

# Series 16 Modules Controls – Solid State Plug-In Modules

- ▶ Compact Size
- ▶ Modular Plug-in Design
- ▶ Various Time Delays
- ▶ Low Voltage Sensor
- ▶ Solid State Reliability
- ▶ LED Monitoring
- ▶ U.L. “Motor Control”

## Series 16M – General Purpose Control

- New Microprocessor Design

Designed for either differential or single-level service. U.L. “Motor Controller” listing, 8 pin socket with screw-type connections make the unit easy to install and service. Sensitivity of up to 1 million ohm/cm.

## Series 16HM – High Sensitivity Control

Series 16HM is similar to Series 16M but provides higher sensitivity up to 5.5 million ohm/cm. Probe voltage is 12 VDC for applications with low conductive media.

## Series 16DM – DPDT Load Contact

Similar to Series 16M but with DPDT load contacts. Eliminates the need for slave relays. 11 pin octal plugs. Requires little panel space. General purpose single-level or differential applications. U.L. listed.

## Series 16VM – Field Selectable Sensitivity

Similar to Series 16M but with the added flexibility of field adjustable sensitivity, made possible through external setpoint resistors. Uses 11 pin octal socket. U.L. listed.

## Specifications

<b>Contact Design</b>	
Series 16M & 16HM	1 N.O. & 1 N.C. (1 form C)
Series 16DM	2 N.O. & 2 N.C. (2 form C)
Series 16VM	1 N.O. & 1 N.C. (1 form C)
<b>Contact Rating (120. 240 VAC)</b>	
Series 16M & 16HM	10 amp Resistive 1/3 hp
Series 16DM	5 amp Resistive 1/10 hp
Series 16VM	10 amp Resistive 1/3 hp
<b>Mode of Operation</b>	Direct/Inverse, factory set
<b>Sensitivity</b>	
Series 16M	0-1M ohm, factory set
Series 16HM	0-5.5M ohm, factory set
Series 16DM	0-1M ohm, factory set
Series 16VM	0-1M ohm, field adjustable
<b>Primary Voltage</b>	24 VAC, 120 VAC, 240 VAC (+10%/-15%) 208/240: 187 V min. to 255 V max. VAC 50/60 Hz
<b>Secondary Voltage</b>	
Series 16M	12 VAC, 1.5 mA
Series 16HM	12 VDC
Series 16DM & 16VM	12 VAC, 1.5 mA
<b>Temperature</b>	-40°F to +150°F (-40°C to +65°C)
<b>Approvals</b>	U.L. 508 File #E44426
<b>Terminal Style</b>	Screw connector
<b>Options</b>	Time Delays



Series 16M/16HM

Series 16DM/16VM

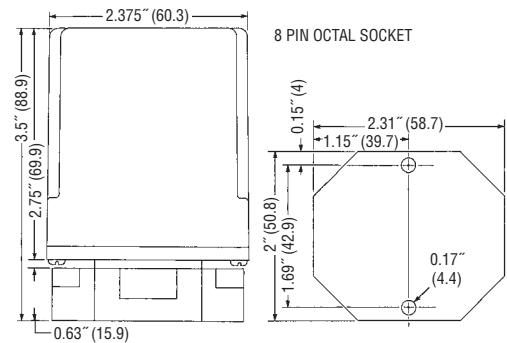


## Applications

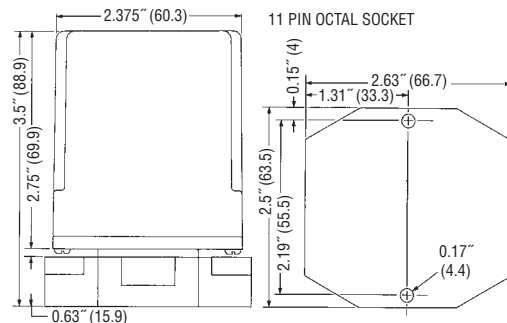
- Single-Level Service
- Point Level
- Valve Control
- Differential Service
- Alarms
- Pump Control

