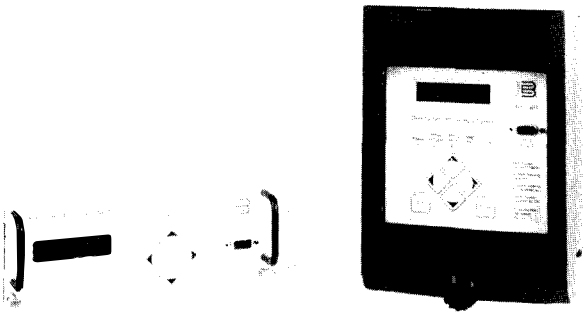


PROTECTION and CONTROL DEVICES STANDARDS, DIMENSIONS and ACCESSORIES

	*Case	Model No.	Relay Type	Bulletin
Numerical Systems	H, S	BE1-GPS100	Generator Protection System	UHQ
	X	BE1-1051	Overcurrent Protection System	UHS
	H,S	BE1-951	Overcurrent Protection System w/voltage	UHR
	F,H,S	BE1-851	Overcurrent Protection System	UHM
	X	BE1-CDS220	Current Differential Protection System	UHP
	H	BE1-MMS100	Multifunction Metering System	LAD
Protective Relays	M	BE1-24	Volts per Hertz Overexcitation	UDN
	S	BE1-25	Sync-Check	UBP
	M	BE1-25/79S	Sync-Check/Single Shot Reclosing	UBQ
	R	BE1-25/79TR	Sync-Check/Reclosing	UDW
	S	BE1-27	Undervoltage	UBF
	S	BE1-27/59	Over/Undervoltage	UBF
	M,S	BE1-32O/U	Directional Over/Underpower	UBU
	M,S	BE1-32R	Directional Power	UBU
	S	BE1-40Q	Loss of Excitation	UBW
	S	BE1-46N	Negative Sequence Overcurrent	UDJ
	S	BE1-47N	Negative Sequence Voltage	UDK
	S	BE1-49	Temperature	UBJ
	S	BE1-50	Instantaneous Overcurrent	UBC
	S	BE1-50BF	Breaker Failure	UBT
	A, S	BE1-50/51B	Time Overcurrent	UHD
	C	BE1-50/51M	Time Overcurrent	UHE
	R	BE1-BPR	Breaker Protection	UHG
	M,S	BE1-51	Time Overcurrent	UDA
	M,S	BE1-51/27C	Time Overcurrent w/Voltage Control	UDA
	M,S	BE1-51/27R	Time Overcurrent w/Voltage Restraint	UDA
	M,S	BE1-51TC	Time Overcurrent w/Torque Control	UDP
	S	BE1-59	Overvoltage	UBF
	S	BE1-59N	Ground Fault Overvoltage	UBG
	S	BE1-59NC	Capacitor Neutral Overvoltage	UHF
	S	BE1-60	Voltage Balance	UBS
	M	BE1-67	Phase Directional Time Overcurrent	UDQ
	M	BE1-67N	Ground Directional Time Overcurrent	UDR
	S	BE1-79M	Multishot Reclosing	UDL
	S	BE1-79S	Single Shot Reclosing	UBN
	M,S	BE1-81O/U	Digital Frequency	UBR
	M,S	BE1-87B	High Impedance Bus Differential	UHC
	S	BE1-87G	Variable Percentage Differential	UBK
	M	BE1-87T	Transformer Differential	UHA
	R	BE1-25A	Automatic Synchronizer	UIM

* A=A1 Case size; C=C1; F=F1; H=H1; M=M1; R=19" rack; S=S1; X=MX

Basler Electric

P. O. BOX 269 HIGHLAND, ILLINOIS 62249, U.S.A. PHONE 618-654-2341 FAX 618-654-2351

WARRANTY

Basler Electric Company warrants its *BE1 Numerical Systems* to be free from defects in material and workmanship for a period of 7 years from date of shipment. It further warrants its *BE1 Protective Relays* to be free from defects in material and workmanship for a period of 5 years from date of shipment. To determine which of the two product lines an individual Protection and Control product belongs to, consult the table on the previous page (cover).

Basler Electric's sole obligation under its warranty shall be, at its option, to either issue a credit, or repair or replace an article or part thereof, which is proved to be other than as warranted.

If an article is claimed to be defective in material or workmanship, Basler Electric Company will either examine the articles on site or issue shipping instructions for return to the factory. This warranty shall not extend to any articles or parts that have been installed, used or serviced, other than in conformity with Basler Electric's applicable specifications, manuals, bulletins, or instructions, or if none, shall have been subjected to improper installation, misuse or neglect.

Complete warranty information can be found in Basler Electric's "Terms and Conditions of Sale" form FA100001, located in the pricing section of the Basler Electric Power Products Catalog.

RELAY STANDARDS

APPLICABLE STANDARDS

Basler Electric protective relays are designed to meet or exceed industry standards as well as those set by Basler Electric.

Industry Standards

- IEEE C37.90-1989, IEEE Standard for Relays and Relay Systems Associated with Electric Power Apparatus.
- IEEE C37.90.1-1989, IEEE Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems.
- IEEE C37.90.2, IEEE Trial-Use Standard on Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers.
- IEC 255-5, Electrical Relays, Part 5: Insulation Tests for Electrical Relays.
- IEC 255-6, Electrical Relays, Part 6: Measuring Relays with more than one Input Energizing Quantity. Includes high frequency disturbance test.
- IEC 255-22-2, Electrical disturbance tests for measuring relays and protection equipment, Electrostatic Discharge Tests
- IEC 255-22-3, Electrical disturbance tests for measuring relays and protection equipment, Radiated Electromagnetic Field Disturbance Tests
- IEC 255-22-4, Electrical disturbance tests for measuring relays and protection equipment, Fast Transient Disturbance Tests
- IEC 255-22-6, Electromagnetic Compatibility (EMC), Immunity to Conducted Disturbances, Induced by Radio-frequency Fields
- IEC 255-25, Limits and Methods of Measurement of Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-frequency Equipment

AGENCY RECOGNITION

Relays requiring certification are submitted for recognition under UL 508, as well as CSA certification and CE compliance. Many models are recognized. Check with Basler Electric for the latest list.

GENERAL SPECIFICATIONS

The following general specifications apply to all Basler BE1 Series protective relays. Functional specifications are found in the individual product bulletins.

Power supply voltages

Nominal Voltage	Operating Voltage Range	Frequency Range
48Vdc	24 to 60 Vdc	N/A
125Vdc 110/120 Vac	62 to 150 Vdc 90 to 132 Vac	N/A 40-70 Hz
24 Vdc	14 to 32 Vdc	N/A
48 Vdc 125 Vdc	24 to 60 Vdc 62 to 150 Vdc	N/A N/A
250 Vdc 230 Vac	140 to 280 Vdc 190 to 270 Vac	N/A 40-70 Hz

RELAY STANDARDS, Continued

Output contacts

Rated Voltage	Resistive			Inductive	
	Make 0.2 sec.	Carry Continuous	Break	Break	L/R
120/240 Vac	30A	7A	7A	0.3A	0.04
125 Vdc	30A	7A	0.3A	0.3A	0.04
250 Vdc	30A	7A	0.3A	0.3A	0.04
500 Vdc	15A	7A	0.1A	---	---

Output contact status is defined by Basler Electric as the state of the output contact when relay operating power has been removed. The following Tables define contact status for relays that have an "over" trip function, an "under" trip function or an "over/under" trip capability.

"Over" Trip Function

Contact Configuration	Operating Power OFF	Operating Power ON	
		Sensing Input Less Than Trip Setting	Sensing Input Greater Than Trip Setting
Normally Open (NO)	Open	Open	Closed
Normally Closed (NC)	Closed	Closed	Open

"Under" Trip Function

Contact Configuration	Operating Power OFF	Operating Power ON	
		Sensing Input Less Than Trip Setting	Sensing Input Greater Than Trip Setting
Normally Open (NO)	Open	Closed	Open
Normally Closed (NC)	Closed	Open	Closed

"Over/Under" Trip Function

Contact Configuration and Trip Function	Operating Power OFF	Operating Power ON	
		Sensing Input Less Than Trip Setting	Sensing Input Greater Than Trip Setting
NO (Over)	Open	Open	Closed
NC (Over)	Closed	Closed	Open
NO (Under)	Open	Closed	Open
NC (Under)	Closed	Open	Closed

Targets

Either current operated or internally operated targets may be selected. The individual relay product bulletin will identify the availability and configuration of targets for each model relay.

A current operated target requires a minimum of 0.2A (ac or dc) to flow through the output trip circuit to actuate the indicator. This target type can only be specififed when the main output relay contacts are specified as normally open (NO).

An internally operated target is operated by an electronic signal in parallel with the output relay drive signal. This type of target may be selected for use with either normally open (NO) or normally closed (NC) output contacts.

Operating Temperature

-40° C (-40° F) to 70° C (158° F).

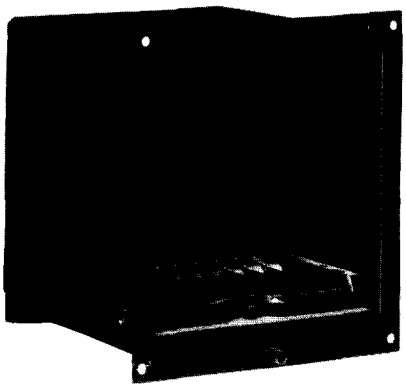
Vibration

Withstands 2g in each of three mutually perpendicular planes over the frequency range of 10 to 500 Hz without structural damage or degradation of performance.

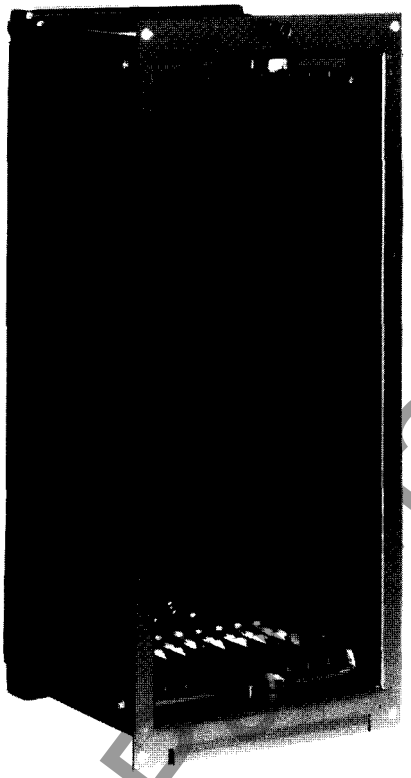
Shock

Withstands 15g in each of three mutually perpendicular planes without structural damage or degradation of performance.

