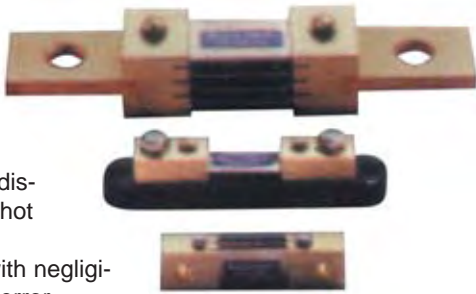


TRANSFORMERS

Shunts

- Available in 50 mV, 100 mV drop or to your specifications
- Uniform current distribution without hot spots
- High accuracy with negligible temperature error



ITM supplies all standard shunt dimensions and ranges, in the most popular style series (A, B, C, and E shunts), with input current ranges from 1 to 30,000 amps

ITI Current and Potential Transformers

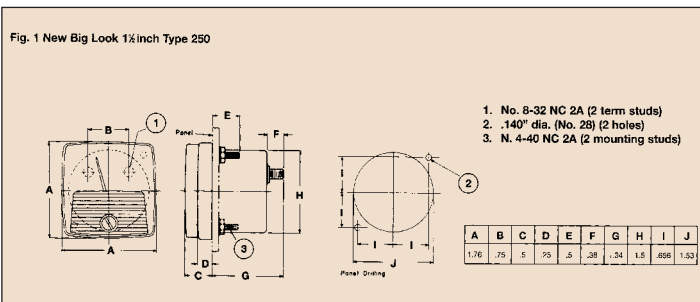
Instrument Transformers Inc. are the leading manufacturers of high precision instrumentation transformers. You can choose from an extensive range of CT's, PT's, metering class, relay class and revenue billing approved transformers. And are available in insulation class of up to 37.5 kV and with an accuracy up to 0.035%.



PANEL METERS



Dimensions:



Specifications

Accuracy:

All DC and AC iron-vane; $\pm 2\%$ of full-scale, AC rectifier type; $\pm 3\%$ of full scale (with 60 Hz sine wave at 25°C). When standard 60 Hz iron vane ammeters are used at the extreme limits of 25 or 400 Hz, additional error (approx. .75%) may be experienced. Expanded-scale voltmeters; $\pm 5\%$ of full scale value

Ansi Specifications:

All meters meet ANSI Specification C-39.1

Overload:

Voltmeters (AC and DC) - 50% momentary, 20% sustained. Ammeters (AC and DC) momentary; 10 times the rated current for 10 consecutive intervals of .5 second with a 1 minute interval between successive application; sustained: 20% for six hours.

Scale Data:

90 degree rotation

Scale Length:

Size	New Big Look
1 1/2"	1.40"
2 1/2"	2.06"
3 1/2"	2.88"
4 1/2"	3.93"

Insulation Level:

All meters (except 1 1/2"), 2600 Vrms Hi-pot, 1 1/2" - 1500 Vrms Hi-pot

Burden Data:

AC ammeter-5 amps, 0.5 va max. 0.5 power-factor lagging,

@60 Hz. AC Voltmeter-unity power factor.

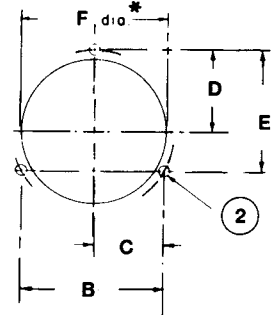
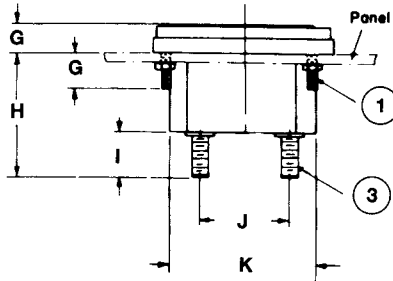
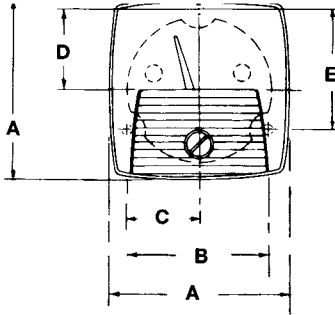
Response Time and Overshoot:

Response time: 3 seconds (max.) for 2 1/2", 3 1/2", 4 1/2" size for microammeters; 2 seconds (max.) for all other DC ratings, and 2.5 seconds (max.) for AC ratings, Maximum of 40% overshoot

PANEL METERS

Dimensions:

Fig. 2. New Big Look 2½-inch Types 250 & 254
*2.270 dia. with shield

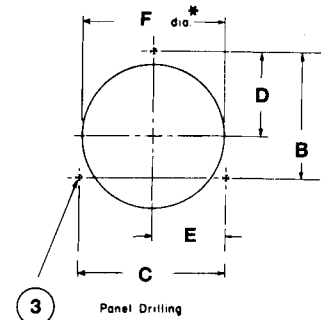
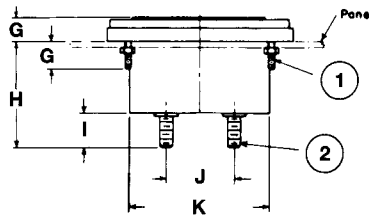
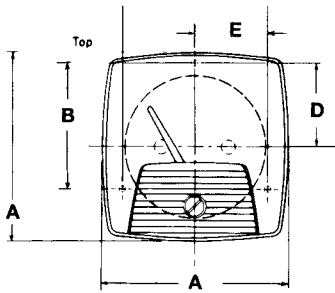


el Drilling

A	B	C	D	E	F*	G	H	I	J	K
2.69	2.112	1.056	1.219	1.829	2.17	.5	1.85	.67	1.318	2.15

1. No. 4-40 NC 2A (3 Studs)
2. .140" dia. (No. 28) (3 holes)
3. 1/4" -28 NF 2A thd.

Fig. 3. New Big Look 3½-inch Types 250 & 254
*2.860 dia. with shield

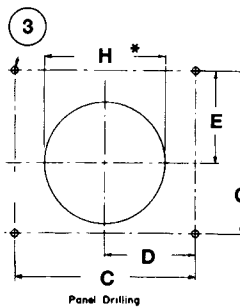
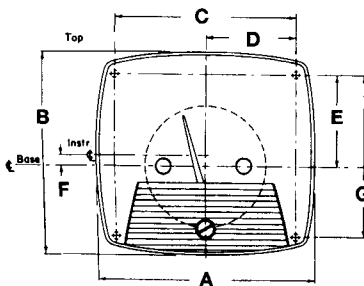