## Dimensions

### Series 16M & 16HM



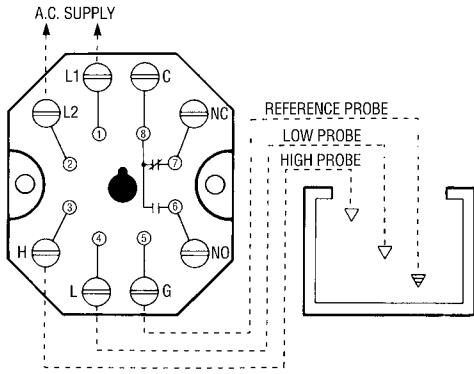
### Series 16DM & 16VM



Note: Controls also available with DIN mount socket.

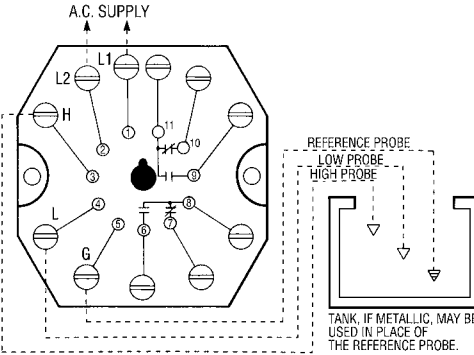
## Wiring

### Series 16M & 16HM

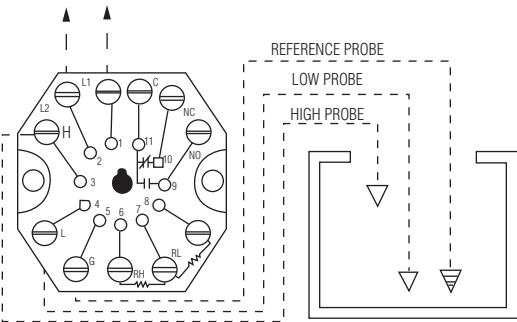


Note: For single level service, use "H" and "G" connections.

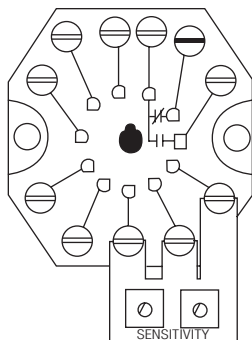
### Series 16DM



### Series 16VM



### Variable Sensitivity Option



Part number 16Z1VG Potentiometer Board available for 16VM only. Consult factory.

## How to Order

Use the **Bold** characters from the chart below to construct a product code.

### 16M Series – Microprocessor Version

- |  |            |          |          |          |          |          |           |           |
|--|------------|----------|----------|----------|----------|----------|-----------|-----------|
|  | <b>16M</b> | <b>X</b> | <b>X</b> | <b>X</b> | <b>X</b> | <b>X</b> | <b>XX</b> | <b>XX</b> |
|--|------------|----------|----------|----------|----------|----------|-----------|-----------|
- Series **16M** General Purpose;
  - Mode of Operation **X**

<b>Direct</b>	<b>Inverse</b>
<b>A</b> – 4.7K	<b>K</b> – 4.7K
<b>B</b> – 10K	<b>L</b> – 10K
<b>C</b> – 26K	<b>M</b> – 26K
<b>D</b> – 50K	<b>N</b> – 50K
<b>E</b> – 100K	<b>P</b> – 100K
<b>F</b> – 470K	<b>R</b> – 470K
<b>G</b> – 1M	<b>S</b> – 1M
  - Supply Voltage **X**  
**1** 120 VAC; **2** 240 VAC; **3** 24 VAC; **8** 208/240 VAC
  - Socket Style\* **X**  
**A** 8 Pin Octal **M** Module Only  
**B** 8 Pin DIN
  - Enclosure **X**  
**0** None; **1** NEMA 1; **4** NEMA 4
  - Time Delay (increasing level) Option **X**  
**00-90** seconds  
**Blank** 0 seconds
  - Time Delay (decreasing level) Option **X**  
**00-90** seconds  
**Blank** 0 seconds
  - Time Out Option **X**  
See page E-11, Chart A

\*See page E-11 for descriptions.