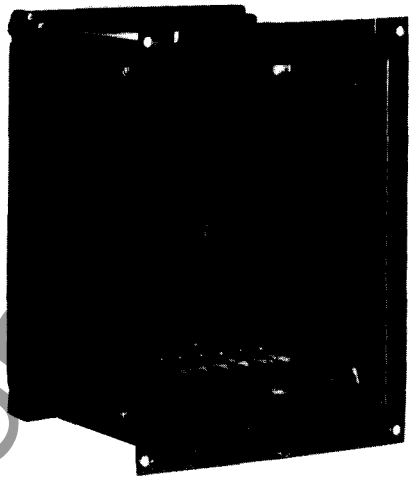
RELAY CASES



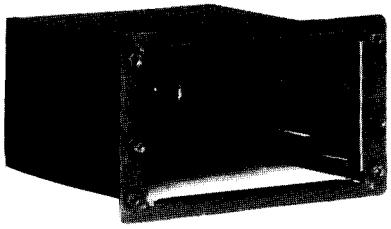
A1



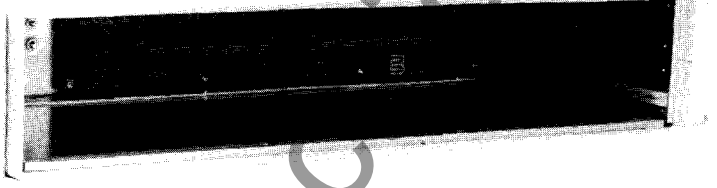
M1



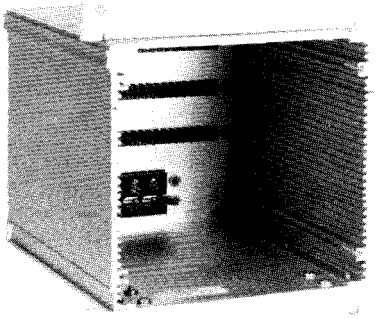
S1



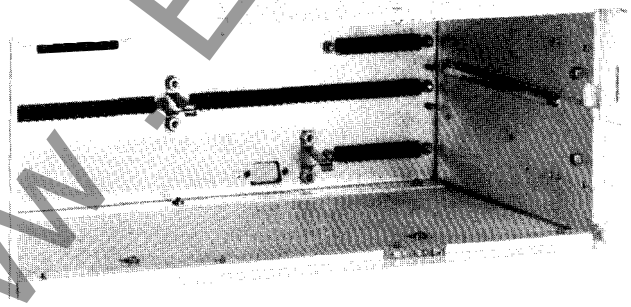
C1



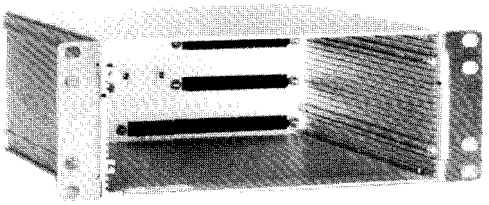
19" RACK



F1



MX RACK



H1 HALF-RACK

CONSTRUCTION OF A1, M1 and S1 CASES

Relay Case

Each case (A1, M1 and S1) consists of a fabricated steel and phenolic enclosure that is resistant to dust and moisture. They are designed to house either single or double-ended relay units with one or two connecting plugs as required for the specific relay type. Round, washer head terminal screws are located on the rear of the case for ease of connection. These cases are capable of semi-flush or projection mounting as shown in the dimension and drilling diagrams, pages 6 through 13.

Drawout Cradle

The relay unit (drawout cradle) is a steel frame that houses the motherboard, magnetics chassis and all printed circuit boards that are required for the specific relay type. Locking levers at the top and bottom secure the drawout cradle to the case and enable easy removal for inspection.

Connecting Plugs

One or two connecting plugs, as required, electrically connect the drawout cradle to the system interconnections at the top and/or bottom of the relay case. The contact fingers of the connecting plugs and the relay case and cradle terminal blocks are silver-plated.

Front Cover

The front cover is a gasketed phenolic frame with clear acrylic window to enable visual inspection of the relay's setting adjustments and indicators. The front cover is secured to the case by a flange at the top and a single sealable knob with screw inset at the bottom center of the front cover. The target reset lever projects from the bottom or front of the cover and enables the targets to be reset without removal of the front cover.

CONSTRUCTION OF C1 CASE

Relay Case

The C1 case is a fabricated steel enclosure resistant to dust and moisture. The case is available in only one size and is designed for semi-flush mounting. The case includes guides to support the cradle assembly when mounted horizontally or vertically. Round washer head terminal screws are located on the rear of the case for ease of connection, see page 14. External test provisions must be provided to test the relay in its case, or the drawout cradle may be removed for testing in a test jig.

Drawout Cradle

The relay unit (drawout cradle) consists of a steel chassis upon which all the parts for the relay are mounted. The cradle is designed so that the front cover cannot be installed on the case unless the cradle is fully inserted into the connection block on the rear of the relay case. Input current circuits are shorted when the cradle is removed from the case.

Front Cover

The front cover is molded out of clear flame retardant plastic conforming to the requirements of UL 508. The cover includes a target reset button that extends out from the front cover.

CONSTRUCTION OF RACK MOUNT CASES

Rack Mount Case

Rack mount cases conform to standard 19-inch rack mount dimensions. The heights of the cases are specified in terms of the number (n) of standard rack units. Each rack unit is 1.75 inches, and Basler cases range from 2 to 5 rack units. This is shown on page 16. The depth of rack mount cases varies depending on the relay model. Some relay models include built-in test provisions for testing the relay in the case. Other relay models require external provisions to test the relay in its case, or the relay module may be removed and tested in a test jig.

Construction

All relays are made with drawout capability. Some units have several drawout modules; others have one complete drawout assembly.

Front Cover

Front covers for rack mount cases come in two styles depending on the relay model. One has a glass window and the others are made with plastic windows. Covers include a means to reset targets without removing the cover.

CONSTRUCTION OF H1 and F1 CASES

Relay Cases

H1 and F1 cases are extruded, brushed aluminum, fabricated enclosures resistant to dust and moisture. Internal side extrusions act as a guide for the drawout assembly and provide a means to secure the drawout assembly in place with two knurled knobs on the faceplate. Surface mounted handles on the face of the drawout assembly facilitate extraction of the drawout assembly from the case. Terminal blocks in the rear of the case mate directly with the drawout assembly when it is in the fully-inserted position. Special automatic shorting terminal blocks at the rear of the case are used on all current transformer connections.

The H1 case is a half-rack design, two rack units (3.5") high. Using dovetail extrusions on the external sides of the case, two H1 cases can be fitted together to form a standard 19" rack mount assembly. Optional adapter plates (pages 17 and 22) allow the H1 case to be used in a variety of applications. Two H1 case configurations are available. Relay style dictates which configuration will be used. The F1 case dimensions are similar to the Westinghouse FT11 case.

Drawout Assembly

The drawout assembly is a unitized, fabricated aluminum cradle. The assembly contains all of the PC boards used in the relay. The front of the drawout assembly serves as the face/cover for the relay assembly. Threaded bolts with knurled knobs on the faceplate fasten the drawout assembly securely to the case. Handles mounted on the faceplate aid in extracting the drawout assembly from the case.

CONSTRUCTION OF MX CASES

Relay Cases

MX cases are painted, aluminum fabricated enclosures, resistant to dust and moisture when fitted with the optional cover. Internally mounted guides on the ends of the case aid in directing the drawout assembly to the case terminals at the back of the case during insertion. Terminal blocks in the rear of the case mate directly with the drawout assembly when it is in the fully-inserted position. Special automatic shorting terminal blocks at the rear of the case are used on all current transformer connections.

Three MX case configurations are available. Relay style dictates which configuration will be used.

Drawout Assembly

The drawout assembly is a unitized, fabricated aluminum cradle. It contains all of the PC boards used with the relay. The front of the drawout assembly serves as the face/cover for the relay assembly. Locking levers at the ends of the drawout assembly face/cover aid in the extraction and insertion of the assembly, and provide a means for securing the assembly to the case. The drawout assembly is available in either vertical or horizontal configurations.

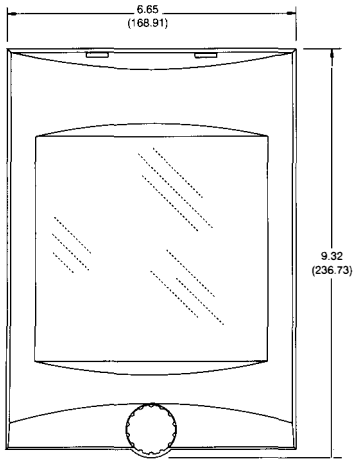
Front Cover

The optional front cover is a single piece, clear acrylic unit. Screw-driven levers at the ends of the cover secure it to the relay case. A target reset button is provided on the front of the cover.

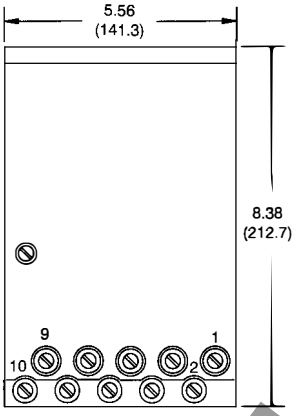
S1 DIMENSIONS and DRILLING DIAGRAM

SEMI-FLUSH MOUNT

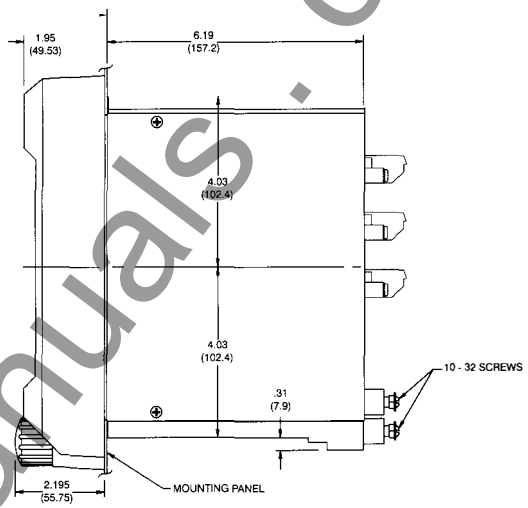
Relays may be mounted at any convenient angle.



