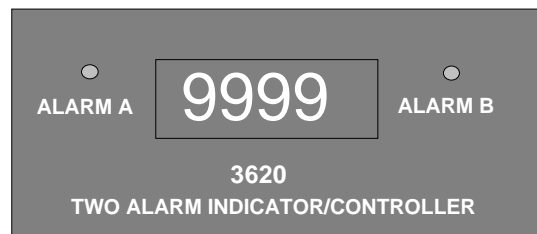
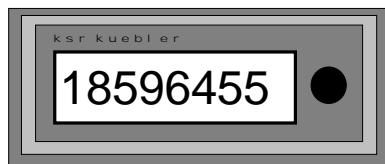
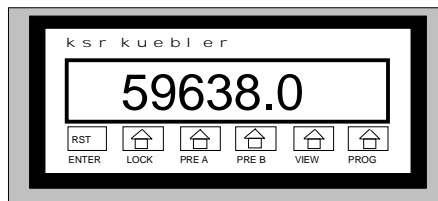
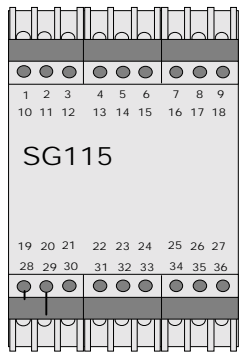
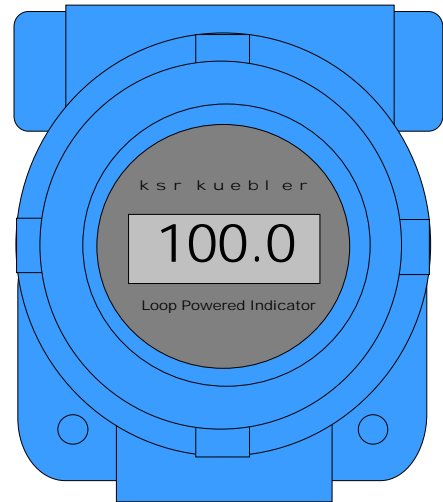
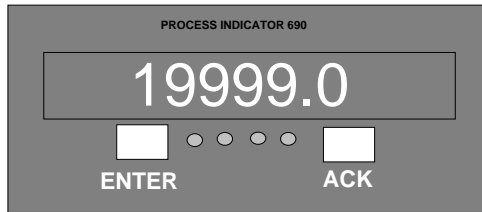
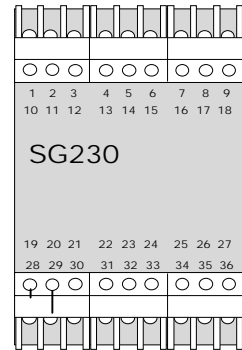
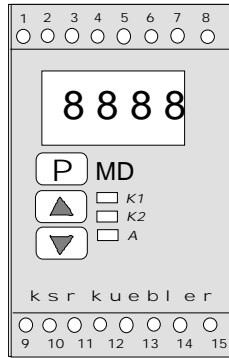
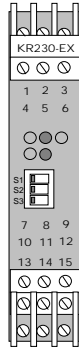
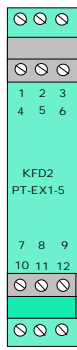


ACCESSORIES FOR KSR KUEBLER PRODUCTS

DISPLAY UNITS - POWER SUPPLIES - CONTROLLERS - RELAYS
PROGRAMMABLE PANEL METERS AND COUNTERS



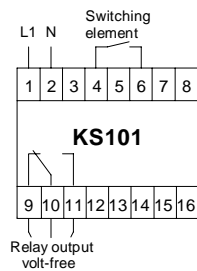
Contact Protection Relays

General Description

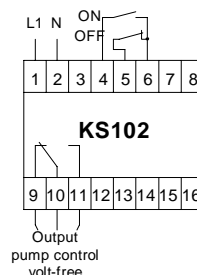
KSR contact protection relays type KS101, KS102 and KS103 use a control circuit with a protective low voltage and transmit binary signals from a switching element (e.g. KSR Kuebler Series “S”, “SS”, “SP” magnetic float switches and catalog series 1008 magnetic proximity switches).

The built-in relays can be used to trigger contactors or other high ampacity inductive load type circuitry without the danger of damaging the switching elements (reed contacts) by current peaks associated with inductive loads. You may group these units together for multiple switching points.

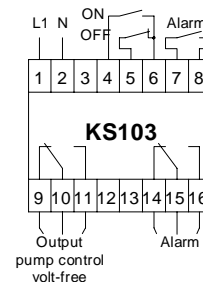
For hazardous applications requiring Intrinsic Safety, use KSR relay model KR230-EX or KR115-Ex found later in this catalog.



Single Relay



Single Relay
Pump Control



Dual Relay
Alarm &
Pump Control

Contact rating AC
Contact rating DC

$U \leq 250V, I \leq 3A, \cos \varphi > 0.7$
 $U \leq 60V, I \leq 0.6A$

KSR Contact Protection Relay Types: KS101, KS102, & KS103 Technical Data & Specifications