### 16 HM, 16DM or 16VM Series

- |  |             |          |          |          |          |           |           |
|--|-------------|----------|----------|----------|----------|-----------|-----------|
|  | <b>16HM</b> | <b>X</b> | <b>X</b> | <b>X</b> | <b>X</b> | <b>XX</b> | <b>XX</b> |
|--|-------------|----------|----------|----------|----------|-----------|-----------|
- Series **16HM** High Sensitivity;  
**16DM** DPDT Load Contact;  
**16VM** Field Selectable Sensitivity<sup>1</sup>
  - Mode of Operation<sup>2</sup> **X**

<b>Direct</b>	<b>Inverse</b>
<b>A</b> – 4.7K <sup>4</sup>	<b>K</b> – 4.7K <sup>4</sup>
<b>B</b> – 10K <sup>4</sup>	<b>L</b> – 10K <sup>4</sup>
<b>C</b> – 26K <sup>4</sup>	<b>M</b> – 26K <sup>4</sup>
<b>D</b> – 50K <sup>4</sup>	<b>N</b> – 50K <sup>4</sup>
<b>E</b> – 100K <sup>4</sup>	<b>P</b> – 100K <sup>4</sup>
<b>F</b> – 470K <sup>4</sup>	<b>R</b> – 470K <sup>4</sup>
<b>G</b> – 1M <sup>4</sup>	<b>S</b> – 1M <sup>4</sup>
<b>H</b> – 3M <sup>3</sup>	<b>T</b> – 3M <sup>3</sup>
<b>J</b> – 5.5M <sup>3</sup>	<b>W</b> – 5.5M <sup>3</sup>
<b>Y</b> – 0-700K <sup>5, 7</sup>	<b>Z</b> – 0-700K <sup>5, 7</sup>
  - Supply Voltage **X**  
**1** 120 VAC; **2** 240 VAC; **3** 24 VAC; **8** 208/240 VAC
  - Socket Style **X**  
**A** 8 Pin Octal (16M & 16HM), 11 Pin Octal (16DM & 16VM);  
**B** DIN Mount; **M** None, Module Only<sup>6</sup>
  - Enclosure **X**  
**0** None; **1** NEMA 1; **4** NEMA 4
  - Time Delay (increasing level) Option **X**  
**01-20** seconds; **0V** variable (16VM only)
  - Time Delay (decreasing level) Option **X**  
**01-20** seconds; **0V** variable (16VM only)

#### Notes:

- 16VM select modes **A**, **K**, **Y** or **Z** only.
- 16HM & 16DM only. Series 16VM includes full set of the resistors listed above. Specify a sensitivity to determine mode of operation.
- 16VM only.
- All Series except 16HM.
- 16VM only.
- Socket style M requires enclosure **0** – None.
- Mounting style A (11 pin octal only)

Socket Details and Option Availability are located on web site.

## Series 16 – Open Circuit Board Controls

- ▶ Solid State Reliability
- ▶ Spade Terminals
- ▶ Time Delays Available
- ▶ U.L. “Motor Control”
- ▶ Optional Dirty Electrode Detection\*
- ▶ AC Current Minimizes Electrolysis
- ▶ Compact Size
- ▶ Low-Voltage Sensor
- ▶ LED Monitoring

### Series 16 – General Purpose Control

- New Microprocessor Design

Engineered for general purpose single-level or differential applications, these economy priced controls have spade terminals for easy wiring and provide sensitivities up to 1 million ohm/cm.