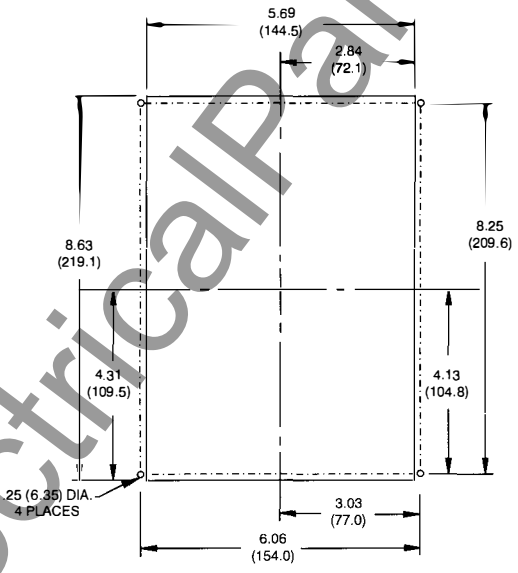
FRONT VIEW



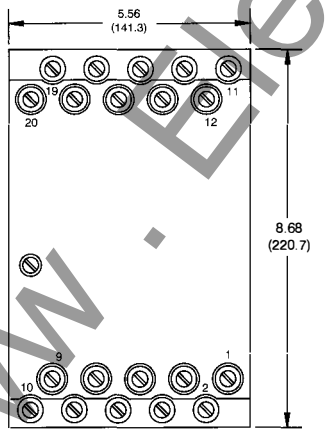
REAR VIEW
Single Ended Case



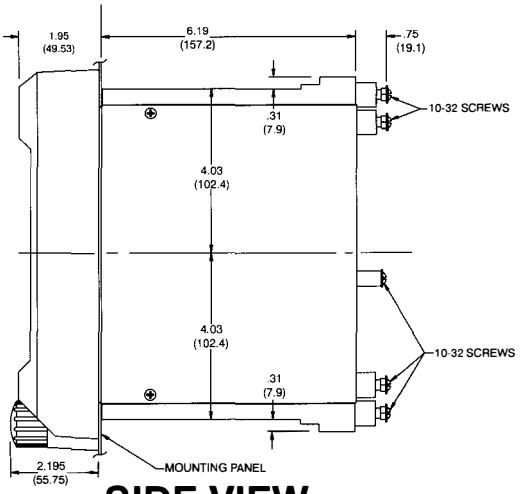
SIDE VIEW
Single Ended Case



DRILLING DIAGRAM
Single or Double Ended
(Rear of panel)



REAR VIEW
Double Ended Case

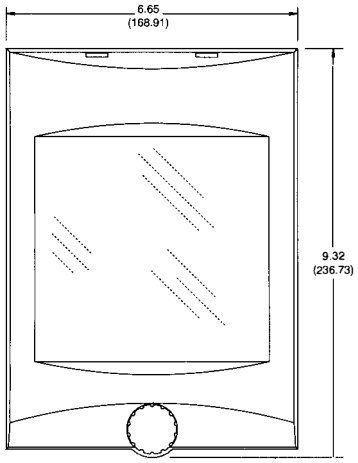


SIDE VIEW
Double ended Case

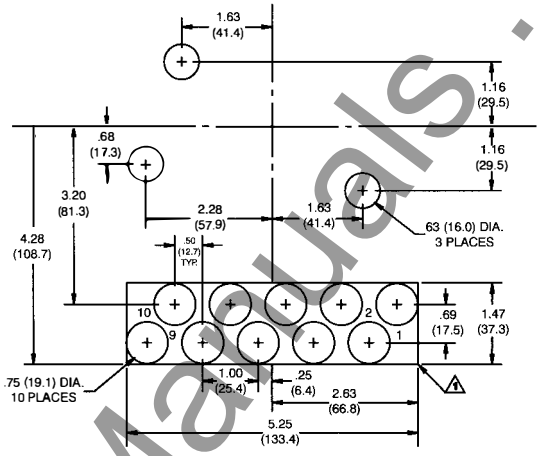
S1 DIMENSIONS and DRILLING DIAGRAM

PROJECTION MOUNT

Relays may be mounted at any convenient angle.

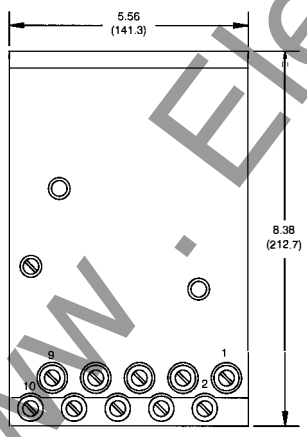


FRONT VIEW



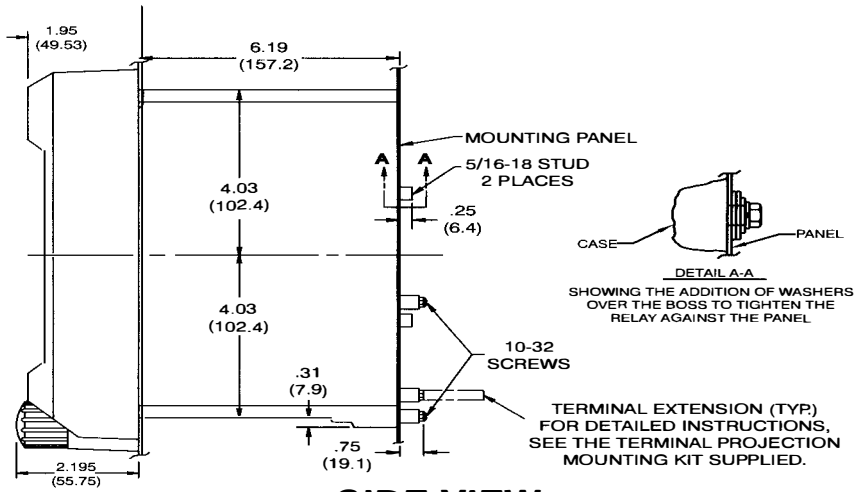
DRILLING DIAGRAM

Single Ended (Rear of panel)



REAR VIEW

Single Ended Case



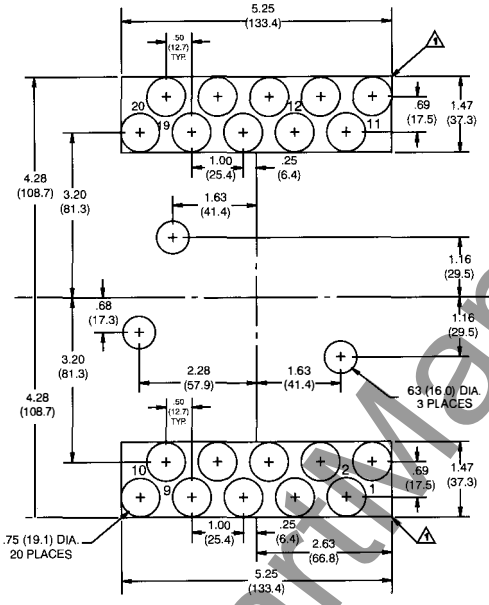
SIDE VIEW

Single Ended Case

S1 DIMENSIONS and DRILLING DIAGRAM

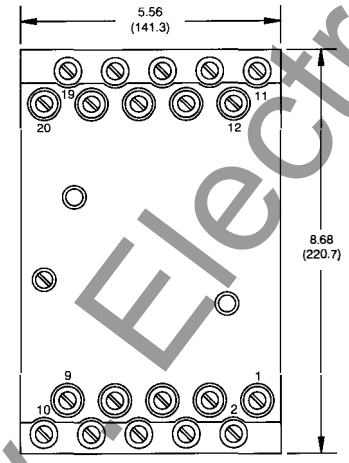
PROJECTION MOUNT

Relays may be mounted at any convenient angle.



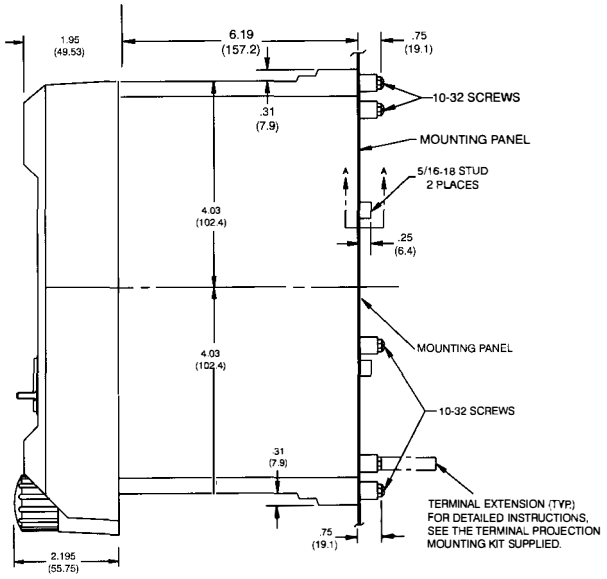
DRILLING DIAGRAM

Double Ended (Rear of panel)



REAR VIEW

Double Ended Case



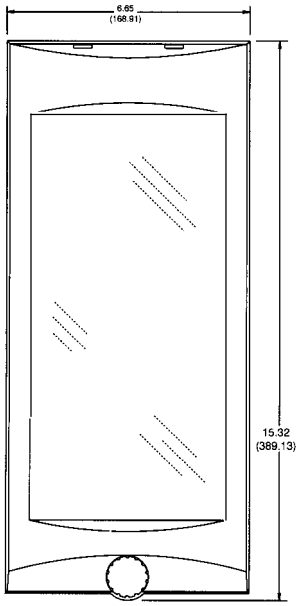
SIDE VIEW

Double Ended Case

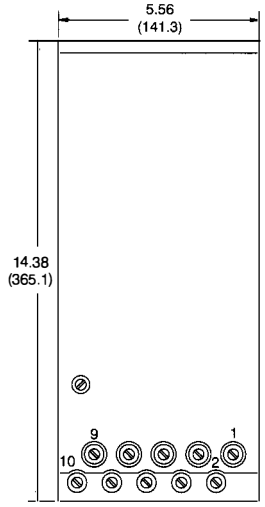
M1 DIMENSIONS and DRILLING DIAGRAM

SEMI-FLUSH MOUNT

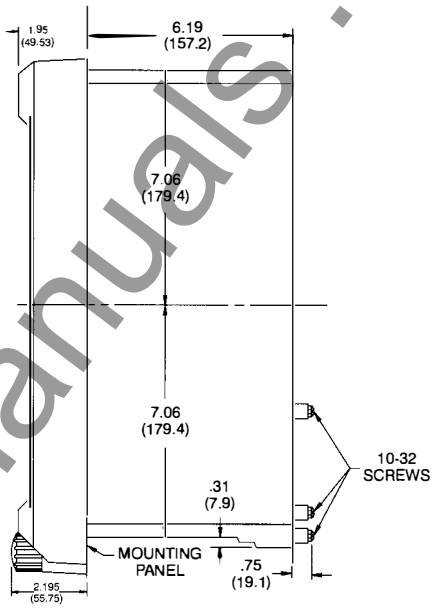
Relays may be mounted at any convenient angle.