Panel Drilling

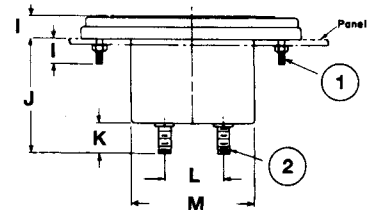
A	B	C	D	E	F*	G	H	I	J	K
3.5	2.373	2.74	1.582	1.37	2.72	.5	1.85	.64	1.318	2.7

1. No. 4-40 NC 2A (3 Studs)
2. 1/4" - 28 NF 2A thd.
3. .140" dia. (No. 28 dr.) (3 holes)

Fig. 4. New Big Look 4½-inch Types 250 & 254
*2.860 dia. with shield



Panel Drilling



A	B	C	D	E	F	G	H*	I	J	K	L	M
4.85	4.41	4	2	2.031	.25	3.562	2.72	.5	1.85	.64	1.318	2.7

1. No. 4-40 NC 2A (4 Studs)
2. 1/4" - 28 NF 2A thd.
3. .140" dia. (No. 28 dr.) (4 holes)

PANEL METERS

Wide-Vue Series Analog Panel Meters AC and DC Meters

DC Voltmeters w/ Self-Shielding Meter Movement				
Type	Type		Type	Type
1227 2-1/2"	1327 3-1/2"		1227 2-1/2"	1327 3-1/2"
Model	Model	Range	Price	Price
09560	09740	0-10	\$142.00	\$144.00
09570	09750	0-15	\$142.00	\$144.00
09580	09760	0-25	\$142.00	\$144.00
09590	09770	0-30	\$142.00	\$144.00
09600	09780	0-50	\$142.00	\$144.00
09610	09790	0-100	\$142.00	\$144.00
09620	09800	0-150	\$142.00	\$144.00
09640	09840	0-500	\$146.00	\$151.00

DC Ammeters w/ Self-Shielding Meter Movement				
Model	Model	Range	Price	Price
02440	02640	0-1	\$135.00	\$142.00
02450	02650	0-1.5	\$135.00	\$142.00
02460	02660	0-2	\$135.00	\$142.00
02470	02670	0-3	\$135.00	\$142.00
02480	02680	0-5	\$135.00	\$142.00
02490	02690	0-10	\$135.00	\$142.00
02500	02700	0-15	\$135.00	\$142.00
02510	02710	0-25	\$135.00	\$142.00
02520	02720	0-30	\$135.00	\$142.00
02530	02730	0-50	\$135.00	\$142.00
02540	02740	0-100*	\$135.00	\$142.00
02552	02760	0-200*	\$135.00	\$142.00
02554	02770	0-300*	\$135.00	\$142.00

*Requires external shunt. Order separately below.

DC Milliammeters w/ Self-Shielding Meter Movement				
Model	Model	Range	Price	Price
06175	06310	0-1	\$134.00	\$136.00
06180	06320	0-3	\$134.00	\$136.00
06190	06330	0-5	\$134.00	\$136.00
06210	06350	0-15	\$134.00	\$136.00
06215	06360	0-20	\$134.00	\$136.00
06220	06370	0-25	\$135.00	\$142.00
06230	06380	0-50	\$135.00	\$142.00
06240	06390	0-100	\$135.00	\$142.00
06260	06410	0-200	\$135.00	\$142.00
06270	06420	0-250	\$135.00	\$142.00
06280	06430	0-300	\$135.00	\$142.00
06290	06440	0-500	\$135.00	\$142.00

DC Microammeters w/ Self-Shielding Meter Movement				
Model	Model	Range	Price	Price
04310	04380	0-50	\$170.00	\$173.00
04320	04390	0-100	\$154.00	\$159.00
04330	04400	0-200	\$140.00	\$146.00
-	04420	25-0-25	-	\$175.00
04350	04430	50-0-50	\$156.00	\$160.00
04351	04440	100-0-100	\$142.00	\$147.00



Features:

- Clear acrylic window for wide angle visibility
- Rugged black phenolic case
- Black spade pointer for easy distant reading
- UL recognized
- Additional ranges available. Contact ITM Instruments Inc.

Taut Baud DC Microammeters w/Self-Shielding Meter Movement				
Type	Type		Type	Type
1227T 2-1/2"	1327T 3-1/2"		1227T 2-1/2"	1327T 3-1/2"
Model	Model	Range	Price	Price
04303	04359	0-10	\$268.00	\$334.00
04306	04371	0-25	\$234.00	\$245.00
04321	04391	0-100	\$168.00	\$174.00

AC Voltmeters w/ Iron Van Meter Movement				
Type	Type		Type	Type
1257 2-1/2"	1357 3-1/2"		1257 2-1/2"	1357 3-1/2"
Model	Model	Range	Price	Price
09670	10170	0-10	\$135.00	\$140.00
09680	10190	0-25	\$135.00	\$140.00
09700	10220	0-150	\$135.00	\$167.00
09710	10240	0-300	\$135.00	\$167.00
09715	10250	0-500††	\$175.00	\$444.00

AC Ammeters with Iron Vane Meter Movement				
Model	Model	Range	Price	Price
02560	03130	0-1	\$124.00	\$132.00
02575	03160	0-3	\$124.00	\$132.00
02580	03170	0-5	\$124.00	\$132.00
02590	03180	0-10	\$124.00	\$132.00
-	35073	0-10+	-	\$132.00
02599	03190	0-15	\$124.00	\$132.00
02609	03200	0-25	\$129.00	\$136.00
02615	03205	0-30	\$129.00	\$136.00
-	35075	0-50†	-	\$132.00
02622	03220	0-100†	\$124.00	\$132.00
02626	03240	0-200†	\$124.00	\$132.00
02627	03250	0-300†	\$124.00	\$132.00

† Requires external current transformer. Order separately below.

†† Furnished with external multiplier

PANEL METER ACCESSORIES

Donut Transformers



Model	Range	Price
01293	50:5	\$54.00
01297	100:5	\$56.00
01299	200:5	\$56.00
01300	300:5	\$56.00

Additional ranges available.

130

Terminal Transformers



Model	Range	Price
37020	100:5	\$49.00
37022	200:5	\$49.00
37023	300:5	\$49.00
37024	500:5	\$49.00

Additional ranges available.

PANEL METERS



Features:

- 3-1/2 (M135) or 4-1/2 (M145) Digit, 0.5" high LCD display
- Optional negative image, bright red backlighting
- 5 VDC power
- Display hold
- User-selectable decimal point
- Two additional power supply alternatives $\pm 5\text{VDC}$ or 9VDC (with low battery indication).

Many other ranges and configurations available.



