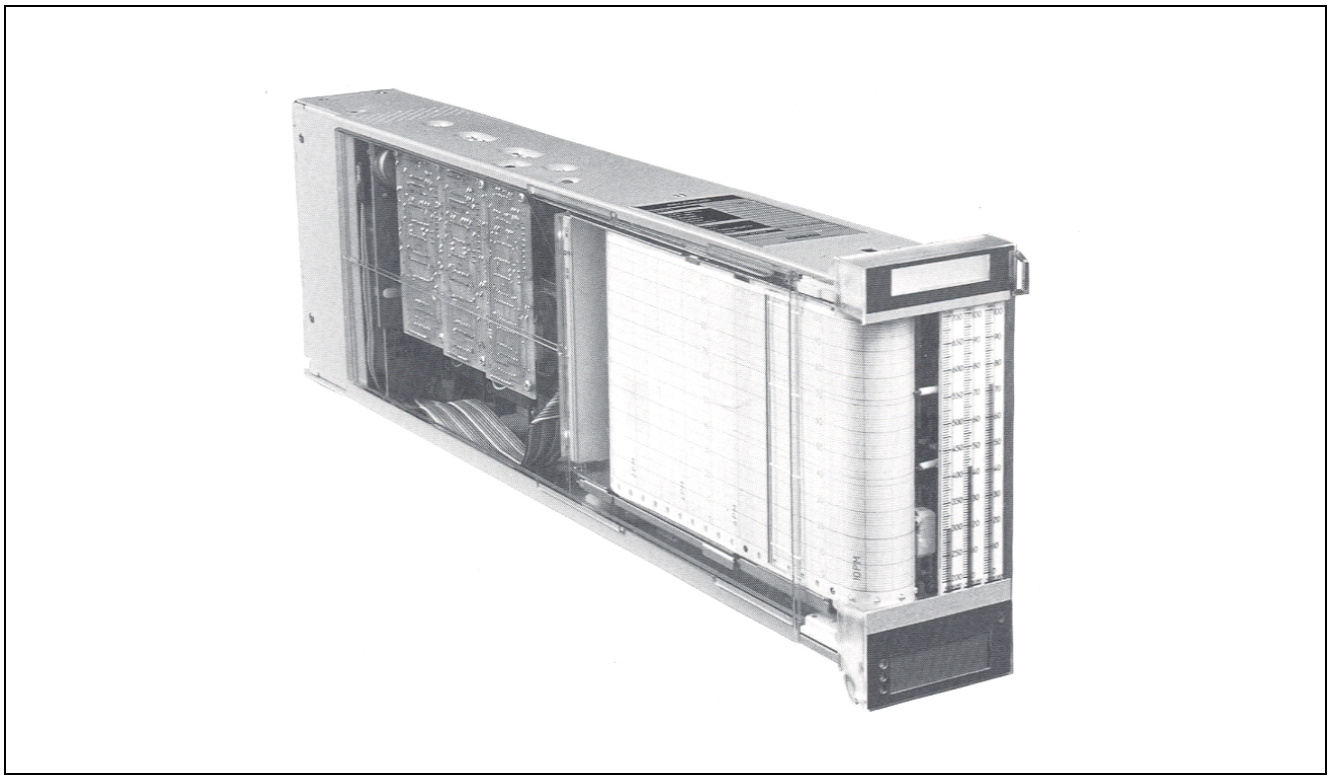
E27R SINGLE STATION
Electronic Indicating Recorder



This instrument receives one, two, or three 4 to 20 mA, 1 to 5 V, or 0 to 10 V dc analog input signals, continuously records them on a 100 mm (4 in) rectilinear chart, and also displays them on 100 mm (4 in) vertical ribbon indicator scales. This recorder is often mounted side-by-side with 760 and 761 Series SINGLE STATION MICRO™ Controllers when recording is a requirement for their signals.

INTEGRAL TRANSMITTER POWER SUPPLY

The 4 to 20 mA dc signal level can be used without the extra cost and complication of separate transmitter power supplies, since 2-wire transmitters can be energized directly from the internal power supply.

HIGHLY VISIBLE DISPLAYS

Signals are displayed on readily distinguishable red, green, and blue ribbon indicators. Each indicator has a separate individually-selectable scale, which has black characters on a white background. Each pen records in corresponding red, green, and blue ink on a rectilinear roll chart at a pen separation of twelve minutes at a standard chart speed of 20 mm/h (0.8 in/h). Two hours of chart (at the standard chart speed) is visible at the front of the instrument, with an additional ten hours of chart visible at the left side of the instrument when in the partially withdrawn service position.