### Series 16D – DPDT Load Contacts

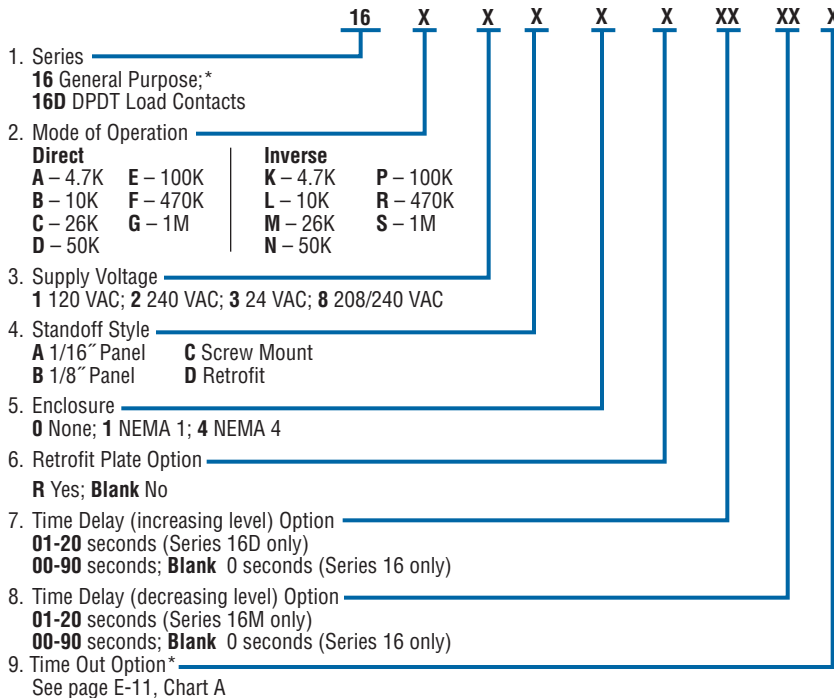
Same features and specifications as Series 16, but these controls also have DPDT load contacts to eliminate the need for slave relays.

### Specifications

<b>Contact Design</b>	
<b>Series 16</b>	1 N.O. & 1 N.C. (1 form C)*
<b>Series 16D</b>	2 N.O. & 2 N.C. (2 form C)
<b>Contact Rating (120, 240 VAC)</b>	
<b>Series 16</b>	10 amp Resistive 1/3 hp*
<b>Series 16D</b>	5 amp Resistive 1/10 hp
<b>Mode of Operation</b>	
Direct/Inverse, factory set	
<b>Sensitivity</b>	
0-1M ohm, factory set	
<b>Primary Voltage</b>	
120 VAC, 240 VAC, 24 VAC, 208 VAC (+10%/-15%) 50/60 Hz 208/240: 187 V min. to 255 V max. VAC 50/60 Hz	
<b>Secondary Voltage</b>	
12 VAC, 1.5 mA	
<b>Temperature</b>	
-40°F to +150°F (-40°C to +65°C)	
<b>Approvals</b>	
U.L. 508 File # E44426	
<b>Terminal Style</b>	
Spade connection	
<b>Options</b>	
Time Delays, Retrofit Plate, Time Out. See page E-11 for descriptions.	

### How to Order

Use the **Bold** characters from the chart below to construct a product code.



\* New Series 16 Microprocessor Design only.

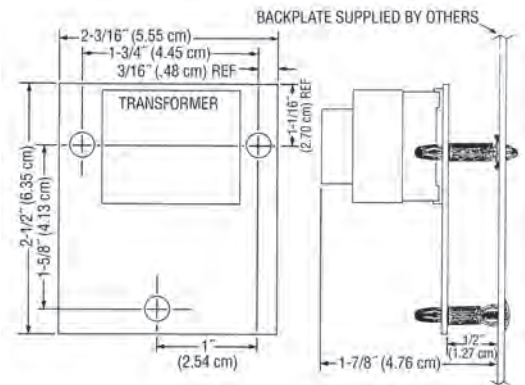


Series 16

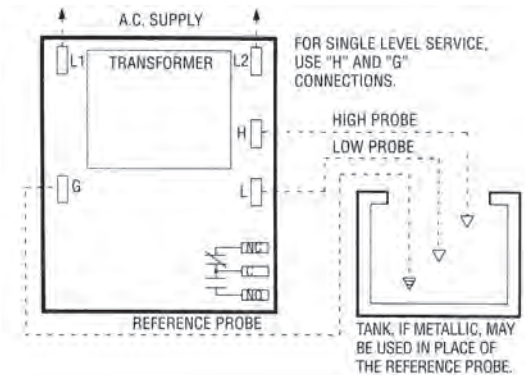
### Applications

- Single-Level Service
- Point Level
- Valve Control
- Low-Water Cutoff
- Differential Service
- Alarms
- Pump Control

### Dimensions



### Wiring



Note: Series 16D similar to Series 16, but with DPDT load contacts.