Features:

- 3-1/2 digit, 0.5" High LCD
- Optional negative image, bright red backlighting
- Standard screw terminals for easy installation
- 85-250 VAC or 9-32 VDC power supply
- User selectable decimal point
- Broad range display scaling for process inputs
- Stackable mounting bracket for easy installation of multiple meters
- Minimum depth indicator. Less than 2.5" (60mm) of space required behind the panel
- Panel cutout: 0.88" x 2.68"; Depth: 2.36"

Mini Series 3/64 DIN Indicators

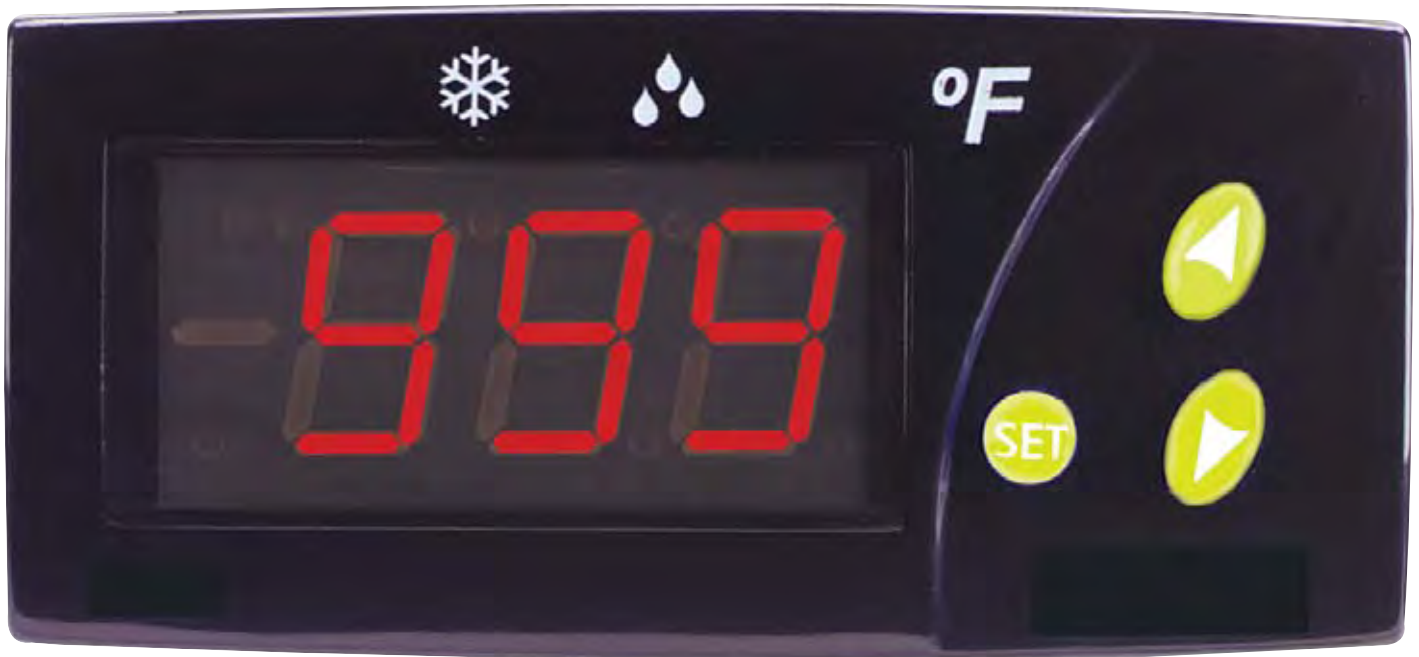
The Mini Indicator provides high quality and reliability in a compact 12mm deep case and fits a standard 3/64 DIN cutout. The Mini features an LCD display with optional image red backlighting. No mounting hardware is needed; the Mini snaps right into the panel. A 12-pin mating connector with 6" lead wires is included.

DC Voltage Indicators			
Model	Description	Display	Price
M135-0-0-11-0	200mV		\$96.00
M135-1-0-11-1	200mV	Negative red backlighting	\$127.00
M135-0-0-12-0	2V		\$96.00
M135-1-0-12-1	2V	Negative red backlighting	\$127.00
M135-0-0-13-0	20V		\$96.00
M135-1-0-13-1	20V	Negative red backlighting	\$127.00
M135-0-0-14-0	200V		\$96.00
M135-1-0-14-1	200V	Negative red backlighting	\$127.00
M145-0-0-11-0	200mV		\$126.00
M145-1-0-11-1	200mV	Negative red backlighting	\$157.00
M145-0-0-12-0	2V		\$126.00
M145-1-0-12-1	2V	Negative red backlighting	\$157.00
M145-0-0-13-0	20V		\$126.00
M145-1-0-13-1	20V	Negative red backlighting	\$157.00
M145-0-0-14-0	200V		\$126.00
M145-1-0-14-1	200V	Negative red backlighting	\$157.00
DC Current Indicators			
M135-0-0-23-0	20mA		\$96.00
M135-1-0-23-1	20mA	Negative red backlighting	\$127.00
M135-0-0-24-0	200mA		\$96.00
M135-1-0-24-1	200mA	Negative red backlighting	\$127.00
M145-0-0-23-0	20mA		\$126.00
M145-1-0-23-1	20mA	Negative red backlighting	\$157.00
M145-0-0-24-0	200mA		\$126.00

Mini-Max Series 3/64 DIN Indicators

Mini-Max Series 3/64 DIN Indicators			
Model	Description	Display	Price
M235-1-0-11-0	200mVDC	Negative red backlighting, 85-250VAC	\$175.00
M235-1-0-13-1	20VDC	Negative red backlighting, 85-250VAC	\$223.00
M235-1-0-14-0	200VDC	Negative red backlighting, 85-250VAC	\$175.00
M235-1-0-71-0	4-20mADC	Negative red backlighting, 85-250VAC	\$199.00
M235-1-0-35-0	750VAC Trms	Negative red backlighting, 85-250VAC	\$231.00
M235-1-0-46-0	5ACC	Negative red backlighting, 85-250VAC	\$231.00
M235-1-0-73-0	0-10VDC	Negative red backlighting, 85-250VAC	\$199.00
M235-0-2-13-0	20VDC	9-32VDC	\$191.00
M235-0-2-35-0	750VAC Trms	9-32VDC	\$247.00

TEMPERATURE CONTROLLERS



Monitor and control temperature in heating and cooling applications with the **Series TCS** Thermocouple Switch. The **Series TCS** offers a wide temperature range, two selectable alarm sets, and an internal buzzer indicating alarm condition or error. The user can define set point, heating/cooling regulation, cycle time, alarm configuration, load status, and ambient probe adjustment. The thermocouple switch features password protection and error/alarm messaging. Temperature and output status is indicated on the bright red LED display. Use the configuration key to quickly program multiple units. The **Series TCS** includes a fitting clip for panel mounting, gasket, rear terminal cover and instruction manual.