EASY CHART CHANGING AND PEN REPLACEMENT

The chart and pens become exposed when the instrument is partially withdrawn to the service position. This provides easy access for replacing the take-up chart spool and fiber-tip snap-in pen cartridges.

HIGH DENSITY PANEL MOUNTING

These instruments are 69 mm wide by 165 mm high by 546 mm deep (2.7 by 6.5 by 21.5 in). They occupy one unit of space in standard Foxboro 101 or 202S Series Shelves. The 101 Series Short Shelves can be sized to accommodate up to four instruments along the width dimension; and these shelves can be mounted side-by-side to accommodate up to ten instruments in a single panel cutout. The 202S Series Shelves can accommodate up to ten instruments. The shelves are easily mounted in an instrument panel.

SIMPLIFIED MAINTENANCE AND ADJUSTMENT

Most major components are modular in design and are readily accessible without disassembling the instrument. Routine adjustments are easily accomplished with the instrument operational and in the service position.

OPERATING AND STORAGE CONDITIONS

Influence	Reference Operating Conditions	Normal Operating Condition Limits	Operative Limits	Storage Limits
Ambient Temperature	23 ±2°C (73 ±4°F)	5 and 50°C (40 and 120°F)	−5 and +60°C (20 and 140°F)	−40 and +70°C (−40 and +160°F)
Relative Humidity	50 ±10% RH	5 and 95% RH at 30°C (85°F)	5 and 95% RH at 30°C (85°F)	0 and 95% RH at 30°C (85°F)
Supply Voltage	100, 120, 220, or 240 V ac, ±1%, 50 or 60 Hz, ±0.5 Hz	100, 120, 220, or 240 V ac, +10, −15%, 47 to 63 Hz	100, 120, 220, or 240 V ac, +10, −15%, 47 to 63 Hz	Not Applicable
Vibration	Negligible	0.100 mm (0.004 in) double amplitude from 10 to 50 Hz; 5 m/s² (0.5 "g") from 50 to 200 Hz	0.100 mm (0.004 in) double amplitude from 10 to 50 Hz; 5 m/s² (0.5 "g") from 50 to 200 Hz	Not Applicable

PERFORMANCE SPECIFICATIONS

(Under reference operating conditions unless otherwise specified)

Accuracy ±0.5% of span.

Repeatability 0.15% of span.

Dead Band 0.25% of span.

Frequency Response −3 dB at 1 Hz, ±5% input.

Relative Humidity Effect Negligible effect on indicator or pen position. Excessive humidity conditions may cause chart paper dimension variations from reference operating conditions.

Ambient Temperature Effect Maximum zero and span shift of 0.5% of span for a 28°C (50°F) temperature change within normal operating conditions.

Vibration Effect 1% of span maximum within normal operating conditions.

Supply Voltage Effect 0.1% of span for a +10, −15% change in ac voltage within normal operating conditions.

Position Effect Negligible.

FUNCTIONAL SPECIFICATIONS

Input Signal 4 to 20 mA into 250 Ω; 1 to 5 or 0 to 10 V dc (jumper selectable) into 100 kΩ minimum for each pen.

Power Consumption
60 VA, 30 W maximum, at 50 Hz.
40 VA, 20 W maximum, at 60 Hz.

Fusing (Fuse located on rear surface of instrument)
100, 120 V ac 1/2 A delayed action fuse.
220, 240 V ac 3/8 A delayed action fuse.

Pens One, two, or three, as specified.
Red Pen Located in center position.
Green Pen Located in inner position.
Blue Pen Located in outer position.
Pen Separation Twelve minutes at the standard chart speed of 20 mm/h (0.8 in/h).

Pen Speed The elapsed time for the pen to travel from 0 to 100% of scale is 5 seconds maximum, nonadjustable.

Inking Disposable fiber-tip snap-in pen cartridges. Each pen provides a 915 m (3000 ft) ink line length (approximately a 3-month supply).

Indicators One, two, or three, with separate individually-selected scales, as specified. Vertical scale indication is provided for each pen by a highly visible 2 mm (0.08 in) wide ribbon. The ribbon color matches the pen color, and the indicator color order is green, red, and blue, from left-to-right. Vertical scales are 100 mm (4 in) with black characters on a white background. Scales are selectable from Chart and Dial Catalog 600.