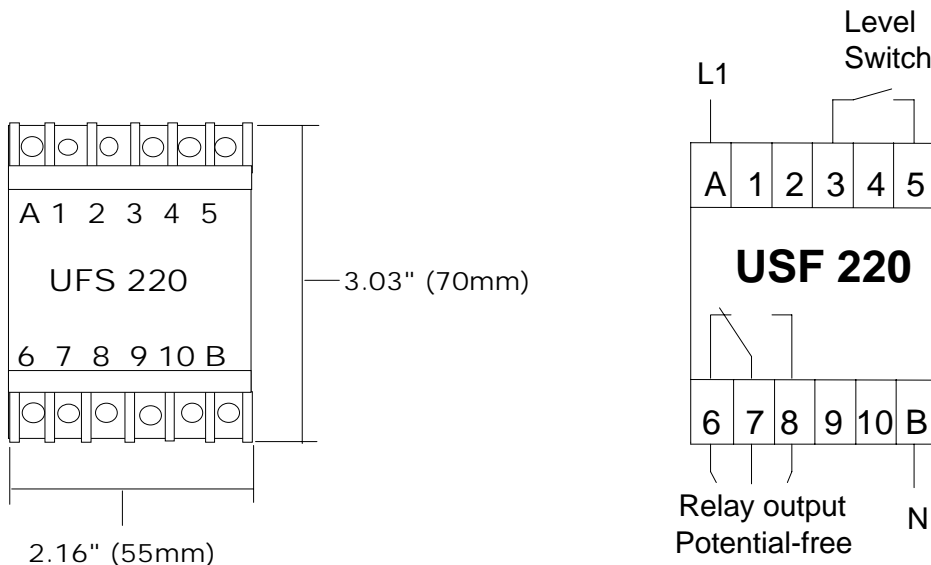
| | |
|------------------------------------|---|
| Power supply | terminal 1 and 2 |
| Supply voltage | optional 24 / 115 / 230V AC 50 ... 60Hz 24V DC |
| Power consumption | approx. 2VA |
| Control circuit | protective low voltage acc. to VDE 0100 |
| Function | |
| KS101 | 1 control circuit (terminal 4 and 6) |
| KS102 | 1 control circuit (terminal 4 and 6) 1 latching circuit (terminal 5 and 6) |
| KS103 | 1 control circuit (terminal 4 and 6) 1 latching circuit (terminal 5 and 6) 1 alarm circuit (terminal 7 and 8) |
| Output | (volt-free) |
| KS101 | 1 relay output (SPDT) terminal 9 , 10 and 11 ON with closed control circuit |
| KS102 | 1 relay output (SPDT) terminal 9 , 10 and 11 ON with closed control circuit OFF with open control and latching circuit |
| KS103 | 1 relay output (SPDT) terminal 9 , 10 and 11 ON with closed control circuit OFF with open control and latching circuit 1 relay output (SPDT) terminal 14 , 15 and 16 ON with closed alarm contact |
| Contact rating AC | U £ 250V, I £ 3A, cos j > 0.7 |
| Contact rating DC | U £ 60V, I £ 0.6A |
| Switching status indication | 1 LED per relay output |
| Environmental conditions | |
| Operating temperature | -20°C ... +60°C |
| Protection class | housing IP 40 terminal IP 20 |
| Mechanical Data | |
| Design | housing Makrolon 8020, UL94:V - 1, light grey terminals Makrolon 2800, UL94: V - 2, black |
| Mounting | clipping onto 35mm standard rail to DIN EN 50022 or by screws |
| Weight | 280g KS101, KS102 300g KS103 |

TRIP AMPLIFIER TYPE USF110
6 Amps @ 230 VAC /1300VA Heavy Duty Booster Relay

General Description

KSR trip amplifier relay type USF110 uses a control circuit with a protective low voltage to transmit binary signals from a switching element (e.g. KSR Kuebler Series “S”, “SS”, “SP” magnetic float switches and catalog series 1008 magnetic proximity switches.

The built-in relay is used to trigger contactors or other high ampacity inductive load type circuitry without the danger of damaging the switching elements (reed contacts) by current peaks associated with inductive loads. The control circuit of the trip amplifier is a protected low voltage of <30V and <30mA, inductance free. You may group these units together for multiple switching points.



Wiring Diagram

Contact Rating

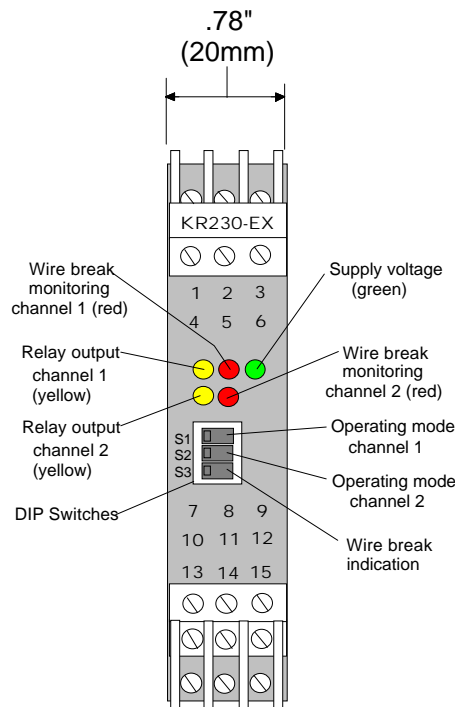
6 Amps @ 230 Volts / 1300VA
 Potential Free Contacts
 Form - SPDT

KSR TRIP AMPLIFIER TYPE USF110 SPECIFICATIONS

| | |
|--|---|
| Power supply | terminal A and B |
| Supply voltage | optional 24 / 115 / 230V AC 50 ... 60Hz |
| Power consumption | approximately 2VA |
| Control circuit (To KSR Switch) | Voltage less than 30 Volts Current less than 30mA Inductance Free |
| Output | 1 Realy Output, SPDT Terminal 6,7, & 8 6 Amps @ 230 VAC, 1300 VA, Potential Free |
| Environmental conditions | |
| Operating temperature | -20°C ... +60°C |
| Protection class | housing IP 20 |
| Mechanical Data | |
| Design | ABS Plastic |
| Mounting | clipping onto 35mm standard rail or by screws |
| Weight | Approx. 280 grams |

KR24-EX KSR Dual Channel -Intrinsically Safe Contact Protection Relay (Switch Current Booster Relay)

- ◆ Intrinsically safe sensor circuit
- ◆ Dual Channels
- ◆ 2 amps @ 230 VAC
- ◆ Switch status indication
- ◆ Wire Break Monitoring
- ◆ Use with all switches
- ◆ Reversible switch action