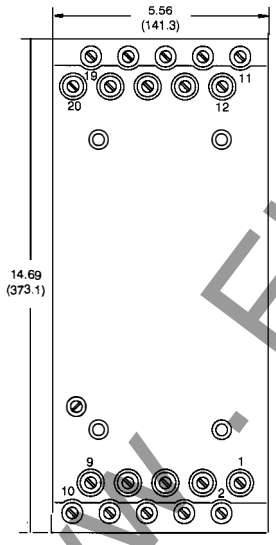
FRONT VIEW



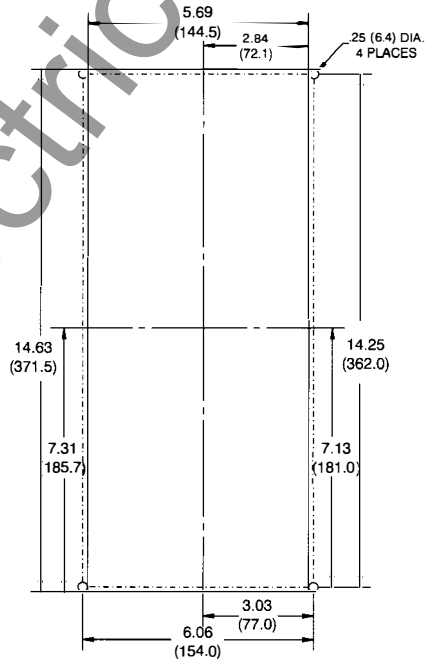
REAR VIEW
Single Ended Case



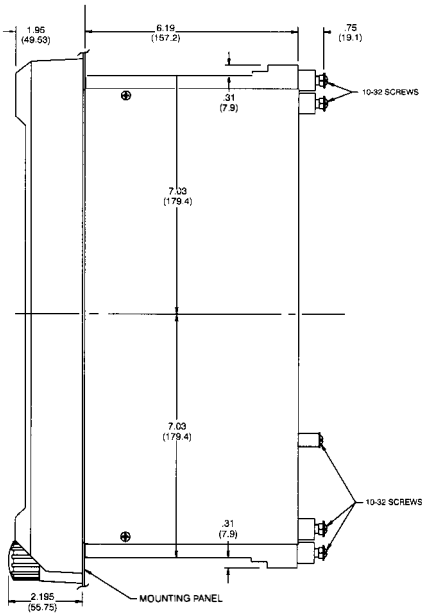
SIDE VIEW
Single Ended Case



REAR VIEW
Double Ended Case



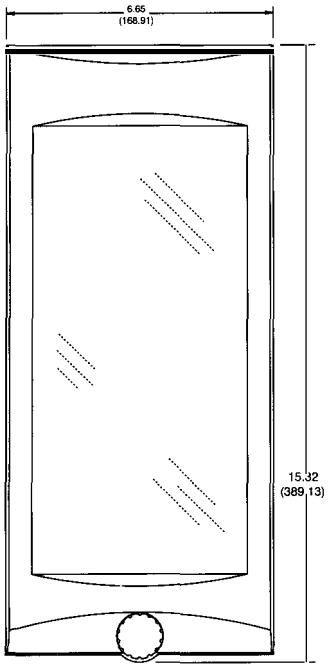
DRILLING DIAGRAM
Single or Double Ended
(Rear of panel)



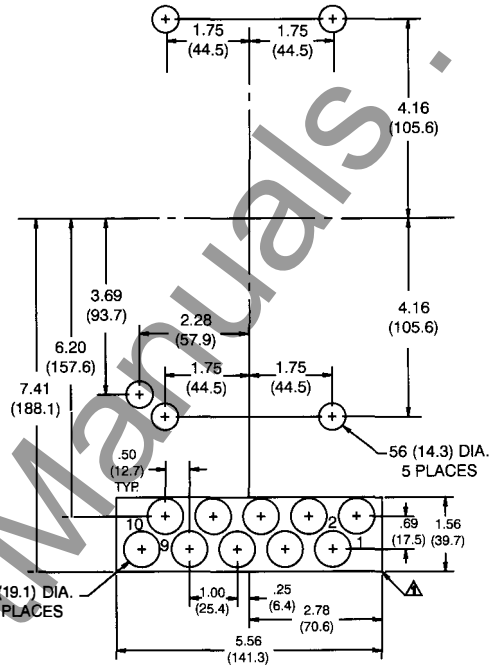
SIDE VIEW
Double ended Case

M1 DIMENSIONS and DRILLING DIAGRAM
PROJECTION MOUNT

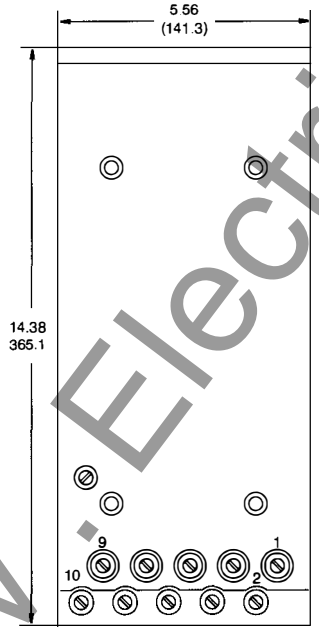
Relays may be mounted at any convenient angle.



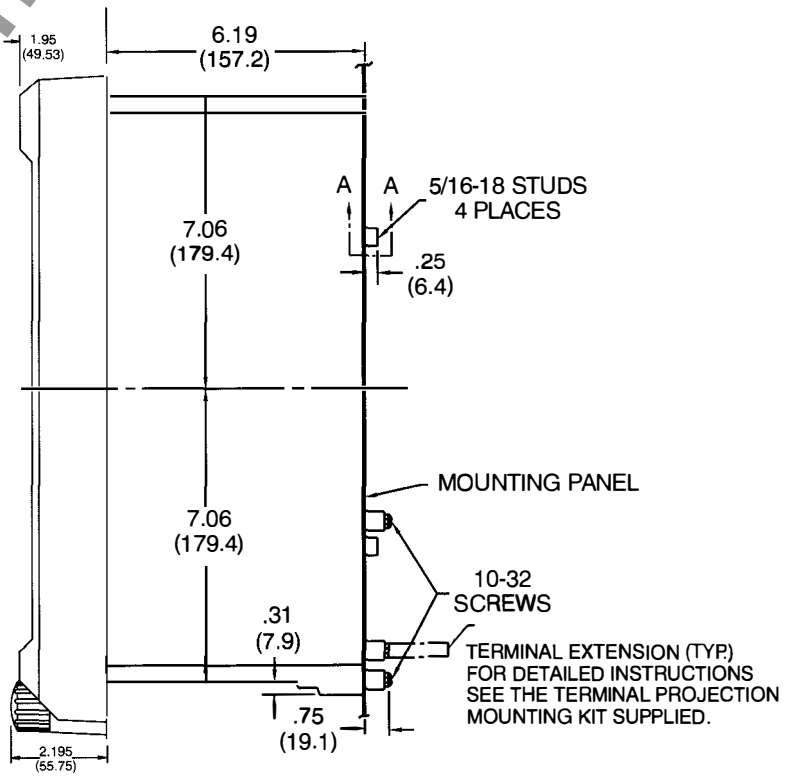
FRONT VIEW



DRILLING DIAGRAM
Single Ended (Rear of panel)



REAR VIEW
Single Ended Case

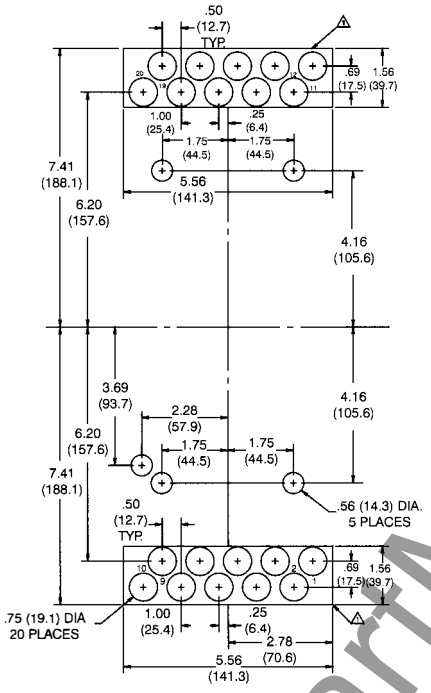


SIDE VIEW
Single Ended Case

M1 DIMENSIONS and DRILLING DIAGRAM

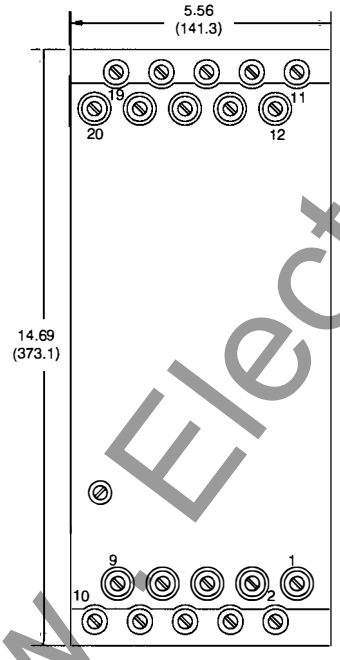
PROJECTION MOUNT

Relays may be mounted at any convenient angle.



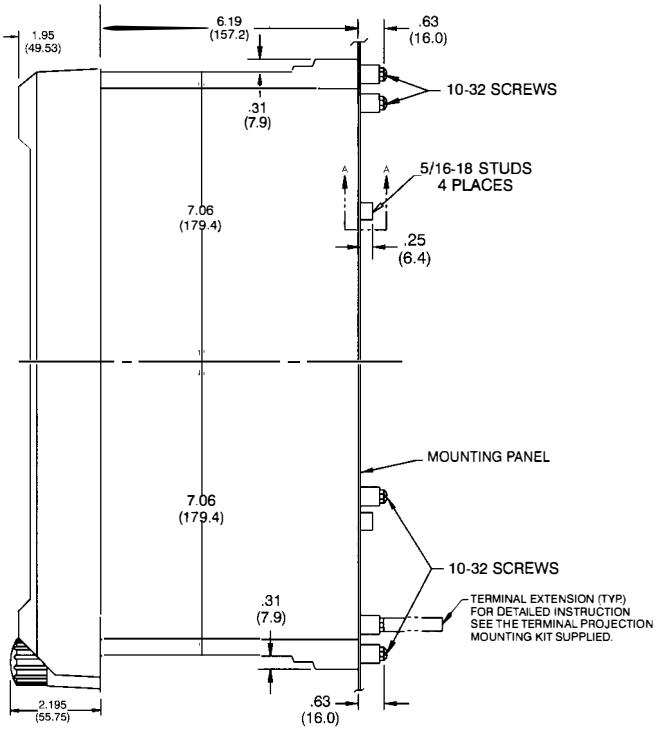
DRILLING DIAGRAM

Double Ended (Rear of panel)



REAR VIEW

Double Ended Case

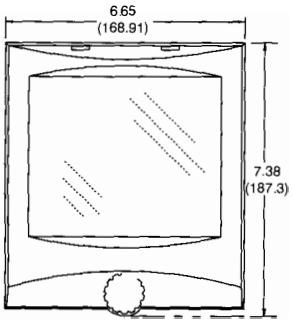


SIDE VIEW

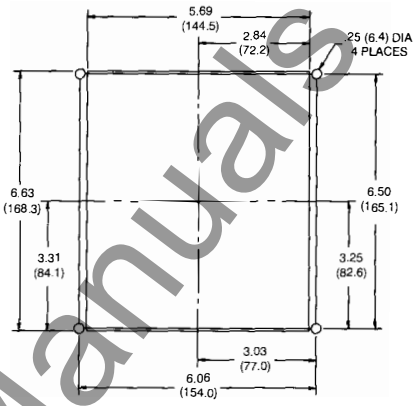
Double Ended Case

A1 DIMENSIONS AND DRILLING DIAGRAM
SEMI-FLUSH MOUNT

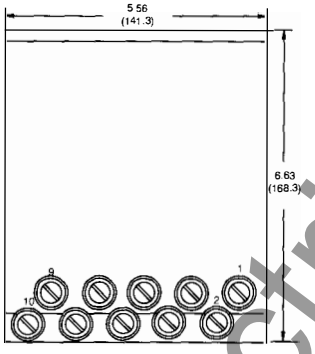
Relays may be mounted at any convenient angle.