Specifications:

Probe Range:	0 to 999°
Accuracy:	±1°F
Resolution:	±1 digit
Display:	3-digit red LED, 1/2" (13mm) high digits
Input:	Type J, K or S thermocouple
Output:	15A relay @ 250VAC resistive
Horsepower Rating:	3/4 HP
Control Type:	On/Off
Memory Backup:	Nonvolatile memory
Power Supply:	110/230 VAC or 12 VDC
Front Panel Rating:	NEMA 4X (IP65)
Weight:	2.3 oz (65 g)

Parameters:

Key	Description	Units	Range
SP	Set point	Degrees	r1 to r2
r0	Differential or hysteresis	Degrees	1 to 99°
r1	Lower value set point	Degrees	0 to 999°
r2	Higher value set point	Degrees	0 to 999°
d0	Heating/cooling control	Option	Ht/Co
c0	Stop time for load	Minutes	0 to 59 min.
c2	Load status during probe error	0/1	On/Off
P1	Ambient probe adjustment	Degrees	-10 to 10
P5	Ambient probe type	Option	J, K or S
H5	Parameter access code	Numeric	0 to 255
A0	Alarm 1 hysteresis	Degrees	1 to 999°
A1	Alarm 1 threshold	Degrees	0 to 999°
A2	Alarm 1 exclusion time	Seconds	0 to 999
A3	Alarm 1 configuration	Option	Off, 1 or 2
A4	Alarm 2 hysteresis	Degrees	1 to 999°
A5	Alarm 2 threshold	Degrees	0 to 999°
A6	Alarm 2 exclusion time	Seconds	0 to 999
A7	Alarm 2 configuration	Option	Off, 1 or 2

Model	Description	Price
TCS-4010	Temperature Switch, Type J, °F, 110V	\$98.00
TCS-4011	Temperature Switch, Type J, °C, 110V	\$98.00
TCS-4020	Temperature Switch, Type J, °F, 230V	\$98.00
TCS-4021	Temperature Switch, Type J, °C, 230V	\$98.00
TCS-4030	Temperature Switch, Type J, °F, 12V AC/DC	\$98.00
TCS-4031	Temperature Switch, Type J, °C, 12V AC/DC	\$98.00
TCS-5010	Temperature Switch, Type K, °F, 110V	\$98.00
TCS-5011	Temperature Switch, Type K, °C, 110V	\$98.00
TCS-5020	Temperature Switch, Type K, °F, 230V	\$98.00
TCS-5021	Temperature Switch, Type K, °C, 230V	\$98.00
TCS-5030	Temperature Switch, Type K, °F, 12V AC/DC	\$98.00
TCS-5031	Temperature Switch, Type K, °C, 12V AC/DC	\$98.00

TEMPERATURE CONTROLLERS



Features:

- 1/4 DIN front panel x 3.94" deep
- Fewer circuit cards
- Faster sampling of input values
- Wide range power supplies
- Optional low voltage supply
- Quick computer configuration with built-in configuration socket and configurator cable and software

Specifications:

INPUTS

Thermocouple Types: J, K, L, T, S, R, B
 RTD: 100Ω (.00385 Ω/Ω/°C)
 DC: 0-50mV, 10-50mV, 0-5V, 1-5V, 0-10V, 2-10V; 0-20mA, 4-20mA

OUTPUTS

Relay: SPDT; 2A resistive (120/240 VAC)
 SSR Driver: >4.2VDC into 1kΩ min.
 Current: 0-20mADC into 500Ω max.; 4-20mADC into 500Ω max.
 Voltage: 0-10VDC into 500Ω min.; 0-5VDC into 500Ω min.

Triac: 1A @ 40°C, derated to 1/2A

CONTROL ADJUSTMENTS

On/Off Hysteresis: 0.1% to 10.0% of input span
 Proportional Band: 0% to 999.9% of input span (0% = On/Off)
 Manual Reset: 0% to 100% of output
 Auto Reset: Off to 99min 59sec per repeat

Rate: 0sec to 99min 59sec
 Cycle Time: .5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512 seconds
 Deadband: -20% to +20% of proportional band 1 + proportional band 2

PERFORMANCE

Accuracy: ±0.25% of span ±1 LSD
 Ambient Temp. Error: 0.01% of span/°C
 Linearization: Better than ±0.2°C on any 0.1°C range; Better than ±0.5°C on any 1°C range
 Cold Junction Comp.: Better than ±0.7°C
 Scan Rate: 4 per second
 Noise Rejection: Common Mode: >120dB; Series Mode: >500% of span

Model	Price
14001004 1 Relay Output	\$600.00
14001104 2 Relay Outputs	\$644.00
14001114 3 Relay Outputs	\$688.00
14001134 2 Relay/4-20mA	\$722.00
14001234 Relay/SSRD/4-20mA	\$722.00
14003000 4-20mA Output	\$650.00
14003004 4-20mA Output	\$650.00
14003104 4-20mA/1 Relay	\$694.00
14003114 4-20mA/2 Relays	



Features:

- RaPID (response assisted PID) enhances the traditional PID function by continuously rebalancing the P, I and D control components on-line
- RaPID controllers react as an event occurs
- Set up the controller in the normal way, then activate the fuzzy logic by pressing two keys on the front
- 96mm x 96mm x 100mm deep

Specifications:

INPUTS

Thermocouple Types: J, K, L, N, T, S, R, B
 RTD: 100Ω (.00385 Ω/Ω/°C)
 DC: 0-50mV, 10-50mV, 0-5V, 1-5V, 0-10V, 2-10V; 0-20mA, 4-20mA

OUTPUTS

Relay: SPDT; 2A resistive at 120/240VAC
 SSR Driver: >4.2VDC into 1kΩ min.
 Current: 0-20mADC into 500Ω max.; 4-20mADC into 500Ω max.
 Voltage: 0-10VDC into 500Ω min.; 0-5VDC into 500Ω min.

Triac: 1A @ 40°C, derated to 1/2A

Outputs 2 & 3

Relay: SPDT; 2A resistive at 120/240VAC
 SSR Driver: >4.2VDC into 1kΩ min.
 Current: 0-20mADC into 500Ω max.; 4-20mADC into 500Ω max.
 Voltage: 0-10VDC into 500Ω min.; 0-5VDC into 500Ω min.
 Triac: 1A @ 40°C, derated to 1/2A
 Transmitter P.S.: 20-28VDC (24VDC nominal); 910Ω (22mA @ 20VDC)

CONTROL ADJUSTMENTS

On/Off Hysteresis: 0.1% to 10.0% of input span
 Proportional Band: 0 (OFF), 0.5% to 999.9% of input span
 Manual Reset: 0% to 100% of output
 Auto Reset: 1sec to 99min 59sec /repeat and OFF
 Rate: 0sec to 99min 59sec
 Cycle Time: .5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512 seconds
 Deadband: -20% to +20% of proportional band 1 + proportional band 2