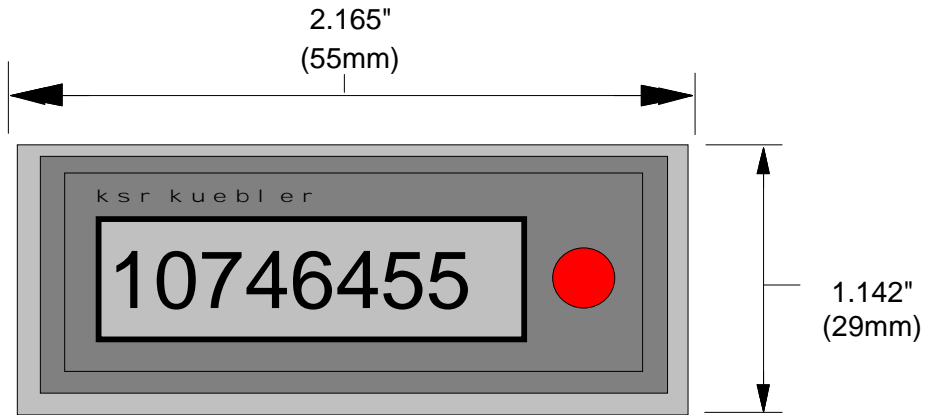
KSR Contact Protection Relay

| Technical Data | |
|---|---|
| Power Supply Req'd (terminals 14 & 15) Input voltage Power consumption | Model KR120 - 120VAC 47-66Hz Model KR230 - 230VAC 47-66Hz Approx. 1.3W |
| Inputs (terminal 1+, 3-; 4+, 5-) Intrinsically safe (from KSR switch) Open circuit voltage U_{AO} Short circuit current I_{AK} Switch point within range I_H Switching hysteresis I_H Wire break | Approx. 8 VDC Approx. 8mA 1.2mA to 2.1mA Approx. .2mA Break at <0.1mA, short circuit >6mA |
| Output s (terminals 7, 8, 9, 10, 11, & 12) Contact Rating AC Contact Rating DC Change over time | Not intrinsically safe, 1 SPDT relay, potential free. 253VAC / 2Amp 30VDC / 2A / resistive load Approx. 20mS |
| Galvanic Isolation | Yes |
| Environmental Conditions | -20°F to + 122°F (-20C to + 50C) |
| Dimensions | 2.36"W X 3.64H X 4.53"D (60mmW X 92.5mmH X 115mm D) |
| Housing Protection Class | IP 20 (Indoor Dry Locations) |
| Mounting Style | 35mm DIN or Integral Screw Mounting Tabs Standard |

KSR Battery Powered Add-Subtract Counter-Indicator Model KAL1AS

This meter is used with KSR Kuebler magnetic switches found in Catalog 1008.

- ◆ UL, CSA Listed
- ◆ 10 Year Lithium battery
- ◆ 8 Digits Standard
- ◆ Meets NEMA 4X
- ◆ 10kHz Count Speed
- ◆ Add and Subtract Counter
- ◆ Use with all KSR Magnetic switches
- ◆ Reset Button
- ◆ Panel mounting



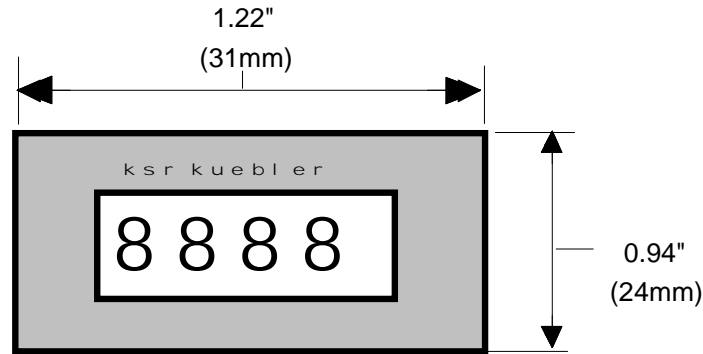
Model KAL1AS

Replace troublesome mechanical counters with this battery powered unit

| | | | |
|--------------------------|---|------------------------------|---|
| Technical Data | | | |
| Power | Internal lithium battery 10 year calculated battery life | Input Types | All contact closure devices found in KSR Catalog 1008 plus TTL/CMOS |
| Display Type | Resettable 8 digit black LCD | Display Action | Count up or down |
| Display Range | 0 to 99999999 counts | Display Size | 0.315" |
| Update Time | Up to 10kHz | Display Reset | Front panel push button or remote |
| Housing Rating(s) | (Front Panel) NEMA 4X & IP65 | Operating Temperature | -20° to + 122°F (-20 to + 70C) |
| Housing Type | 1/8 DIN | Housing Material | Hi Impact ABS |

KSR Battery Powered Micro-Counter-LCD Indicator Model Micro KAL
 This meter is used with KSR Kuebler magnetic switches found in Catalog 1008.

- ◆ LOW COST Counter
- ◆ 3 Year 1.5V Button Battery
- ◆ 4 Digits Standard
- ◆ 9999 Rollover to 0
- ◆ IP40/DIN 40050 Housing
- ◆ 18Hz Count Speed
- ◆ Use with all KSR Magnetic switches
- ◆ Reset on Battery Insertion
- ◆ Panel mounting