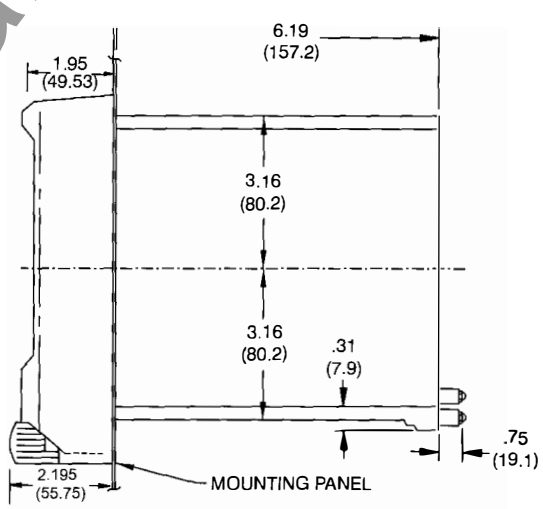
FRONT VIEW



DRILLING DIAGRAM
(Rear of panel)



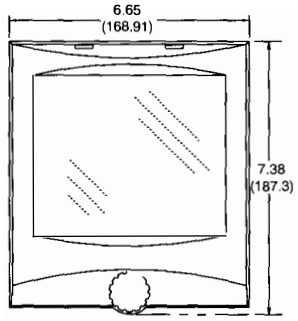
REAR VIEW



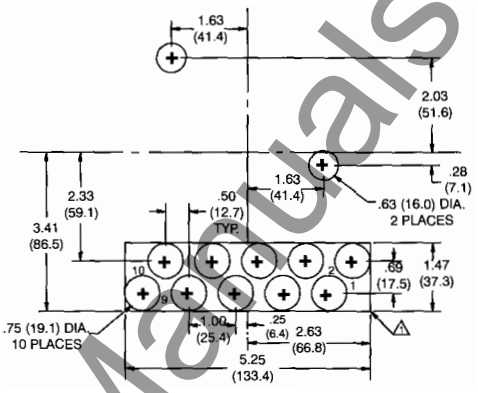
SIDE VIEW

A1 DIMENSIONS AND DRILLING DIAGRAM
PROJECTION MOUNT

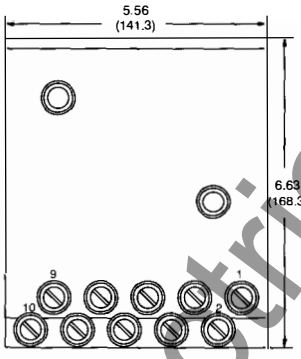
Relays may be mounted at any convenient angle.



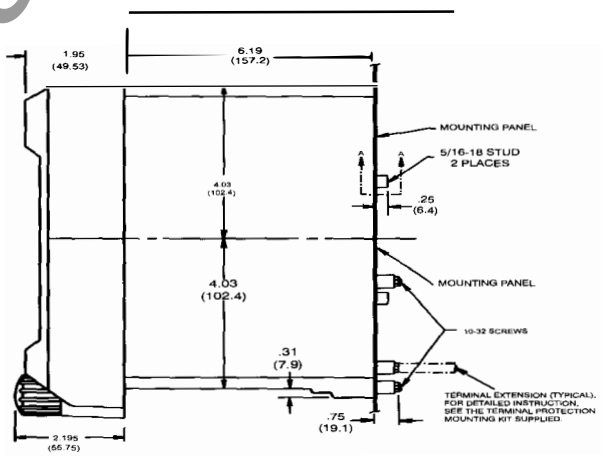
FRONT VIEW



DRILLING DIAGRAM
(Rear of panel)



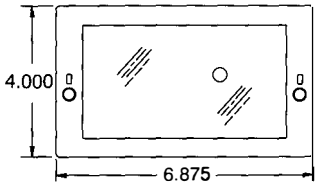
REAR VIEW



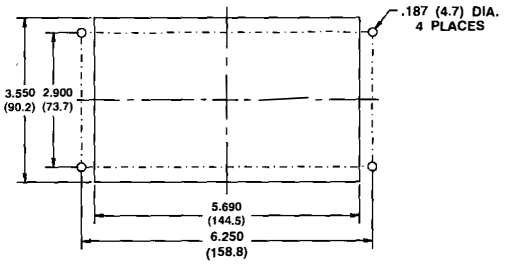
SIDE VIEW

C1 DIMENSIONS and DRILLING DIAGRAM

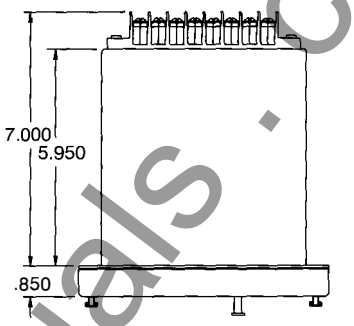
Relays may be mounted at any convenient angle.



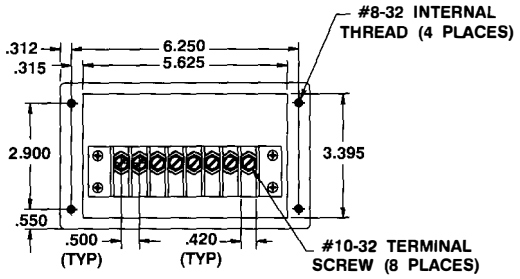
FRONT VIEW



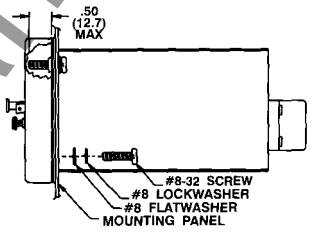
DRILLING DIAGRAM
(Rear of panel)



TOP VIEW



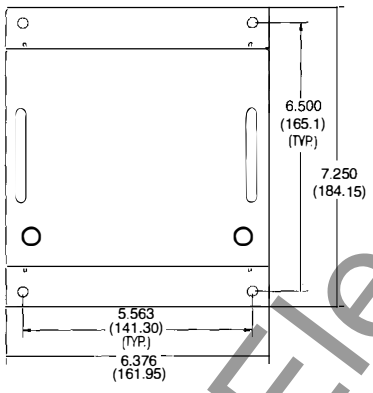
REAR VIEW



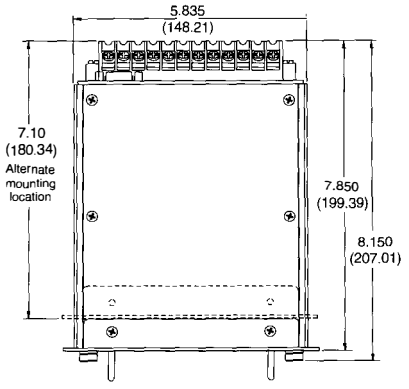
SIDE VIEW

F1 DIMENSIONS and CUTOUT DIAGRAM

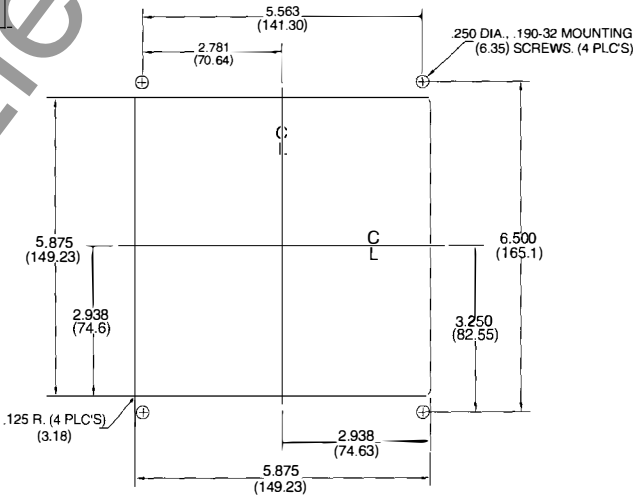
Relays may be mounted at any convenient angle.



FRONT VIEW



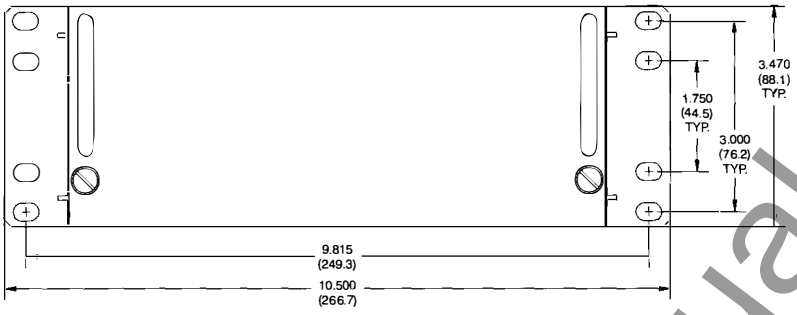
TOP VIEW



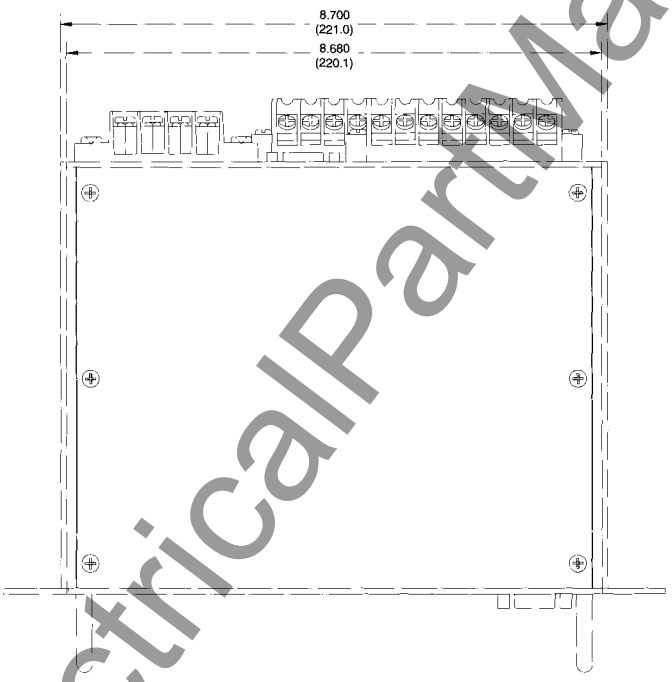
CUTOUT DIAGRAM

H1 DIMENSIONS

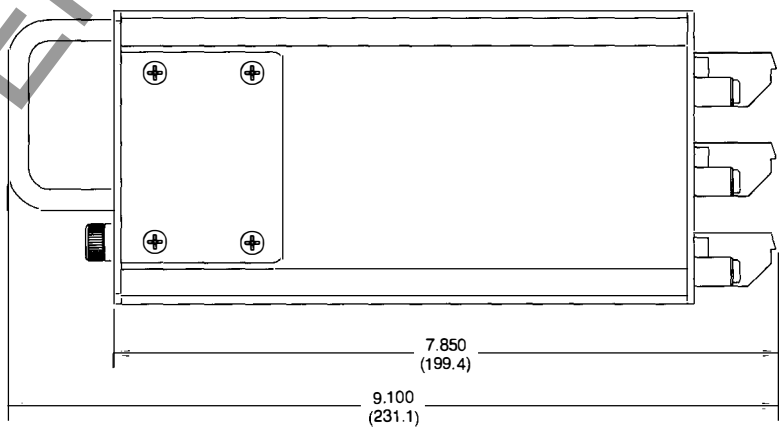
Relays may be mounted at any convenient angle.