Model	Price
14201100000 2 Relay Outputs	\$726.00
14201110000 3 Relay Outputs	\$771.00
14201140000 2 Relays/Transmitter	\$830.00
14203000000 4-20mA Output	\$733.00
14203100000 4-20mA/1 Relay	\$778.00



Features:

- Up to 4 programs of 16 free-form segments each
- Includes an event recorder
- Includes RaPID, Response Assisted PID
- RS-485 communications available
- Guaranteed soak, delayed start, profile active output, profile recovery, profile cycling, plus an optional digital input

Specifications:

INPUTS

Thermocouple: Types J, L, K, N, T, S, R, B
 RTD: 3-wire PT100, DIN 43760
 DC: 0-20mA, 4-20mA, 0-50mV, 10-50mV, 0-5V, 1-5V, 0-10V, 2-10V

OUTPUTS

Relay: SPDT rates at 2A resistive at 120/240 VAC
 SSR Driver: >4.3 VDC into 250Ω min.
 DC: 0-20mA, 4-20mA, 0-50mV, 0-5V, 0-10V, 8-bit resolution

CONTROL

Control Types: RaPID, PID, PID/on-off
 Proportional Bands: 0 (OFF), 0.5% - 999.9% of input span (0.1% increments)
 Auto Reset: 1s - 99min 59sec & OFF
 Rate: 0 (OFF) - 99min 59sec
 Manual Reset: Adjustable in the range 0-100% of output power (single output) or -100% to +100% of output power (dual output)
 Deadband: -20% to +20% of proportional band 1 + proportional band 2
 On/Off Hysteresis: 0.1% to 10.0% of input span
 Cycle Times: Selectable from 0.5sec to 512sec in binary steps
 Setpoint Range: Limited by setpoint upper & setpoint lower limits
 Setpoint Ramp: Selectable ramp rate 1-9999 LSDs per hour & infinite

Alarms: Up to 2 outputs can be used for "soft" alarm purposes

PROGRAM/PROFILE

Program: 4 w/16 free-form steps each
 Program Cycling: 1 to 9999 cycles
 Delayed Start & Step Time: 0 to 99:59 hr:min or min:s
 Ramp Rate: 0 to 9999 LSDs/hr or min

Model	Price
11661100 1/16 DIN Profile Controller w/ 2 relay outputs	



Features:

- Adaptive-tune feature provides for better overall "quality control" with accurate "hands-free" tuning
- Choice of full PID, Heat-Cool or dual alarm features
- Unique loop break alarm
- One controller will handle RTD, T/C and analog inputs
- Recorder type analog retransmission
- 1/16 DIN sealed front panel

Specifications:

INPUTS

Thermocouple Types: J, K, L, T, S, R, B
 RTD: 100Ω (.00385 Ω/Ω/°C)
 DC: 0-50mV, 10-50mV, 0-5V, 1-5V, 0-10V, 2-10V; 0-20mA, 4-20mA

OUTPUTS

Relay: SPDT; 2A resistive at 120/240VAC
 SSR Driver: >4.2 VDC into 1kΩ min.
 Current: 0-20mADC into 500Ω max.; 4-20mADC into 500Ω max.
 Voltage: 0-10VDC into 500Ω min.; 0-5VDC into 500Ω min.

Triac: 1A @ 40°C, derated to 1/2A

CONTROL ADJUSTMENTS

On/Off Hysteresis: 0.1% to 10.0% of input span
 Proportional Band: 0% to 999.9% of input span (0% = On/Off)
 Manual Reset: 0% to 100% of output
 Auto Reset: Off to 99min 59sec per repeat
 Rate: 0sec to 99min 59sec
 Cycle Time: .5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512 seconds
 Deadband: -20% to +20% of proportional band 1 + proportional band 2

PERFORMANCE

Accuracy: ±0.25% of span ±1 LSD
 Ambient Temp. Error: 0.01% of span/°C
 Linearization: Better than ±0.2°C on any 0.1°C range; Better than ±0.5°C on any 1°C range
 Cold Junction Comp.: Better than ±0.7°C
 Scan Rate: 4 per second
 Noise Rejection: Common Mode: >120dB; Series Mode: >500% of span

Model	Price
11601004 Relay Output	\$356.00
11601104 2 Relay Outputs	\$400.00
11601114 3 Relay Outputs	\$444.00
11603004 4-20mA Output	\$391.00
11603104 4-20mA/Relay	\$451.00
11601000 Relay (1 display)	\$356.00
11601100 2 Relays (1 display)	\$400.00
11601130 2 Relays/4-20mA	



Features:

- Latched relay output is activated when process parameters either exceed or fall below the desired value
- Can be configured to be either a high limit unit where the relay will de-energize when the PV is above the limit setpoint, or a low limit where the relay will drop out when the PV falls below the setpoint
- LED indication shows when limits have been exceeded and when the relay is latched out
- 1/16 DIN front panel sealed to NEMA4 type/IP65

Specifications:

INPUTS

Thermocouple Types: J, K, L, T, S, R, B
 RTD: 100Ω (.00385 Ω/Ω/°C)
 DC: 0-50mV, 10-50mV, 0-5V, 1-5V, 0-10V, 2-10V; 0-20mA, 4-20mA

Remote Reset: Voltage free contact, closure required to reset

OUTPUTS

Limit Relay: SPDT; 5.0A resistive at 120/ 240 VAC
 Alarm Relay: 2.0A resistive at 120/ 240 VAC
 Retransmit: 0-20mADC into 500Ω; 4-20mADC into 500Ω max.; 0-10 VDC into 500Ω min.; 0-5VDC into 500Ω min.

Resolution: >10 bits in >1000ms

Max/Min Hold: Tracks and saves the maximum (high limit) or minimum (low limit) excursions of the process variable

Time Exceed: Measures the amount of time that the limit is exceeded

PERFORMANCE

Accuracy: ±0.25% of span ±1 LSD
 Ambient Temp. Error: 0.01% of span/°C change in ambient
 Linearization: Better than ±0.2°C on any 0.1°C range; Better than ±0.5°C on any 1°C range
 Cold Junction Comp.: ±0.7°C
 Scan Rate: 4 per second

