

239 Motor Protection Relay

Chapter 2: Installation

2.1 Installation

2.1.1 Mounting

Physical dimensions for the 239 and the required cutout dimensions are shown below. Once the cutout and mounting holes are made in the panel, use the eight #6 self tapping screws supplied to secure the relay. Mount the relay on a panel or switchgear door to allow operator access to the front panel keys and indicators.

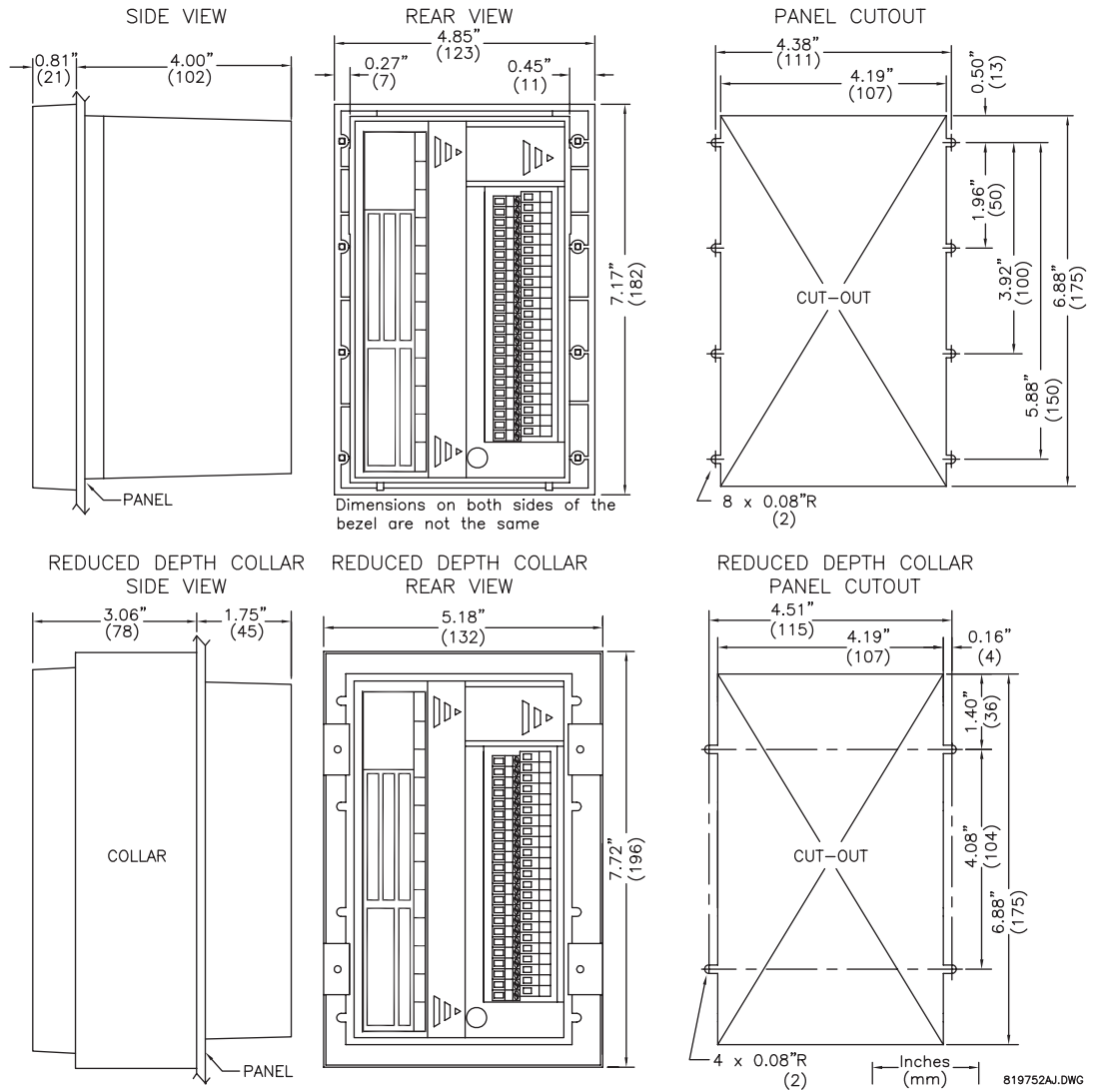
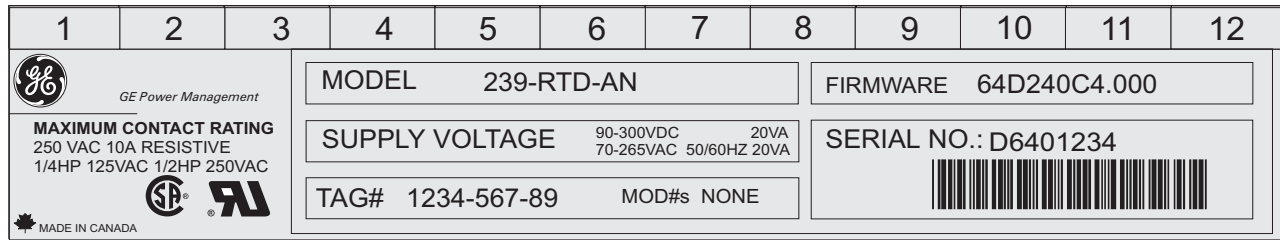


FIGURE 2-1: Physical Dimensions

2.1.2 Product Identification

Product attributes will vary according to the configuration and options installed based on the customer order. Before applying power to the relay, examine the label on the back of the 239 and check that the correct options are installed.