Rectilinear Roll Chart One 30-day rectilinear roll chart is provided with each instrument. The width is 100 mm (4 in) and there are 30-minute time division markings based on the standard chart speed of 20 mm/h (0.8 in/h). Refer to Chart and Dial Catalog 600 for a selection of standard charts.

Chart Drive Unit Standard chart speed is 20 mm/h (0.8 in/h) with optional speeds available. Chart drive unit is easily removable from instrument to facilitate chart reloading. A fast take-up lever on the chart rewind rapidly removes slack following chart replacement or inspection.

Overrange Protection Pen carriage travel is physically limited to approximately 1% above and below scale and is nonadjustable. Pen servo circuit deactivates if pen signal remains off scale for a period of three seconds maximum; it reactivates when the on-scale signal resumes.

Power Lamp A light-emitting diode (LED) emits a red light to indicate that the integral + 15 and −15 V dc supply is operational and that the power switch is in the ON position. This lamp is located on the lower right surface of the front panel.

Alarm Lamps Three amber-colored LED's are located on the top front surface of the instrument. LED's are internally connected to + 15 and −15 V dc supply through a 1.5 kΩ resistor. Alarm lamps are externally operated by contact closure to power supply common. Selectable using Model Code suffix −L.

Nameplate A gray polycarbonate nameplate is attached to the lower surface of the instrument front door. The nameplate provides space for approximately 24-characters (including spaces) to accommodate a description of each input signal. A green, red, and blue (from top-to-bottom) color identification dot at the beginning of each line corresponds to the pen color and applicable input signal description.

Mounting Position Normal mounting position is horizontal. Instrument can also be mounted up to a 15° angle with the rear of the instrument above the front, or down to a 75° angle with the rear of the instrument below the front. If necessary, the instrument can be rezeroed anywhere between these mounting position extremes.

Adjustments Zero and span trim potentiometer adjustments are accessible in the service (partially withdrawn) position, and provide a minimum of ± 2% adjustment after calibration. Ribbon indicator has an adjustment for zeroing relative to pen. No separate ribbon span adjustment is necessary, since the ribbon travels with the pen.

Model Code

E27R = Single Station Electronic Indicating Recorder

Mounting
−S = Shelf-Mounted in a Foxboro 101 or 202S Series Shelf

Pen and Indicator Quantity and Color
1 = One pen and one indicator (red)
2 = Two pens and two indicators (red and green)[a]
3 = Three pens and three indicators (red, green, and blue)

Style of Chart
R = Rectilinear Roll Chart

Supply Voltage
A = 120 V ac
B = 220 V ac
C = 240 V ac
D = 100 V ac

Supply Frequency
5 = 50 Hz
6 = 60 Hz

Optional Selection
−L = Three alarm lamps, externally operated

Examples: E27R−S1RA6, E27R−S3RC5−L

[a]Refer to Optional Features section for a 2-pen recorder with red and blue pens

PHYSICAL SPECIFICATIONS

Enclosure Zinc-coated carbon steel with a gray enamel finish.

Front Door Hinged at bottom to provide access to chart and pens. Lens material is transparent molded polycarbonate.

Left-Side Access Cover Sliding cover provides access to internal parts. Cover material is transparent molded polycarbonate.

Right-Side Calibration Door Hinged at bottom to provide access to internal parts and adjustments. Material is gray molded polypropylene.

Right-Side Access Cover and Left-Side Power Supply Access Cover Removable covers which provide access to internal parts, including power supply assembly and transformer. Material is zinc-coated carbon steel with a gray enamel finish.

Data Label Aluminum data label fastened to top of instrument with pressure sensitive adhesive. Includes space for user tag data up to a maximum of 51 characters and spaces. For additional space, see Optional Customer Tag.

Instrument Mounting Up to four instruments can be mounted in a Foxboro 101 Series Shelf (206 mm high by 544 mm deep [8.1 by 21.4 in]). And up to ten instruments can be mounted in a Foxboro 202S Series Shelf (206 mm high by 660 mm deep [8.1 by 26 in]). The shelf width varies with the quantity of instruments housed. The shelves are designed for flush mounting in instrument panels 3 to 25 mm (1/8 to 1 in) thick. Refer to Dimensional Print (DP) 017-412 and DP 202-100 for detailed shelf dimensions and panel cutout requirements.

Electrical Connectors

ac Power and Ground 3-pin plug recessed in lower rear surface of instrument accommodates a power cord from the rear of the shelf.

Signal 20-pin plug recessed in top rear surface of instrument accommodates a 19-conductor cable from the rear of the shelf.