FRONT VIEW

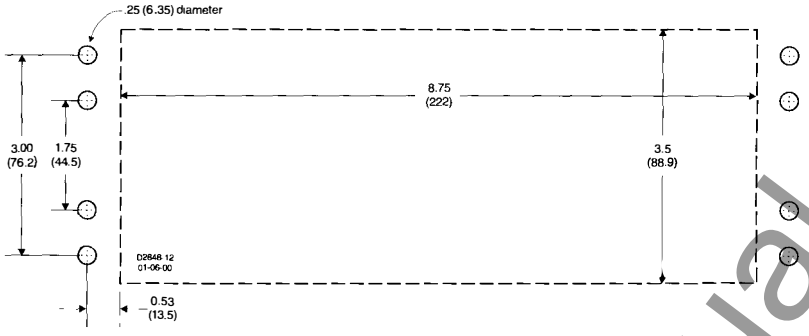


TOP VIEW

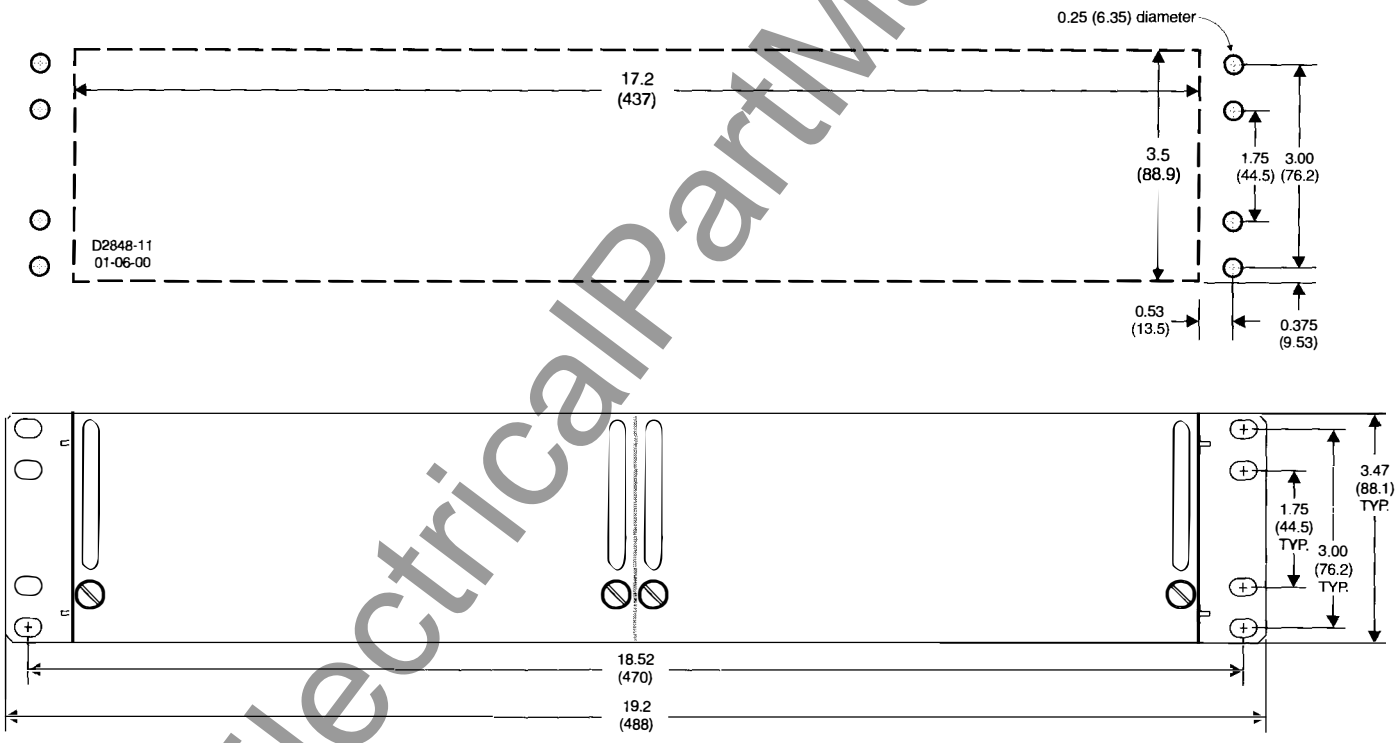


SIDE VIEW

H1 DIMENSIONS, continued



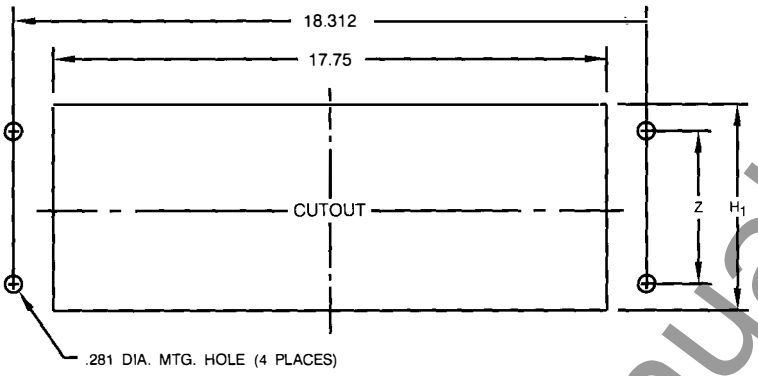
Single Relay H1 Mounting Plate Dimensions for Panel Mounting without an Escutcheon Plate



Two-Relay H1 Mounting Plate Dimensions for Panel Mounting without an Escutcheon Plate

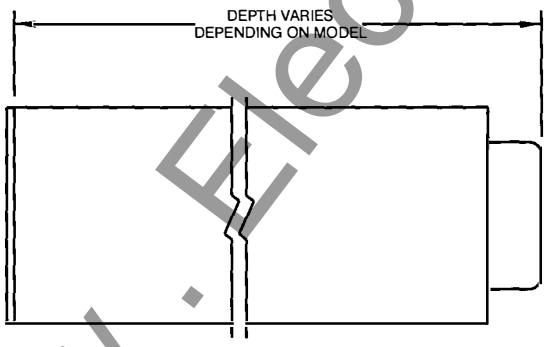
19" RACK MOUNT DIMENSIONS and DRILLING DIAGRAM

Relays may be mounted at any convenient angle.



FRONT VIEW

DRILLING DIAGRAM
(Rear of panel)

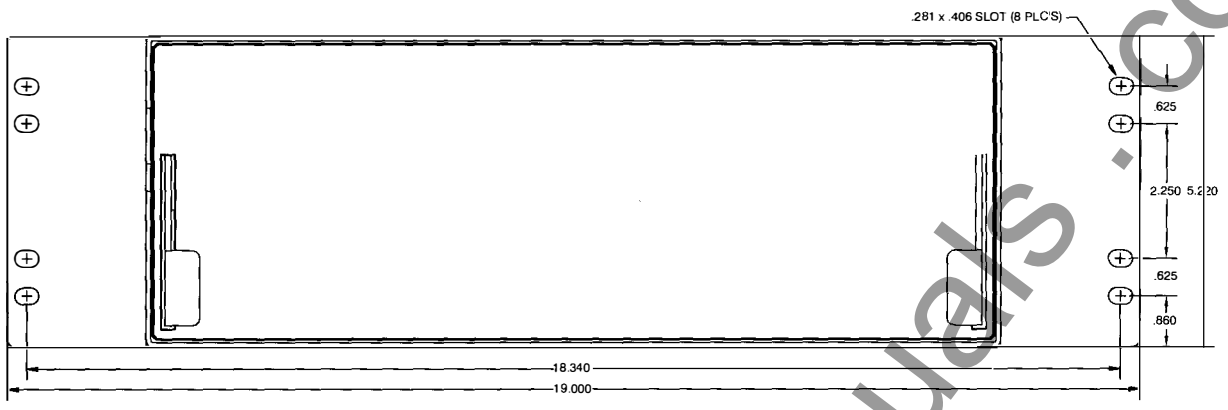


SIDE VIEW

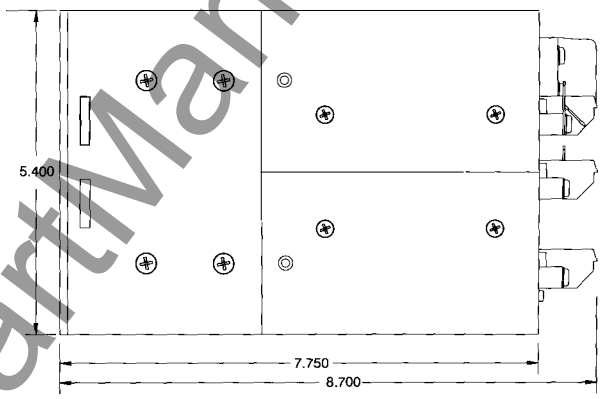
NOTES:
1) DIMENSION H = 1.750n +0 / -0.031.
2) TOLERANCE TO BE ±0.015 UNLESS OTHERWISE SPECIFIED.
   TOLERANCES TO BE NON-CUMULATIVE.
   TOLERANCE BETWEEN ANY TWO SLOTS ±0.015.
   N = RU = 1.75" nominal ±1/32

DIMENSION TABLE FOR RACK MOUNTED UNITS			
n	H	Z	H_1
2	3.469	3.000	3.600
3	5.219	2.250	5.350
4	6.969	4.000	7.100
5	8.719	5.750	8.850