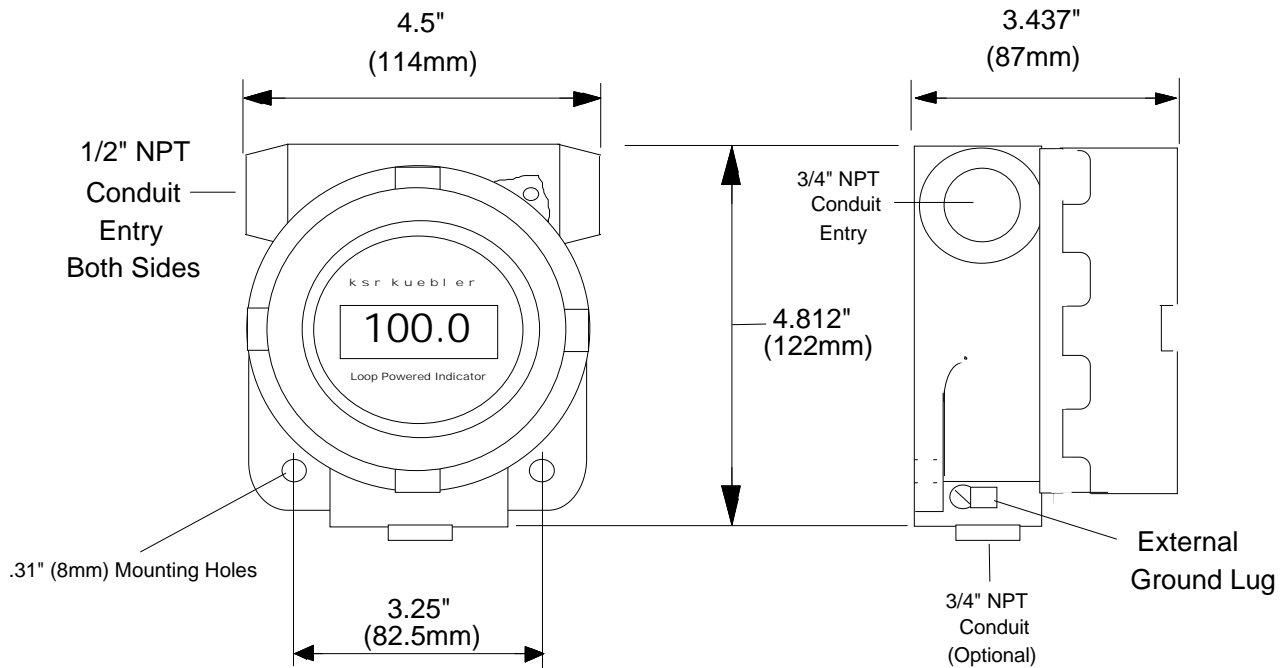


Model Micro KAL

Replace troublesome mechanical counters with this battery powered unit

| | | | |
|--------------------------|--|------------------------------|---|
| Technical Data | | | |
| Power | Internal Button battery 3 to 4 year calculated battery life | Input Types | All contact opening devices & those found in KSR Catalog 1008 |
| Display Type | non-resetable 4 digit black LCD | Display Action | Count up |
| Display Range | 0 to 9999 counts | Display Size | 0.24" (6mm) |
| Update Time | Up to 18Hz | Display Reset | On Battery Insertion |
| Housing Rating(s) | IP40 | Operating Temperature | +32°F to + 122°F (-0°C to + 50°C) |
| Housing Type | Panel | Housing Material | Clear Poly-Carb Bezel Hi Impact ABS |

KSR Loop Powered Indicator Model LPIX-3XP



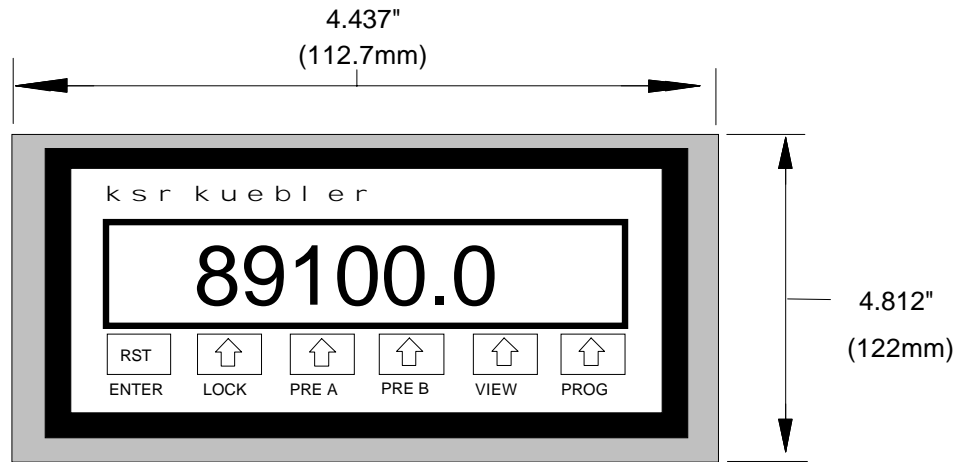
KSR Kuebler Model LPIX-18XP (Cl. 1, Div. 1, Gr B)

24 VDC, Loop Powered, 3 - 1/2 Digit LCD, 1/2" Digits

Factory Mutual Explosion Proof & Intrinsically Safe LCD Indicator

| Technical Data | | | |
|---|---|--|---|
| Input Range | 4-20mA | Operating Temperature | -20 to + 70C |
| Voltage Drop | 2.8 V @ 20mA | Sample Rate | 2 per Second |
| Forward Current Overrange | 60mA Max. | Range | -1999 to 1999 |
| Reverse Current Overrange | 60mA Max. | Decimal Point | 3 positions or Absent |
| Display Type | 3 1/2 Digit LCD | Display Action | Direct or Reverse |
| Display Height | 1/2 inch | Accuracy | + - 0.1% of Span |
| Housing Rating(s) | NEMA 7/9 & 4X | Other | Display is rotatable |
| Hazardous Location Ratings Explosion Proof Factory Mutual Approved | Class 1, Div 1, Gr B, C, & D, Class 2, Grps E, F, & G. | Hazardous Location Ratings Intrinsically Safe Factory Mutual Approved | Class 1, Div 1, Gr B, C, & D, Class 2, Grps E, F, & G. |