The information included on the product label is explained below:



819790AH-X4.CDR

FIGURE 2-2: 239 Product Label (Example)

1. **MODEL NO:** The model number shows the configuration of the relay. The model number for a basic unit is 239. RTD and AN will appear in the model number only if the RTD option or Analog Output option is installed. H will appear in the model number if conformal coating is required.
2. **SUPPLY VOLTAGE:** Indicates the 239 power supply input configuration. The 239 shown above can accept any AC 50/60Hz voltage from 70 to 265 V AC or DC voltage from 90 to 300 V DC.
3. **TAG#:** This is an optional identification number specified by the customer.
4. **MOD#s:** These are used if unique features have been installed for special customer orders. These numbers should be available when contacting GE Multilin for technical support. Up to five MOD#s can be installed into the 239.
5. **SERIAL NO:** Indicates the serial number for the 239 in numeric and barcode format.

The following table shows the revision history of the 239. Each revision of the instruction manual corresponds to a particular firmware revision in the 239. The instruction manual revision is located on the first page of the manual as part of the manual P/N (1601-00XX-Revision). The 239 firmware revision is loaded in the relay and can be found by scrolling to the display message **A3: PRODUCT INFO\FIRMWARE VERSIONS\MAIN PROGRAM VER.**

When using the manual to determine relay features and settings, ensure that the revision corresponds to the 239 firmware revision using the table below. For a large instruction manual (8.5" x 11") the part number is 1601-0067; for a small instruction manual (5.5" x 7.25") it is 1601-0060.

Table 2-1: Firmware/manual Revisions Table

MANUAL PART NO.	FIRMWARE VERSION	MANUAL PART NO.	FIRMWARE VERSION
1601-00XX-C6	2.10	1601-00XX-D5	2.40
1601-00XX-C7	2.11	1601-00XX-D6	2.50
1601-00XX-C8	2.12	1601-00XX-D7	2.51
1601-00XX-D1	2.20	1601-00XX-D8	2.51
1601-00XX-D2	2.30	1601-00XX-D9	2.6x
1601-00XX-D3	2.3x	1601-00XX-DA	2.6x

Table 2-1: Firmware/manual Revisions Table

MANUAL PART NO.	FIRMWARE VERSION	MANUAL PART NO.	FIRMWARE VERSION
1601-00XX-D4	2.3x	1601-00XX-DB	2.7x

2.1.3 External Connections

Signal wiring is to box terminals that can accommodate wire as large as 12 gauge. CT connections are made using #8 screw ring terminals that can accept wire as large as 8 gauge (see FIGURE 2-3: *Typical Wiring Diagram* on page 2-18). A minimal configuration will include connections for control power, phase CTs and the trip relay. Other features can be wired as required. Considerations for wiring each feature are given in the sections that follow.

Table 2-2: External Connections

CT ROW		SIGNAL LOWER ROW		SIGNAL UPPER ROW	
1	Phase A CT 5A	13	Safety ground	36	Control live (+)
2	Phase A CT 1A	14	Filter ground	37	Control neutral (-)
3	Phase A CT COM	15	RS485 A+	38	Sw com
4	Phase B CT 5A	16	RS485 B-	39	Sw com
5	Phase B CT 1A	17	RS485 ground	40	Sw com
6	Phase B CT COM	18	Analog out +	41	Sw com
7	Phase C CT 5A	19	Analog out -	42	Sw com
8	Phase C CT 1A	20	Analog out shield	43	Access sw +
9	Phase C CT COM	21	Thermistor in +	44	Restart sw +
10	Ground CT 5A	22	Thermistor com	45	Reset sw +
11	Ground CT 50:0.025	23	Trip NO	46	Option 1 sw +
12	Ground CT COM	24	Trip COM	47	Option 2 sw +
		25	Trip NC	48	RTD shield
		26	Alarm NO	49	RTD1 hot
		27	Alarm COM	50	RTD1 comp
		28	Alarm NC	51	RTD1 ret
		29	Auxiliary NO	52	RTD2 hot
		30	Auxiliary COM	53	RTD2 comp
		31	Auxiliary NC	54	RTD2 ret
		32	Service NO	55	RTD3 hot
		33	Service COM	56	RTD3 comp

Table 2-2: External Connections

CT ROW		SIGNAL LOWER ROW		SIGNAL UPPER ROW	
		34	Service NC	57	RTD3 ret
		35	V1 polarizing (Mod 509 only)	58	Vcom polarizing (Mod 509 only)