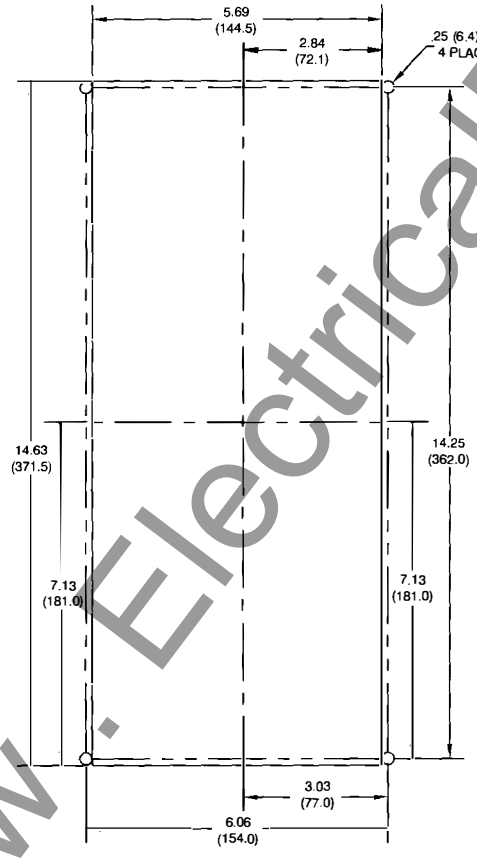
MX DIMENSIONS and DRILLING DIAGRAM



FRONT VIEW
HORIZONTAL RACK MOUNT

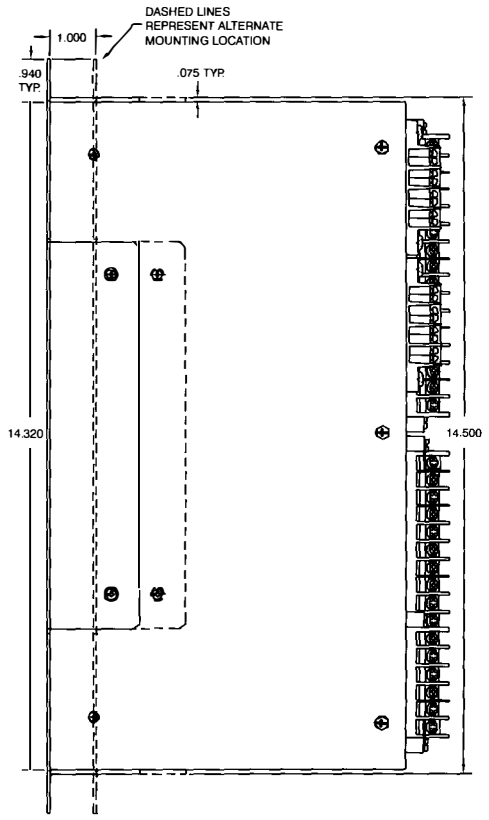


SIDE VIEW
HORIZONTAL RACK MOUNT



DRILLING DIAGRAM

These dimensions are for the vertical panel mount MX case or the horizontal panel mount MX case. Rotate this drawing ninety degrees for the horizontal panel mount MX case.



SIDE VIEW
VERTICAL PANEL MOUNT

RELAY ACCESSORIES

Accessories

The Basler Electric Company offers several accessories to aid in the testing, calibrating and troubleshooting of protective relays. The accessories available through Basler Electric are described in the paragraphs that follow.

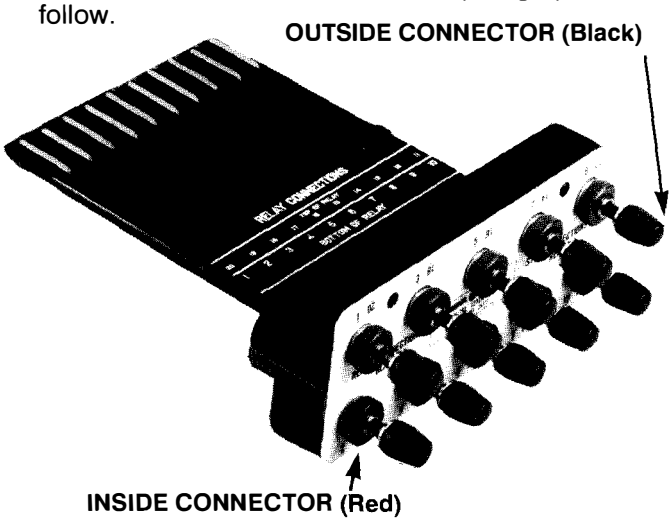


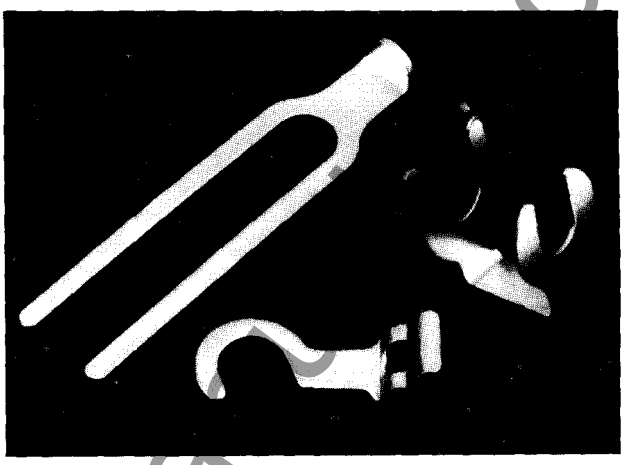
Figure 2 - Test Plug

Test Plug

The test plug, Part number 10095 (Figure 2), provides a quick, easy method of testing a drawout case type relays without removing them from their cases. The test plug is simply subsituted for the connecting plug with nothing left to disconnect. Insertion of the test plug enabled the user to access both the external stud connections and the internal relay connections.

The test plug consists of a black and red phenolic molding with 20 electrically separated contact fingers. The 10 fingers on the black side are connected to the inside binding posts with the black thumb nuts. The 10 fingers on the red side of the test plug are connected to the outside binding posts with the red thumb nuts and engae the relay case external stud connections.

When testing circuits connected to the bottom set of case terminals, the test plug will be inserted with the numbers 1 through 10 displayed in an upright manner. Likewise, when using the test plug in the upper part of the relay, the numbers 11 through 20 are displayed in an upright manner. It is impossible, due to the construction of the test plug, to insert it upside down.



LINKS AND TEST CLIPS

Links and test clips are provided with each test plug to facilitate any test connections required.

Extender Card

The extender card permits calibration and trouble-shooting of the individual printed circuit boards outside of the drawout cradle assembly.

There are two extender card versions available to suit the user's particular need. Extender card, Part number 9112930101 (Figure 3), is keyed to fit Basler relay motherboard locations, and comes with numbered terminals for easy identification of particular circuits to be tested.

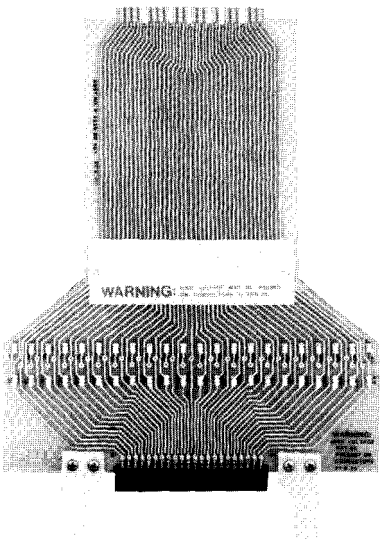


Figure 3 - Extender Card 9112930101

RELAY ACCESSORIES, continued

In operation, the printed circuit board to be calibrated or tested is removed from the cradle assembly and attached to the extender card connecting plug. The entire assembly (pc board and extender card) is then inserted into the vacated slot of the cradle assembly. All tests and adjustments can then be performed with ease.

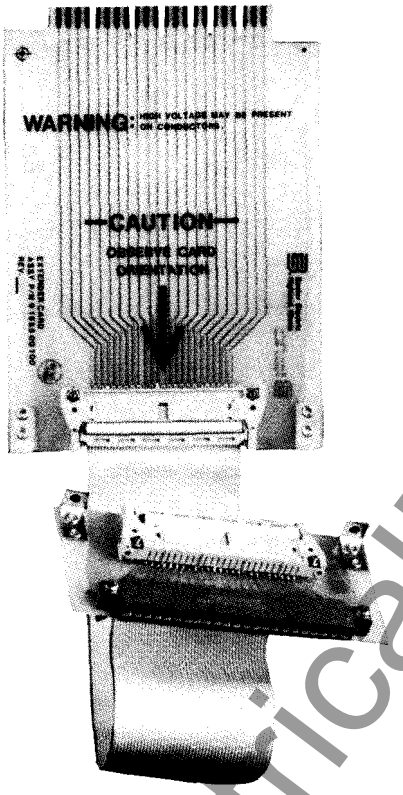


Figure 4 - Extender Card 9165500100

Extender card, Part number 9165500100 (Figure 4) is also keyed to fit motherboard locations. The desirable feature of this extender card is its two part construction, which connects one half of the board (with ribbon cable) to the other half. This allows the pc board to be placed on the workbench for easier access to both sides of the PC board. The operation is the same as that described above.

Bench test Fixture

A test fixture that consists of a cutaway case that includes a terminal block is available. This fixture was expressly designed for testing, without confinement, the relays that come in an A1 case. (These relays cannot use an extender card.) The bench test fixture can be used with the M1 and S1 cases.

Order Basler part number 9201111100. Includes extra paddle. Two test fixtures are required for double-ended relays (i.e. for 20-terminal cases).

Contact Sensing Module

Contact sensing modules are required with relays having contact inputs, and power supplies rated for either 250 Vdc or 230 Vac. (Types T, X and Z). These modules are designed to dissipate the excessive heat generated by the contact sensing circuits external to the relay, thereby keeping this energy outside of the relay case.

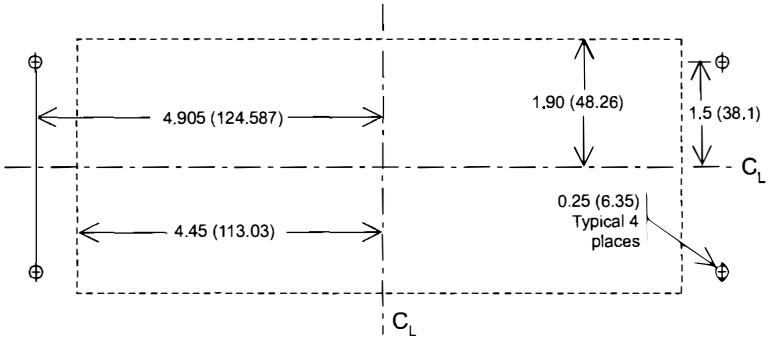
There are 12 input sensing modules available for use with the BE1 relay models. Six modules are available for relays styles with isolated contact sensing inputs and six modules are available for relay styles with non-isolated contact sensing inputs. The specific module required by a specific style relay is determined by the number of contacts that must be sensed by the device, and whether the realy uses and isolated contact (the control circuit is ac) or the relay uses a non-isolated contact (the control circuit is dc). In the former case (isolated sensing), the relay supplies the required dc voltage to the contact for sensing.