Model	Price
11611000 1/16 DIN Limit Controller w/ relay output	\$356.00

PANEL METERS



Model DR99ACV



Model DR99ACA

Display	14.3 mm (0.56") high red LED 3 1/2 digits, Max. indication ± 1999	Current Range	199.9 mV, in case of full scale
Model & Range	Model Range DR99DCV 199.9 mV DC , 1.999 DCV, 19.99 DCV 199.9 DCV, 1000 DCV DR99ACV 199.9 mV AC, 1.999 ACV, 19.99 ACV, 199.9 ACV, 750 ACV DR99ACA 199.9 μ A AC, 1.999mA AC, 19.99 mA AC 199.9 mA AC, 1.999 ACA, 10 ACA DR99420 4-20 mA DC	Dimensions	Case Size (Front Panel): 96 x 48 mm DIN Size (case): 92 x 42 mm Behind panel depth: 104 mm Panel Cut Size: 93 x 43 mm
		Power Supply	110 V AC (or 240 V, internal adjustment)
		Power Consumption	Approx. 14 mA AC (110V AC power) Approx. 8 mA AC (220 V/240V AC power)
Decimal Point & Range Adjustment	Decimal point & range adjustment (DR99DCV DR99ACV , DR99ACA) are easily adjusted by internal jumper on circuit board	Operating Temperature	0°C to 50°C (32°F to 122°F)
Volt Range Input Impedance	10 M Ω	Accuracy (23 \pm5°C) after calibration	DCV, DCA - Less than 0.5% ACV, ACA - Less than 0.8%
		ACV, ACA Frequency Counter	Frequency character 40 to 1 KHz, (spec. calibration on 60Hz/50Hz) Converter response Average responding, calibrated to display RMS value of sine wave

Panel Meter (DCV), 3 1/2 digits Model DR99DCV

- 199.9 DCmV-1000DCV, 5 ranges
- Range can be adjusted by jumper wire
- 110/220/240 ACV
- Red LED display, 14 mm high
- DIN size: 96 x 48 mm, 104 mm depth

Model	Description	Price
DR99DCV	Panel Meter, DCV	\$169.00

Panel Meter (4-20 mA), 3 1/2 digits Model DR99420

- 4-20 mA, build "zero VR" & "gain VR", can match most kinds of transducers

Model	Description	Price
DR99420	Panel Meter, 4-20 mA	\$187.00

Panel Meter (ACV), 3 1/2 digits Model DR99ACV

- 199.9 ACmV-750 ACV, 5 ranges
- Range can be adjusted by jumper wire
- 110/220/240 ACV
- Red LED display, 14 mm high
- DIN size: 96 x 48 mm, 104 mm depth

Model	Description	Price
DR99ACV	Panel Meter, ACV	\$159.00

Panel Meter (ACA), 3 1/2 digits Model DR99ACA

- 1.999 ACmA - 10 ACA, 5 ranges
- Range can be adjusted by jumper wire
- 110/220/240 ACV
- Red LED display, 14 mm high
- DIN size: 96 x 48 mm, 104 mm depth

Model	Description	Price
DR99ACA	Panel Meter, ACA	\$169.00

PANEL METER

Features:

- Type K thermocouple digital temperature indicator
- Internal jumper adjustment for °C/°F, 1°/0.1°
- Highly visible, 14mm high, red LED
- Automatic polarity switching
- Negative polarity and over-range indications
- DIN size: 96 x 48 mm, depth: 104mm

Specifications:

Range:	-50 to 1300°C/-50 to 1999°F
Resolution:	0.1°: -50 to 199.9°C/-50 to 199.9°F 1°: -50 to 1000°C/-50 to 1999°F
Accuracy:	-50 to 1000°C/1999°F: ±(0.3% +1°C/2°F) 1001 to 1300°C: ±(0.5% +1°C)
Display:	14.3mm (90.56") red LED, 3 1/2 digits ±1999 max. display
Input Impedance:	10MΩ
Sampling Time:	Approx. 0.4 second
Ambient Conditions:	0 to 50°C (32 to 122°F); max. 90% RH
Power Supply:	110/220 VAC, 50/60 Hz
Dimensions:	92 x 42 x 104mm



Model	Description	Price
DR99TEMP	Digital Temperature Panel Meter	\$211.00

PROCESS CONTROL METER



Features:

- 1" high LCD display
- Explosion-proof enclosure
- 1 Volt drop
- Easy 2 step non-interactive calibration
- Service removal with minimal loop interruption

The Loop-Powered Explosion-Proof Digital Field Meter provides on the spot display of important process variables in engineering units. The 1 inch high liquid crystal display can be read in a wide variety of ambient lighting conditions and from a distance of up to 50 feet. The meter is housed in a rugged cast aluminum explosion-proof enclosure. Intrinsically safe - Class I, II, III; Div 1 Gp A, B, C, D, E, F, G. The enclosure is also rated NEMA 4. Calibration is a quick two step process involving the adjustment of only two non-interacting potentiometers. Since the meter is powered directly from the loop it can be mounted virtually anywhere. And the loop will hardly notice the meter's low 1 volt drop!

Specifications:

Enclosure:	Cast aluminum, NEMA 4, 7 & 9, suitable for location in Class I, Division 1 Groups C, D & Class II, Division 1, Group E, F & G
Display:	Sharp, large 1.0" (25.4mm) high LCD. ±1999
Input:	4-20mA
Calibration:	2 Step; Non-interacting zero and span
Calibration Range	4mA input: -1000 to +1000; 20mA between 20 and 2000 counts > 4 mA display
Accuracy:	±0.1% of span ± 1 count
Conversion Rate:	2.5 Conversions/second
Max. Input Current:	30mADC
Max. Voltage Drop:	1V at 20mA
Operating Temp.:	-40° to 85°C
Connections:	Screw terminal
Dimensions:	6.25" x 6.25" Mt. Plate 4" depth
Weight:	8 lbs

Model	Description	Price
PD687	Loop-Powered Process Control Meter	\$846.00

PROCESS INDICATORS



Features:

- Programmable colour change display based on an event
- Programmable help function and secondary legend display
- Field configurable alarm outputs
- Max. and min. value capture
- 0.71" high digit LED display
- Plug-in option cards include: 2nd relay, digital input, linear output, RS-485 communication
- Transmitter power simplifies wiring
- mA inputs to 50mA, DCV inputs $\pm 10V$ and $\pm 100mV$
- Tare function
- Standard outputs: 2 NPN transistors and 1 relay (optional 2nd relay)
- 100ms sample time with 0.03% accuracy

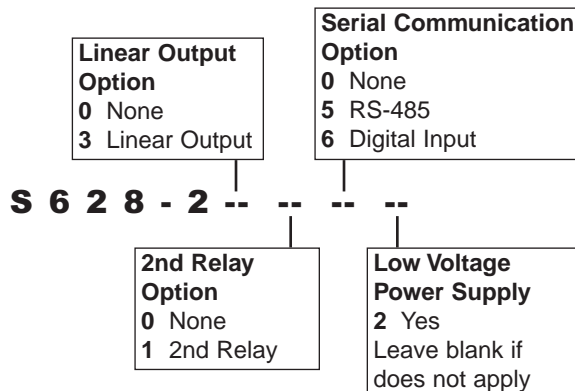
The **S628** DC Process is a member of a family of 1/8 DIN instruments which offer breakthrough technology as well as easy-to-program user setup. Its large LED display features the ability to change colour based on process status such as exceeding an alarm value. Therefore, when monitoring process variables in applications using analog signals, the **S628** provides users with an instant visual alert to changes in the application's status.