120 or 220 VAC & 24 VDC Powered Indicator Model INT-69



Model Int 69

120/220 VAC or 24 VDC Input Voltage

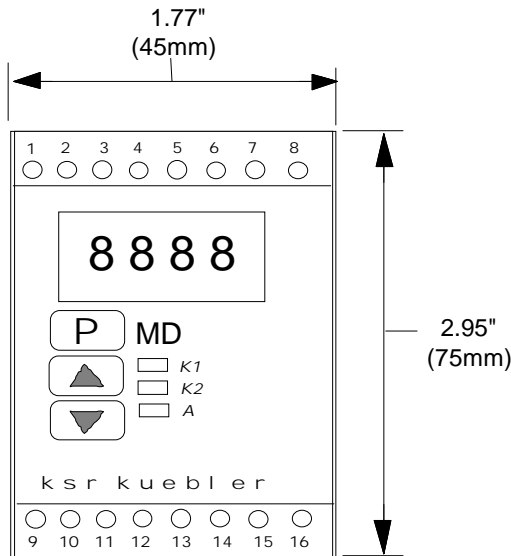
LED Indicator w/ 2 SPDT Control Relays

| Technical Data | | | |
|--|---|---------------------------------------|---|
| Input Voltage | 110, 220 VAC/60Hz 12-24 VDC | Current Maximum | 300mA (DC powered) 8.0VA (AC models) |
| Output Power (On board power supply) | +24 VDC @ 50mA (Avail. std. in AC pwr. units only) | Optional Output | 4-20mA |
| Input Types | 4-20mA, 0-20mA, 0-5VDC, 0-10VDC, or 1-5VDC user selectable | Operating Temperature | -20 to + 70C |
| Range | 0 to 59999 units | Decimal Point | User programmable |
| Update Time | 5 times per second | Control Relays | std. 2 each, programmable |
| Overcurrent Protection Overvoltage Protection | 50mA Max. 50 Volts | Control Relay Type/ Rating | Form C SPDT, 5 Amp @ 110/240 VAC, 28 VDC |
| Display Type | 6 digit orange-red LED | Display Action | Direct or Reverse |
| Display Height | .55 inch | Accuracy | + - 0.25% Worst |
| Housing Rating(s) | (Front Panel) NEMA 4X & IP65 | Other | |
| Housing Type | 1/8 DIN | Housing Material | Hi Impact ABS |

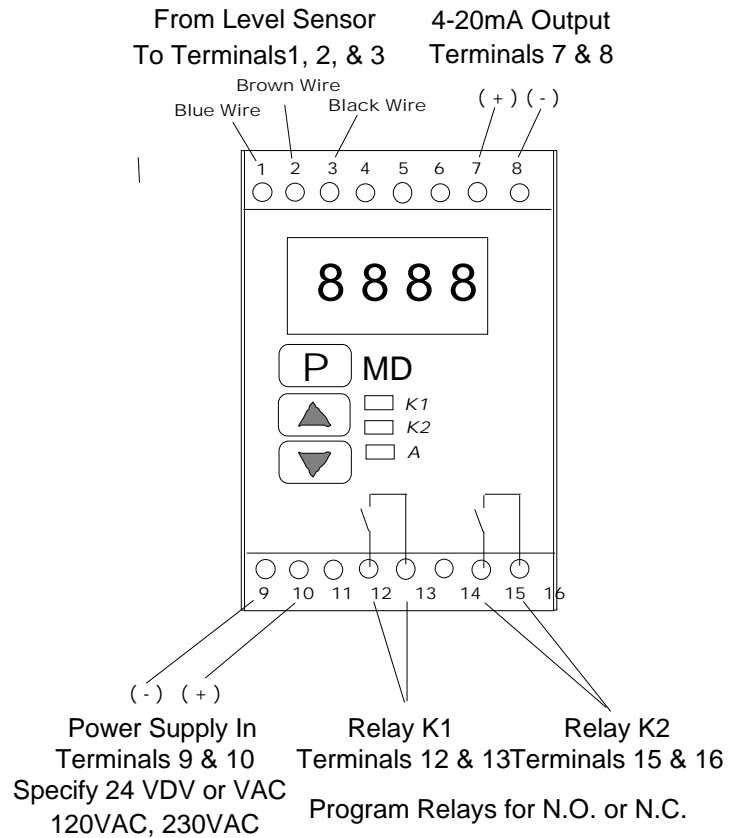
KSR Control Unit Type MD

Accepts KSR Direct Sensor Input

Current & Voltage Output Options Plus Relays & Display

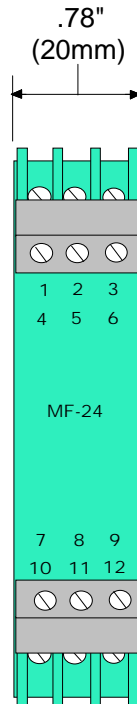


2 Programmable Relays
8 Amp / 500VA



| Technical Data | |
|--|---|
| Input Voltage | 24/115/230 VAC, 48 to 62 Hz |
| Input Terminal Overall Resistance 1, 2, & 3 | 1 K Ohm to 100K Ohm |
| Output terminal 7 & 8 (Current) Output terminal 7 & 8 (Voltage) | 0mA to 20mA or 4mA to 20mA 0V to 10VDC or 2VDC to 10 VDC |
| Relay Rating | 2 each, 8 amp @ 230 VAC, 500 VA |
| Relay Hysteresis | Programmable |
| Environmental Conditions | -20F to + 122F -20C to + 50C |
| Housing Protection Class | IP 40 (Terminals - IP20) |
| Mounting Style | 35mm DIN or Captive Screws Standard |

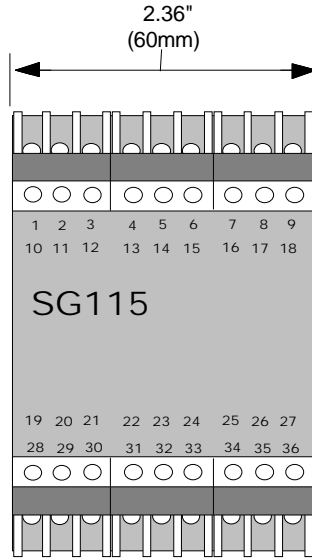
- ◆ Compact housing
- ◆ Easy installation
- ◆ High accuracy (0.05%)
- ◆ Wire Break Monitoring
- ◆ Use with all KSR Transmitters where remote electronics are required
- ◆ 0-10VDC, 2-10VDC, 0-20mA, & 4-20mA outputs are all standard
- ◆ Galvanic isolation on inputs, output, and power supply



