMENSIONS AND WEIGHT

Height 7" (177.8 mm) 4 Rack Units (See Figure 1)

Width 19" (482.6 mm)

Depth 14" (356 mm) including terminal blocks

Weight 38 lb. (17.5 kg)

ENVIRONMENTAL DATA

Ambient Temperature Range

For Operation -20°C to +60°C

For Storage -40°C to +80°C

Insulation Test Voltage 2.8 kV, dc, 1 minute (3.2 kV dc, 1 sec) ANSI, C37.90 IEC-255-5

Open contacts 1400 Vdc continuous

Impulse Voltage Withstand 5 kV Peak, 1.2/50 microseconds, 0.5 Joule, (IEC-225-5)

Surge Withstand Voltage 3 kV, 1 MHz (ANSI C37.90.1, IEC-255-22-1)

Fast Transient Voltage 4 kV, 10/100 ns Withstand (ANSI C37.90.1, IEC 255-22-4)

EMI Field Strength Withstand 25 MHz-1GHz, 10V/m Withstand (ANSI C37.90.2)

Electrostatic Discharge Tests (IEC 255-22-2, IEC, 801-Y) 8/12 kV test voltage

Emission Tests (EN 55022, Class A)

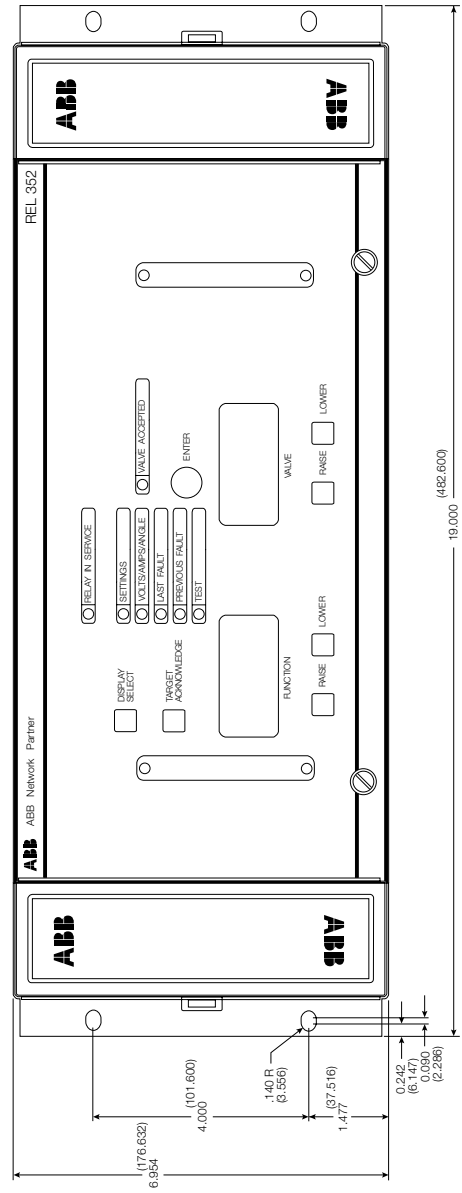
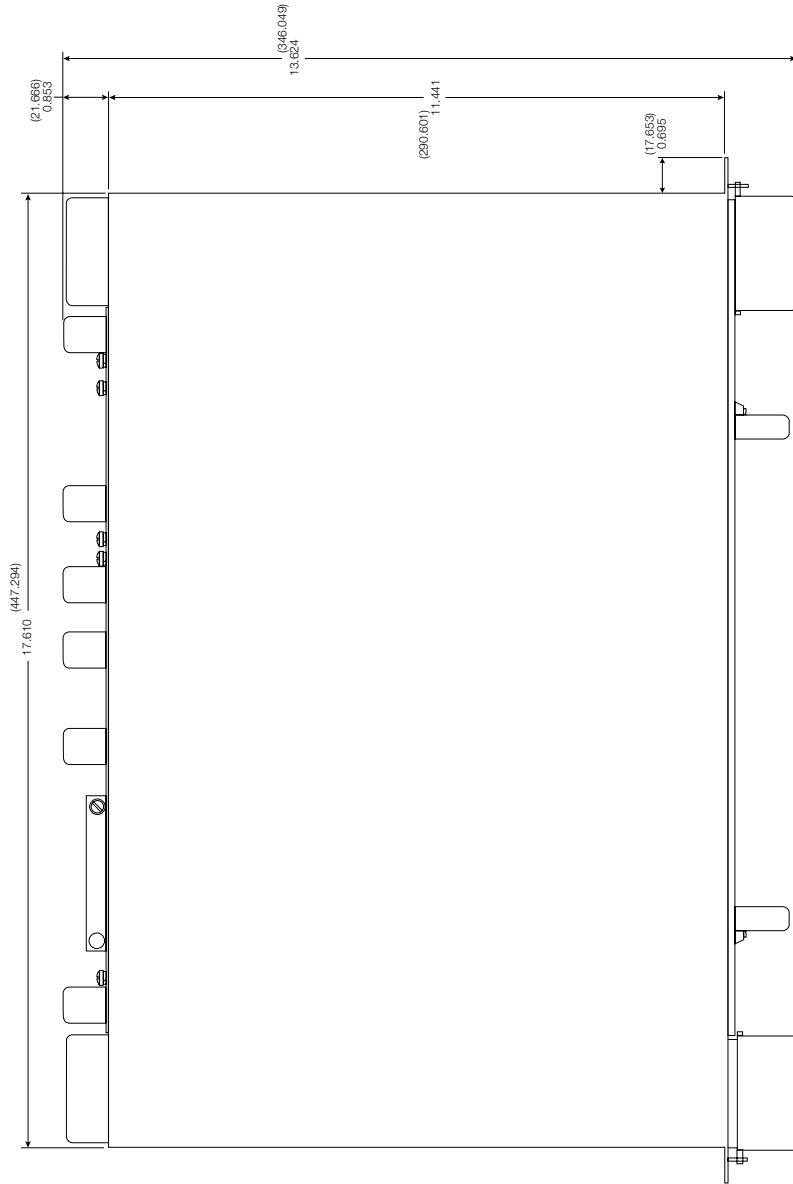