Approximate Mass (Not including Shelf)

E27R-S1 4.5 kg (10 lb)
E27R-S2 5.0 kg (11 lb)
E27R-S3 5.5 kg (12 lb)

PRODUCT SAFETY SPECIFICATIONS

These instruments have been designed for use in Ordinary Locations, and Class I, Groups A, B, C, and D, Division 2, Hazardous Locations.

OPTIONAL FEATURES

Chart Drives The following optional chart drives are available for either 50 or 60 Hz operation.

Single Speed
5, 10, 40, 80, and 120 mm/h
(0.2, 0.4, 1.6, 3.1, and 4.7 in/h)

Dual Speed
20 mm/h and 20 mm/min (0.8 in/h and 0.8 in/min);
20 mm/h and 40 mm/min (0.8 in/h and 1.6 in/min).

Charts A large selection of standard charts is available. Refer to Foxboro Chart and Dial Catalog 600.

Special Pen Position for 2-Pen Recorder Optionally available is a 2-pen recorder with the red pen in the center position and the blue pen in the outer position. Selectable by specifying Model Number for 2-pen recorder and Auxiliary Specification (AS) SPP.

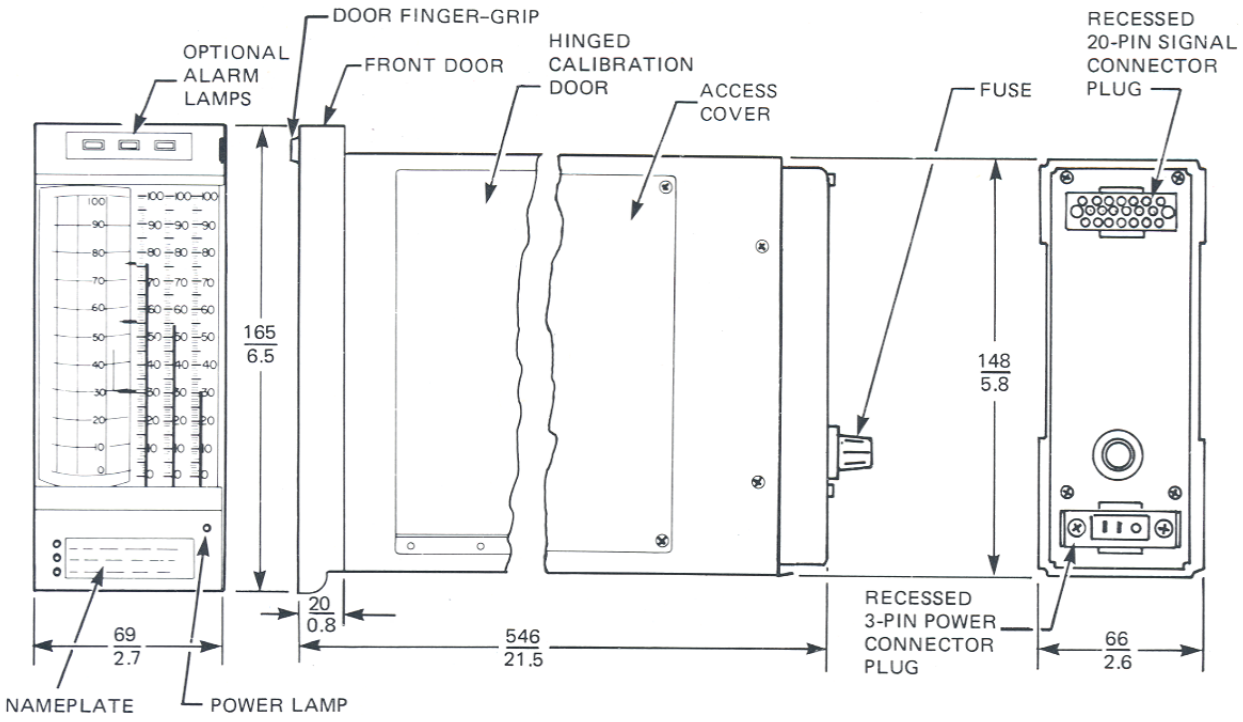
Customer Tag Stainless steel tag attached to recorder for user tag data that doesn't fit on data plates. There can be a maximum of ten lines of data with forty characters and spaces per line.

ORDERING INSTRUCTIONS

1. Model Number
2. Input Signal
3. Chart and Scale Ranges
4. Nameplate Information
5. Optional Features
6. User Tag Data

DIMENSIONS—NOMINAL

mm
in



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MB 010 Printed in U.S.A. 0190