Process inputs are easily scaled into engineering units by programming two input values and their corresponding display values through the front panel. For nonlinear applications, up to 10 scale points can be entered. A teach function, which automatically inputs the current sensor reading as a scale point, further simplifies setup. The two alarms can be setup for high or low operation, reverse or direct acting, and can be latched. An integrating totalizer can be used to accumulate flow or other values where tracking a total may be useful.

Specifications:

- Process Input:** To 50mA, $\pm 10VDC$, $\pm 100mV$
Accuracy: $\pm 0.01\%$ of span
Sample Rate: 100ms
Resolution: 14 bits
Sensor Break: Detected within 2 seconds
Control Inputs: Sourcing, edge sensitive
Logic: Low: $\leq 2.0VDC$; High: $\geq 3.0VDC$
Impedance: 4.7k Ω to +Voltage -Sourcing
Function: Programmable
Outputs:
Solid State: NPN open collector, 30VDC max., 10mA max.
Relay: SPDT, 5A resistive @ 110VAC
Latency: 75 μ sec, plus 8ms for relay pull-in
Linear Outputs: 0-20mA, 4-20mA, 0-10V, 2-10V, 0-5V, 1-5V
Accuracy: $\pm 0.25\%$ (mA at 250 Ω , V at 2k Ω); degrades linearly to $\pm 0.5\%$
Resolution: 8 bits in 250ms (10 bits in 1s typically)
Update: Approx. 4s
Load Impedance: mA ranges: 500 Ω max.; V ranges: 500 Ω min.
Communication: RS-485; serial asynchronous, UART to UART; Open ASCII: One start bit, even parity seven data bits, one stop bit; baud rate selectable from 9600, 4800, 2400 or 1200
Maximum Zones: 99
Display: 7 segment LED, Red/Green
Primary Display: 5 digits, 0.71" (18mm) height
Secondary Display: Single digit, 0.03" (7mm) height
Annunciators: Output 1 and Output 2 status
General:
Operating Temp.: 0 to 55°C (32 to 131°F); 20 to 95% RH non-condensing
Supply Voltage: 90-264 VAC, 50/60Hz, or 20-50 VAC/VDC; 4 Watts
Accessory Power: 24VDC @ 30mA
Connections: Screw type terminals, combination head
Mounting: Panel mount, 45 x 92mm cutout
Front Panel Rating: NEMA 4X/IEC IP65
Case Material: Lexan 940
Dimensions: 48 x 96 x 110mm deep
Weight: 0.56 lb.

Ordering Information:



RATE INDICATORS/CONTROLLERS



Series C342 Miniature Totalizers

Ultra-compact 1/32 DIN tachometers... available with LCD or LED display

Model	Power Supply	Display (Type/Digits)	Price
C342-3464	Lithium	LCD/8	\$73.00
C342-3462	12-24 VDC	LCD/8	\$90.00
C342-3562	12-24 VDC	LED/6	\$154.00



Series A103 Tachometers

"Plug-and-Play" modules attach to the rear of this compact tachometer... large display with backlighting

Model	Description	Price
A103-003	A103 Tachometer	\$137.00

Optional Modules

Model	AC Power Supply	Low Voltage Input	High Voltage Input	Price
A103-A12	X			\$62.00
A103-A17		X		\$28.00
A103-A19	X	X		\$68.00
A103-A10			X	\$33.00
A103-A14	X		X	\$68.00



Series C346 Electronic Predetermining Counters

Powerful preset counter in compact 1/16 DIN package... available with LED or LCD display

Model	Description	Price
C346-0411	LCD/Single Preset/115VAC	\$245.00
C346-0413	LCD/Single Preset/230VAC	\$245.00
C346-0412	LCD/Single Preset/12-24VDC	\$236.00
C346-0421	LCD/Dual Preset/115VAC	\$288.00
C346-0423	LCD/Dual Preset/230VAC	\$288.00
C346-0422	LCD/Dual Preset/12-24VDC	\$288.00
C346-0511	LED/Single Preset/115VAC	\$296.00
C346-0513	LED/Single Preset/230VAC	\$296.00
C346-0512	LED/Single Preset/12-24VDC	\$296.00
C346-0521	LED/Dual Preset/115VAC	\$337.00
C346-0523	LED/Dual Preset/230VAC	\$337.00
C346-0522	LED/Dual Preset/12-24VDC	\$337.00



Series B846 Multi-Function Timers

Simple dial set timer... multiple time ranges and versatile functions

Model	Description	Price
B846-500	Multi-Function Timer	\$82.00
B846-511	Timer w/ Instantaneous Contacts	\$90.00
B846-100	Timer w/ On-Delay/Interval Mode	\$97.00
B846-A30	Mounting Bracket & Lock Ring	\$5.00

FUZZY LOGIC CONTROLLERS

Features:

- Choose among 1/4 DIN, 1/8 DIN, 72mm and 1/16 DIN sizes
- Choose between user-friendly 8-button or 3-button operation
- Fuzzy logic control with PID autotune
- NEMA 4X protection
- All parameters are display maskable
- 8-segment ramp/soak programming
- Advanced security options
- Wide input selection
- Lower prices than other PID controllers

The NEMA 4X protection makes the PX Series controllers tough enough to withstand the harshest of environments. Fuji's fuzzy logic algorithm makes them smart enough to learn your process and make rapid, accurate adjustments. A variety of choices for number of buttons, DIN size, configuration, and options make them versatile enough to match your individual needs.

All of the PX controllers employ Fuji's patented fuzzy logic algorithm with PID Autotune. These controllers "learn" your process, using the PID parameters as a starting point for all decisions made by the controller. This intelligence allows your process to reach its setpoint in the shortest time possible while virtually eliminating overshoot. The end result is that your process maintains a steady setpoint.

Eight-segment ramp/soak programming. Advanced security options. Versatile programming. Fuzzy logic intelligence. NEMA 4X protection. All of these features come STANDARD in a PX; you don't have to pay more for them because these controllers bring you more options and standard features. The PX series also offers a wide range of choices for your unique space requirements and programming preferences.