Module Selection Chart

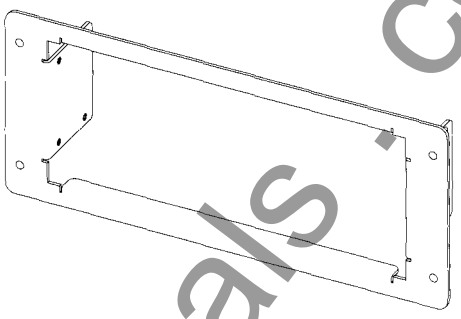
	Part Number of Contact Sensing Module	
Number of Contact Inputs	For Isolated Contact Sensing	For Non-Isolated Contact Sensing
1	9170206105	9170206111
2	9170206104	9170206110
3	9170206103	9170206109
4	9170206102	9170206108
5	9170206101	9170206107
6	9170206100	9170206106

Complete module specifications, mounting and outline dimensions, connection information and schematic diagrams for each of the above modules is contained within the Input Sensing Module Instruction Manual 9170206990, which is included with the module when shipped.

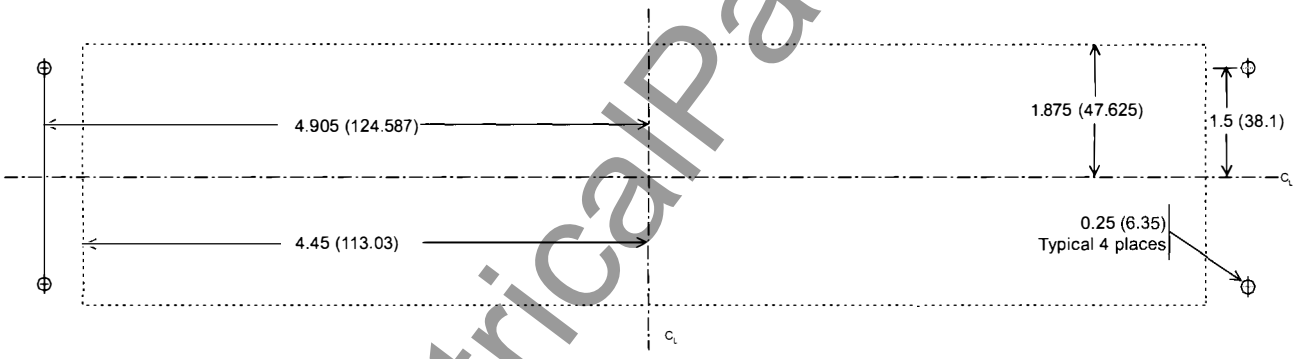
RELAY ACCESSORIES, continued



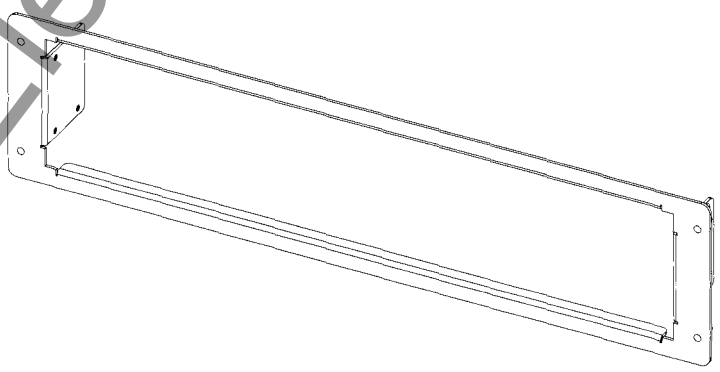
Single Relay H1 Mounting Plate Dimensions



9289900017 - Escutcheon plate to panel mount one H1 relay.

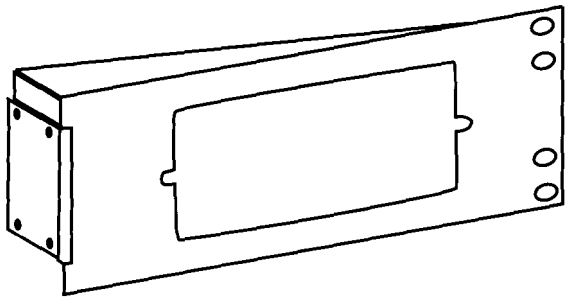


Two-Relay H1 Mounting Plate Dimensions

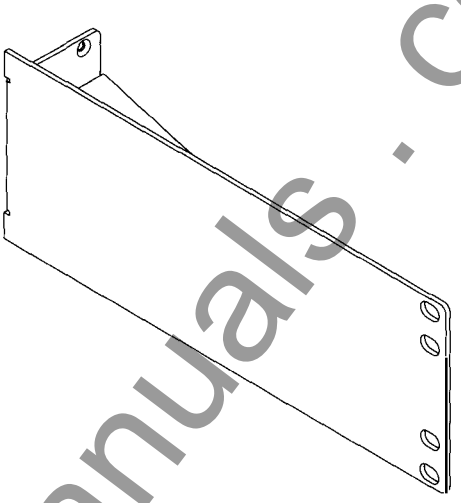


9289900016 - Escutcheon plate to panel mount two dovetailed H1 relays.

RELAY ACCESSORIES, continued



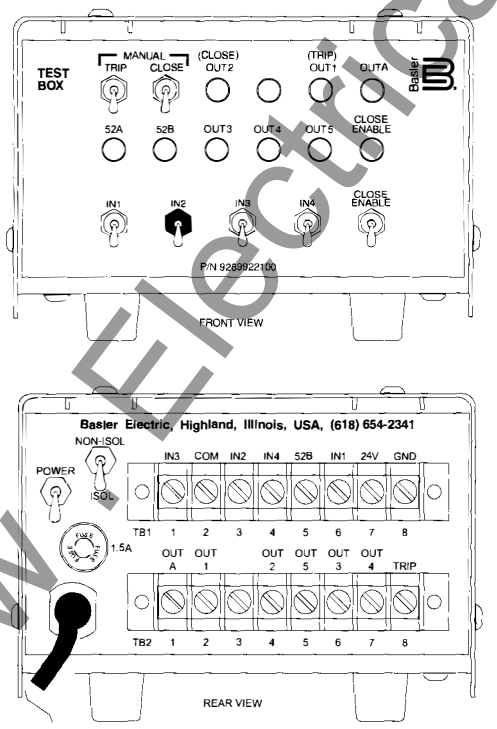
9289929100 - Adapter bracket for ABB FT test switch, to mount a single H1 case in a 19" rack.



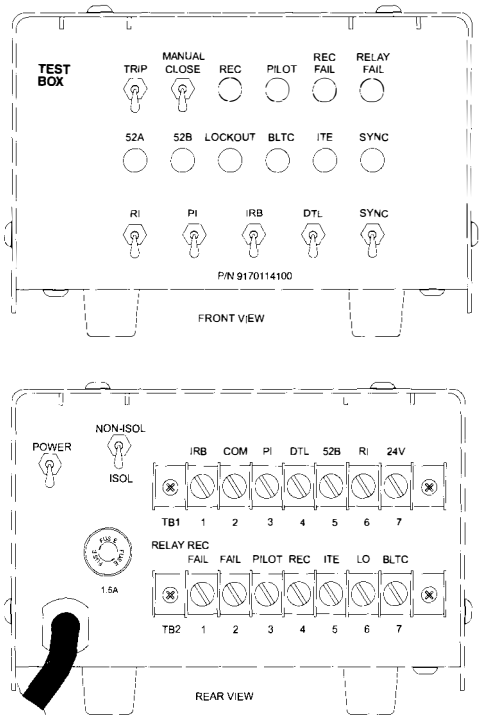
9289924100 - Adapter bracket to mount single H1 case in 19" rack.

Test Boxes

Basler Electric test boxes simplify testing and demonstrating relay systems. These test boxes contain circuitry that simulates circuit breaker openings and closings and provide control for contact switching inputs to the relays. LEDs on the test boxes indicate the input and output contact status of the device. Part number 9289922100 is used with multifunction protection systems, and part number 9170114100 is used with the BE1-79M Multiple Shot Reclosing Relay.



Multifunction Systems Test Box, Part Number 9289922100

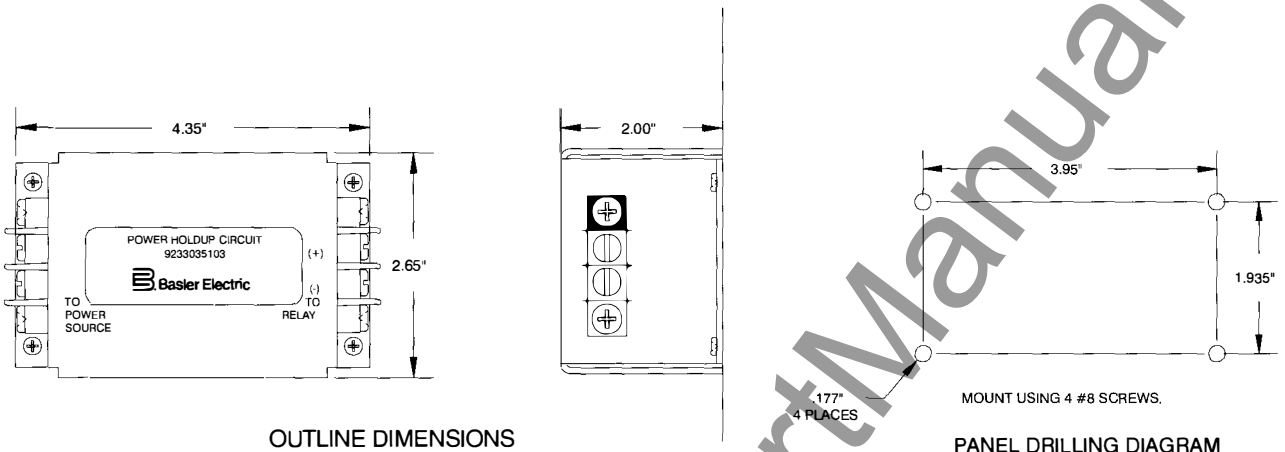


BE1-79M Test Box, Part Number 9170114000

RELAY ACCESSORIES, continued

Power Holdup Assembly

Basler Electric power holdup assembly, Part number 9233035103 (pictured below), provides adequate supply decay delay to ensure the protective device output contacts can close. This action trips the breaker. The power holdup assembly may be mounted on the back of the relay case or remote from the relay.



OUTLINE DIMENSIONS

PANEL DRILLING DIAGRAM

RS-232 to RS-485 Converter

The isolated RS-232 to RS-485 converter (9314101100) is intended to interface between a computer (PC) or terminal with an RS-232 interface to one or more devices on either a 2-wire RS-485 or 4-wire RS-485 network.

Basler Electric

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