Figure 1. REL 352 Outline Drawing



REL 352 RELAY SYSTEM

CATALOG NUMBERING SCHEME

Catalog Digit #	1	2	3	4	5	6	7	8	9	10
Typical REL 352 Catalog #	M	P	6	A	1	P	B	F	R	G

TRIP / BFI / RI / RB / CONTACTS

(DIGIT #3)

- [6] = 6 Trip, 6 BFI, 4 RI, 2 RB Contacts
- [2] = 2 Trip, 2 BFI, 4 RI, 2 RB Contacts

CURRENT INPUT

(DIGIT #4)

- [A] = 1 AMP CT
- [B] = 5 AMP CT
- [C] = MOCT Inputs (Not Available - Future Release)

BATTERY SUPPLY VOLTAGE

(DIGIT #5)

- [1] = 48/60 V dc Single Supply
- [2] = 110/125 V dc Single Supply
- [3] = 220/250 V dc Single Supply
- [4] = 48/60 V dc Dual Supplies
- [5] = 110/125 V dc Single Supply
- [6] = 220/250 V dc Dual Supplies

DISTANCE BACKUP RELAYING

(DIGIT #6)

- [P] = Backup Distance Protection
- [N] = No Backup Protection

PILOT SYSTEM COMMUNICATION CHANNEL INTERFACE

(DIGIT #7)

- [B] = Binary I/O Interface to PLC (AM & FM), Audio Tone, Analog Microwave (Optoisolated 24, 48, 125 V dc External Power Supply)
- [F] = Future

TEST SWITCHES

(DIGIT #8)

- [F] = FT-14 Switches
- [N] = No FT-14 Switches

REMOTE COMMUNICATION DEVICE

(DIGIT #9)

- [R] = RS232C PONI
- [C] = INCOM PONI
- [B] = RS232C W/IRIG Port

ADDITIONAL FEATURES

(DIGIT #10)

- [G] = Oscillographic Data Storage