Specifications:

Input Signal:

- Thermocouples: J, K, R, B, S, T, E, N, PL2
- RTD: Pt100
- DC Voltage/Current: 1 to 5 VDC, 0 to 5 VDC, 4 to 20mA DC, 0 to 20mA DC (Current input is used with supplied 250Ω external resistor)

Standard Output Type (Select 1 type out of 5 below):

- Relay Contact (SPDT): 220 VAC/30 VDC, 3A (resistive load)
Mechanical life: 10⁷ times (under no load). Electrical life: 10⁵ times (under rated load)
- SSR/SSC Drive: 15 to 30 VDC at ON/0.5 VDC or less at OFF, Current 60mA or less
4 to 20mA DC: Allowable load resistance: 600Ω or less
0 to 10 VDC: Allowable load resistance: 500kΩ or more
- Triac: 1A, 250 VAC (resistive load only)
- Dual-Output Type (Heat/Cool): For dual output type, one of the following five control output types is selected on both heating & cooling types (not available on PXW/Z-4)

- Relay Contact SPDT: 220 VAC/30 VDC, 3A (resistive load)
- SSR/SSC Drive: ON: 15 to 30 VDC
OFF: 0.5 VDC or less
Current: 60mA or less
4 to 20mA DC: Allowable load resistance: 600Ω or less
0 to 10 VDC: Allowable load resistance: 500kΩ or more
- Triac: 1A, 250 VAC (resistive load only)

Model	Description	Price
PXZ4RAY24V	1/16 DIN 8-Key, Relay	\$222.00
PXZ4RAY25V	1/16 DIN 8-Key, Relay, Alarm	\$264.00
PXZ4RCY24V	1/16 DIN 8-Key, SSR/SSC	\$222.00
PXZ4RCY25V	1/16 DIN 8-Key, SSR/SSC, Alarm	\$264.00
PXZ4REY24V	1/16 DIN 8-Key, 4-20mA	\$222.00
PXZ4REY25V	1/16 DIN 8-Key, 4-20mA, Alarm	\$264.00
PXW4RAY24V	1/16 DIN 3-Key, Relay	\$236.00
PXW4RAY25V	1/16 DIN 3-Key, Relay, Alarm	\$278.00
PXW4RCY24V	1/16 DIN 3-Key, SSR/SSC	\$236.00
PXW4RCY25V	1/16 DIN 3-Key, SSR/SSC, Alarm	\$278.00
PXW4REY24V	1/16 DIN 3-Key, 4-20mA	\$236.00
PXW4REY25V	1/16 DIN 3-Key, 4-20mA, Alarm	\$278.00
PXZ5RAY24V	1/8 DIN 8-Key, Relay	\$377.00
PXZ5RAY25V	1/8 DIN 8-Key, Relay, Alarm	\$418.00
PXZ9RAY24V	1/4 DIN 8-Key, Relay	\$439.00
PXZ9RAY25V	1/4 DIN 8-Key, Relay, Alarm	\$481.00
PG08	Screw-down 8-pin socket (PXW/Z-4 w/o alarm)	\$7.00
PG11	Screw-down 11-pin socket (PXW/Z-4 w/ alarm)	\$9.00

TEMPERATURE CONTROLLERS

Compact and low cost, **Model FM-437** employs a bimetal element inside an immersion well. Instrument is detachable from the well, allowing maintenance without draining system. Visible calibrated dial reduces "start up" time and speeds set point changing. Contacts are hermetically sealed and mercury wetted. High current (up to 17A) capacity switches available on special order.



Copper Wells

Model	Operating Temp. Range	Deadband Min./Max.	Price
FM-437-153-3515	40/200°F	15/160	\$423.00
FM-437-153-3516	40/200°F	15/160	\$423.00
FM-437-153-3510	80/240°F	15/160	\$423.00
FM-437-153-3511	80/240°F	15/160	\$423.00
FM-437-153-3528	160/300°F	18/140	\$423.00
FM-437-153-3529	160/300°F	18/140	\$423.00

Specifications:

Max. Pressure:	Copper Well - 200 psig @ 300°F; 304SS Well - 900 psig @ 300°F
Max. Bi-metal Temp.:	375°F
Setpoint Adjustment:	High and Low set points set via pointers on (°F) calibrated dial
Process Connection:	3/4" NPT
Electrical Rating:	4A @ 120V, 2A @ 240V, both AC & DC, 1/8 HP @ 120 VAC or 240 VAC.
Switch Type:	Tilting mercury type
Wiring Connections:	Three screw type: common, normally open and normally closed (SPDT)
Conduit Opening:	1/2" conduit
Housing:	Heavy gauge steel case w/ glass window
Well Material:	Copper or Type 304 S.S.
Installation:	Well must be horizontal, window vertical
Weight:	3 lbs.

Stainless Steel Wells

Model	Operating Temp. Range	Deadband Min./Max.	Price
FM-437SS-153-3515	40/200°F	15/160	\$519.00
FM-437SS-153-3516	40/200°F	15/160	\$519.00
FM-437SS-153-3510	80/240°F	15/160	\$519.00
FM-437SS-153-3511	80/240°F	15/160	\$519.00
FM-437SS-153-3528	160/300°F	18/140	\$519.00
FM-437SS-153-3529	160/300°F	18/140	\$519.00

TEMPERATURE CONTROLLERS

Features:

- Digital display of both setpoint and sensor temperature in big 1/2" digits.
- Controller will continuously display temperature at sensor location. Press button to display setpoint.
- Setpoint is adjustable by 1° increments via multi-turn knob.
- Solid state circuitry throughout, operating with a precision of ±1°F.
- No capillary tubes at all. The sensor uses plain # wire that can be cut and spliced to any length up to 500 feet without any loss of accuracy.
- Comes with brass N.T.C. sensor that can be mounted anywhere by means of a plastic holder that is provided, or fit into a standard well.
- Sensors are readily interchangeable without any need for calibrating.
- RWB set of wires emanating from back of unit is provided for



- setting "normally-open" (NO) or "normally-closed" (NC) mode.
- LED signal light on face of unit lights up when the relay is energized. (Relay is de-energized when set point is exceeded).
- High temperature controller, **SPC-950-T**, supplied with platinum RTD type sensor encapsulated in stainless steel tubing (1/4" x 6") with 2 feet of insulated wire.
- Other models come complete with solid state (thermistor) type sensor encapsulated in brass (3/8" x 1-5/8"). Sensor supplied with 15 feet of reinforcing sleeve.
- Mounts on standard 1900 (4 x 4) electrical box or is adaptable for panel mounting.

Specifications:

Ranges:	Model SPC-TEMP: -30° to +250°F Model SPC-950-T: +200 to +950°F
Accuracy:	±1°F
Resolution:	1°F
Input Voltage:	24V AC ±15%
Power Consumption:	4.5VA max.
Output:	S.P.D.T. RWB
Rating:	5A @ 120V AC
Differential Adjustment:	2° to 25°F
Dimensions:	4" x 4" x 1 1/32" (deep)

Model	Description	Price
SPC-TEMP	Temperature Controller, -30 to +250°F	\$295.00
SPC-950-T	Temperature Controller, +200 to +950°F	\$1178.00
904015	Replacement Probe (max. 250°F)	\$101.00