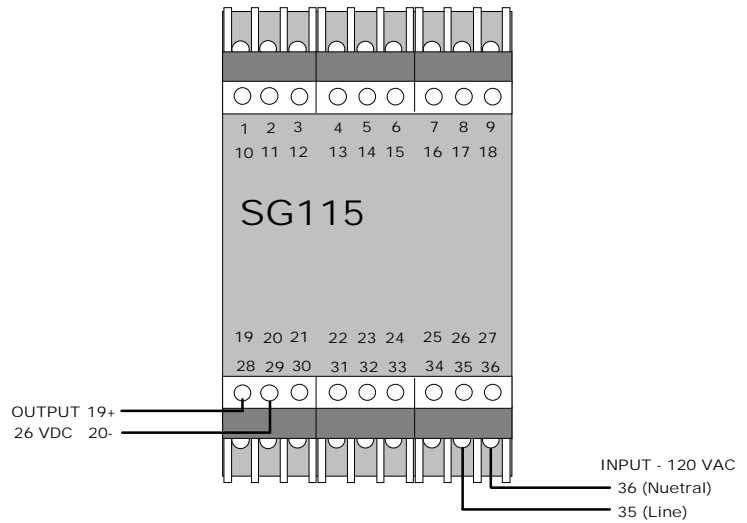
KSR Control Unit Type MF-24

| Technical Data | |
|---|--|
| Input / Supply Voltage (terminal 11+ & 12-) | 20 to 35 VDC |
| Power Consumption | Approx. 0.6W for voltage type output Approx. 1.3W for current type output |
| Output by Model Number Type Voltage and Current Outputs Are Featured | Model MF24-420 = 4-20mA Model MF24-020 = 0-20mA Model MF24-010 = 0-10 VDC Model MF24-210 = 2-10 VDC |
| Performance: Non-Linearity | less than or equal to 5mV (voltage output) less than or equal to 10µA (current output) |
| Load resistance (current output) Output resistance (voltage output) | 1000 Ohm or less 30 Ohm or less |
| Isolation | tested at 2500V |
| Rise Time for 10% / 90% Step | Less than or equal to 8ms |
| Environmental Conditions | -20°F to + 140°F (-20C to + 60C) |
| Dimensions | .78"W X 3.64H X 4.53"D (60mmW X 92.5mmH X 115mm D) |
| Housing Protection Class | IP 20 (Indoor Dry Locations) |
| Mounting Style | 35mm DIN or Extendable Screw Tabs Standard |

KSR 120/220 VAC Input Voltage to 26 VDC 600mA Heavy Duty Power Supply



115 VAC to 26 VDC
230 VAC to 26 VDC
600mA Power Supply

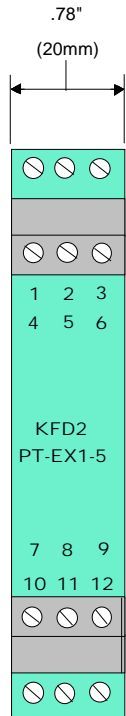


TERMINAL IDENTIFICATION

| | |
|---------------------------------|---|
| Technical Data | |
| Input Voltage | Model SG120 - 120VAC 47-66Hz Model SG230 - 230VAC 47-66Hz |
| Output Voltage | 26 VDC |
| Output Current | 600mA @ 68°F (20C) with linear descent to 450mA @ 122°F (50C) |
| Environmental Conditions | -20F to + 122F -20C to + 50C |
| Dimensions | 2.36" W X 3.64" H X 4.53" D (60mm W X 92.5mm H X 115mm D) |
| Housing Protection Class | IP 20 (Indoor Dry Locations) |
| Mounting Style | 35mm DIN or Captive Screws Standard |

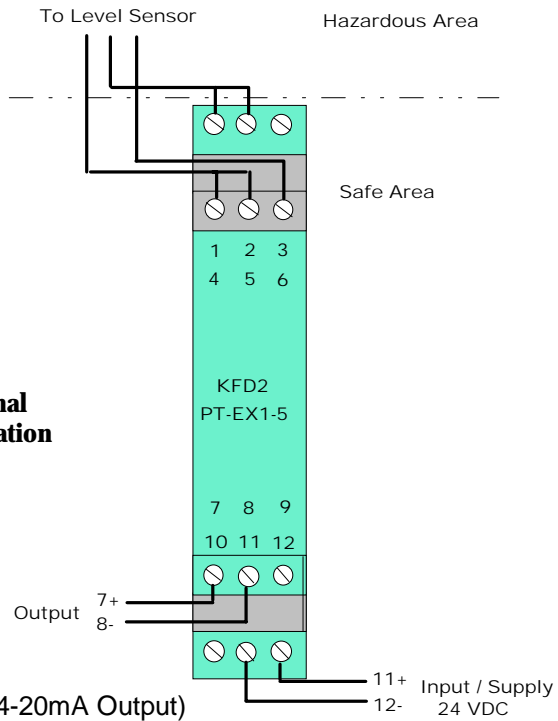
These devices convert the resistance signal from a KSR Kuebler Level Transmitter to a proportional current or voltage output. Select the device that matches your output requirements. These can be used when you select remote electronics on KSR transmitters of all types including the series T, ST, PT, EZR, and BT.

- ◆ Intrinsically Safe
- ◆ Compact housing
- ◆ Easy installation
- ◆ High accuracy (0.05%)
- ◆ Use with all KSR Transmitters where remote electronics are required
- ◆ 0-10VDC, 2-10VDC, 0-20mA, & 4-20mA outputs are all standard
- ◆ Galvanic isolation on inputs, output, and power supply



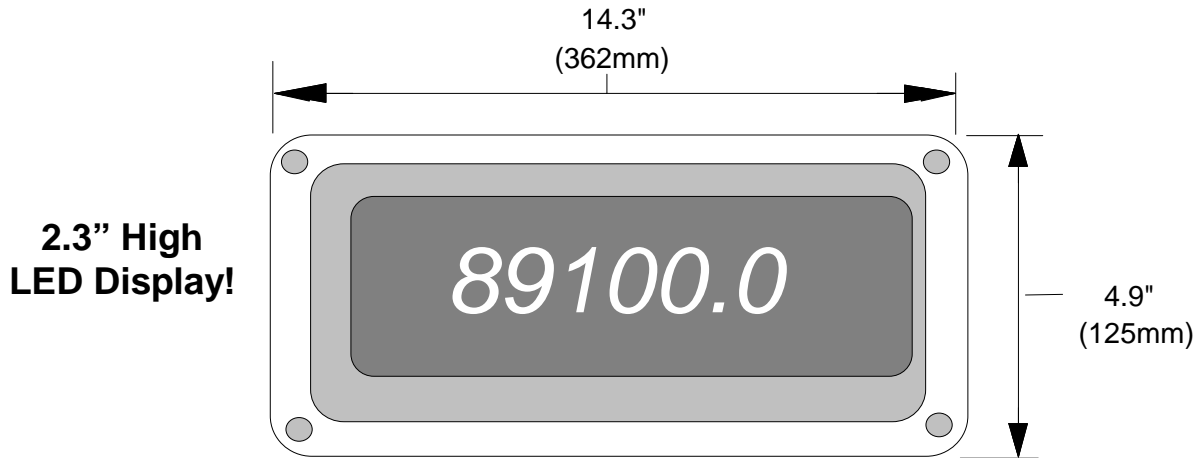
Model KFD2-PT-Ex1-5 (4-20mA Output)

Terminal Identification



| Technical Data | |
|---|--|
| Input / Supply Voltage | 20 to 35 VDC |
| Power Consumption | Approx. 0.6W for voltage type output Approx. 1.3W for current type output |
| Output by Model Number Type | Model KFD2-PT-Ex1-0 = 0-10 VDC Model KFD2-PT-Ex1-2 = 2-10 VDC Model KFD2-PT-Ex1-4 = 0-20mA Model KFD2-PT-Ex1-5 = 4-20mA |
| Voltage and Current Outputs Are Featured | |
| Performance: Non-Linearity | less than or equal to 5mV (voltage output) less than or equal to 10µA (current output) |
| Rise Time for 10% / 90% Step | Less than or equal to 25ms |
| Galvanic Separation | Input/Output, Input/Supply, & Output/Supply |
| Environmental Conditions | -20°F to + 122°F (-20C to + 50C) |
| Dimensions | 2.36" W X 3.64" H X 4.53" D (60mm W X 92.5mm H X 115mm D) |
| Housing Protection Class | IP 20 (Indoor Dry Locations) |
| Mounting Style | 35mm DIN or Extendable Screw Tabs Standard |

Jumbo Display Process Indicator Model 650



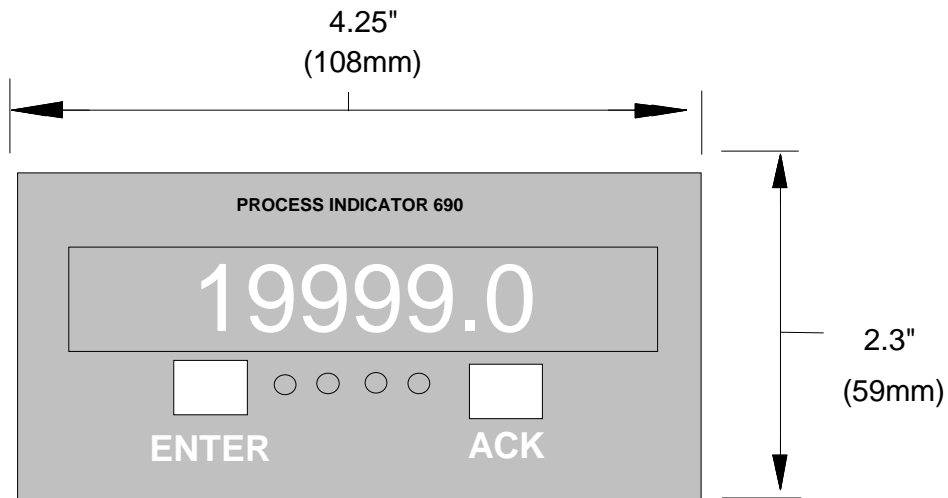
JUMBO LED DISPLAY Model 650

120/220 VAC or 24 VDC Input Voltage

2 OR 4 RELAYS & 4-20mA Output Options

| Technical Data | | | |
|--|---|---------------------------------------|---|
| Input Voltage | 110, 220 VAC/60Hz 12-24 VDC | Current Maximum | 12W (DC powered) 12VA (AC models) |
| Output Power (On board power supply) | 2 X +24 VDC @ 50mA (Avail. std. in AC pwr. units only) | Optional Output | 4-20mA |
| Input Types | 4-20mA, 0-5VDC, 0-10VDC, or 1-5VDC user selectable | Operating Temperature | -20 to + 65C |
| Optional Output | 4-20mA | Linearization | Optional 11 Point table |
| Range | 0 to 999999 units | Decimal Point | User programmable |
| Update Time | 5 times per second | Control Relays | std. 2 each, programmable |
| Overcurrent Protection Overvoltage Protection | 50mA Max. 50 Volts | Control Relay Type/ Rating | Form C SPDT, 2 Amp @ 110/240 VAC, 28 VDC |
| Display Type | 6 digit red LED | Display Action | Direct or Reverse |
| Display Height | 2.3" (58mm) LED | Accuracy | + - 0.25% Worst |
| Housing Rating(s) | (Front Panel) NEMA 4X & IP65 | Conduit Entry | 2 X 3/4" NPT |
| Housing Type | NEMA 4X | Housing Material | Die cast Aluminum |

Process Indicator Model 690 1/8 DIN Panel Mount
WITH 4 CONTROL RELAYS, FRONT PANEL ACKNOWLEDGE BUTTON,
1 BUTTON CALIBRATION & SET-UP



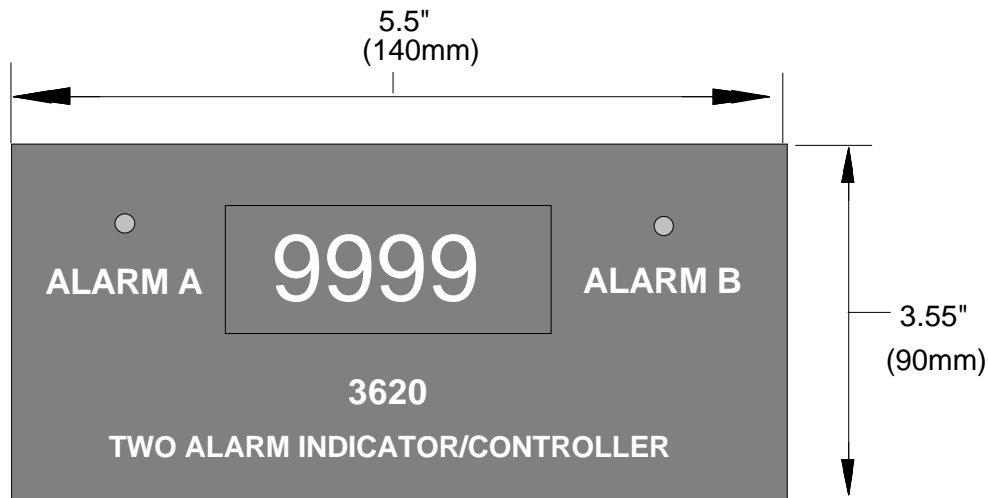
Panel Cut-Out = 1.772" (45mm) x 3.622" (92mm)

Model 690
 120/220 VAC or 24 VDC Supply Voltage
 LED Indicator w/ Up To 4 SPDT Control Relays

| Technical Data | | | |
|---|---|---------------------------------------|--|
| Input Voltage | 110, 220 VAC/60Hz 12-24 VDC | Input Power | 6 W (DC powered) 10VA (AC models) |
| Output Power (On board power supply) | +24 VDC @ 50mA (Avail. std. in AC pwr. units only) | Optional Output | 4-20mA |
| Input Types | 4-20mA, 0-20mA, 0-5VDC, 0-10VDC, or 1-5VDC user selectable | Operating Temperature | -20 to + 70C |
| Digits | 4 1/2 + Extra Zero +-19,999(0) | Decimal Point | User programmable |
| Control Relays | std. 2 each, programmable 0-100% Deadband Programmable | Control Relay Type/ Rating | Form C SPDT, 2 Amp @ 110/240 VAC, 30 VDC Non-Inductive |
| Display Type | 6 digit orange-red LED Green LED Display Optional | Display Action | Direct or Reverse |
| Display Height | .56 inch (14.2mm) | Accuracy | + - 0.05% Span, +- 1 Count |
| Housing Rating(s) | (Front Panel) NEMA 4X & IP65 | Other | Panel Mount |
| Housing Type | 1/8 DIN | Housing Material | Hi Impact ABS |

Process Indicator Model 3620 Wall or Panel Mount

With 2 - 10 Amp Control Relays and 2 Integral Alarm Indicators and 24 VDC Supply for Loop Powered Transmitters



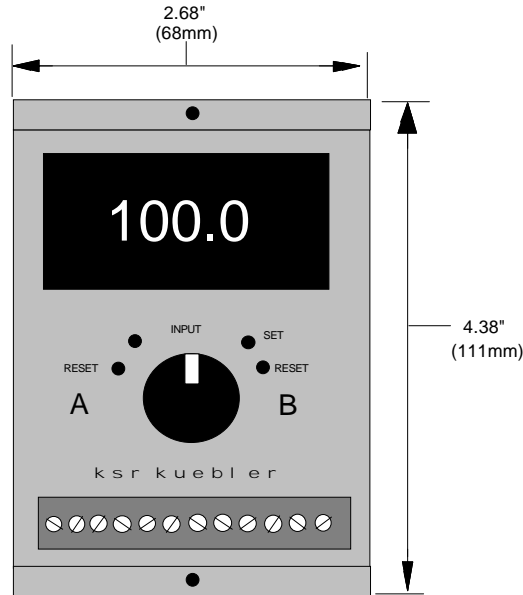
Panel Mount Cut-Out =5.22"W (80mm) x 3.15"H (80mm)

Model 3620

120/220 VAC or 10 - 24 VDC Supply Voltage
LED Indicator w/ 2 SPDT 10 Amp Control Relays

| Technical Data | | | |
|---|---|---------------------------------------|---|
| Input Voltage | 110, 220 VAC/60Hz Optional 10-24 VDC | Input Power | 1.5 W (DC powered) <5VA (AC models) |
| Output Power (On board power supply) | +24 VDC @ 40mA | Optional Output | 4-20mA |
| Input Types | 4-20mA, 0-20mA, 0-5VDC, 0-10VDC, or 1-5VDC user selectable | Operating Temperature | -20 to + 70C |
| Digits | 4 --9,999 | Decimal Point | User programmable |
| Control Relays | std. 2 each, programmable 0-100% Deadband Programmable | Control Relay Type/ Rating | Form C SPDT, 10 Amp @ 110/240 VAC, 8 Amps 250 VDC |
| Display Type | 4 digit red LED | Display Action | Direct or Reverse |
| Display Height | .54 inch (13.7mm) | Accuracy | + - 0.05% Span, +- 1 Count |
| Housing Rating(s) | NEMA 4X & IP65 | Housing Material | Panel Mount |

120 VAC, 24 VDC Powered -ALARM CONTROLLER Model 322



\$359.00

120/220 VAC or 24 VDC Input Voltage
LED Indicator w/ 2DPDT Control Relays

Model 322

| Technical Data | Panel Mount - Model 322P | Wall Mount Model 322W (shown) | |
|---|--|---|---|
| Input Voltage | 110, 220 VAC/60Hz 12-24 VDC | Output Power (On board power supply) | +24 VDC @ 50mA (Avail. std. in AC pwr. units only) |
| Input Types | 4-20mA @ 24 VDC | Display Type | 7 Segment 3.5 Digit Backlit LCD |
| Display Range | 0 to 199.9 | Display Height | .5 inch |
| Repeatability | 0.1% Span | Control Relays | std. 2 each, programmable |
| Display Accuracy | ± 2 Counts | Control Relay Type/Rating | Form C SPDT, 10 Amp @ 110/240 VAC, 28 VDC |
| Mechanical Life | 20MM Operations | Electrical Life | 100K Operations |
| Deadband | -5% to 105% Adjustable | Deadband Adjustment | 10 Turn Pots |
| Housing Rating(s) | Indoor - Dry Location | Accuracy | + - 0.25% Worst |
| Housing Type | Panel or Wall Mount- Enamel over Steel - Indoor - Dry Location | Operating Temperature | -0C to + 60C |
| Optional Explosion Proof Housing | Factory Mutual Approved | Optional Housing Mounting | Wall Mounting Lugs |