# Series 26 Modules Low-Water Cutoff – Plug-In Modules

- ▶ Powered Contacts
- ▶ Modular Plug-In Design
- ▶ Low Voltage Sensor
- ▶ 11-Pin Socket
- ▶ U.L. “Limit Control”
- ▶ Optional Dirty Electrode Detection
- ▶ Optional Manual Reset Button Feature.
- ▶ Optional Power Outage Feature Ignores Nuisance Outages and Resets When Power is Restored
- ▶ Solid State Reliability
- ▶ LED Monitoring
- ▶ Time Delays Available
- ▶ Meets CSD1 Requirements
- ▶ Optional Test Feature

## Series 26M – General Purpose Control

Series 26M is designed for low-water cutoff protection. This control meets CSD1 requirements for boiler low water cutoff. Series 26M features powered contacts. If non-powered contacts are required, request information on Series 26NM.

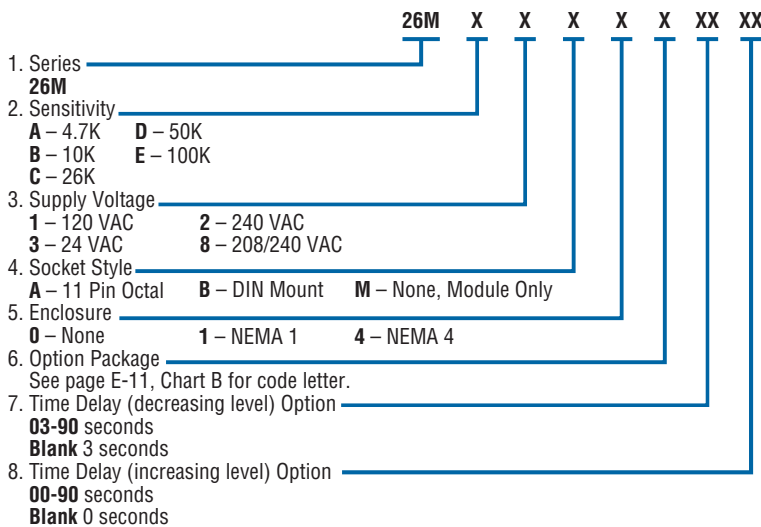
## Specifications

<b>Contact Design</b>	1 N.O. & 1 N.C. (powered)
<b>Contact Rating (24/120/240VAC)</b>	10 amp Resistive 1/3 hp
<b>Mode of Operation</b>	Direct
<b>Sensitivity</b>	0 - 26K ohm, factory set
<b>Primary Voltage</b>	24 VAC, 120 VAC, 240 VAC <sup>1</sup>
<b>Secondary Voltage</b>	12 VAC
<b>Temperature</b>	-40°F to +150°F (-40°C to +65°C)
<b>Approvals<sup>1</sup></b>	U.L. 353 File # MP1430
<b>Terminal Style</b>	Screw connector
<b>Options</b>	Time Delays, Power Outage, Manual Reset, Test Feature, Dirty electrode detection; See page E-11 for descriptions

Notes:  
1. 240 VAC and 208/240 VAC units do not carry U.L. Limit Control recognition.

## How to Order

Use the **Bold** characters from the chart below to construct a product code.

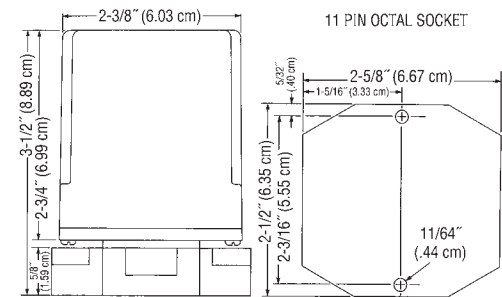


Series 26M

## Applications

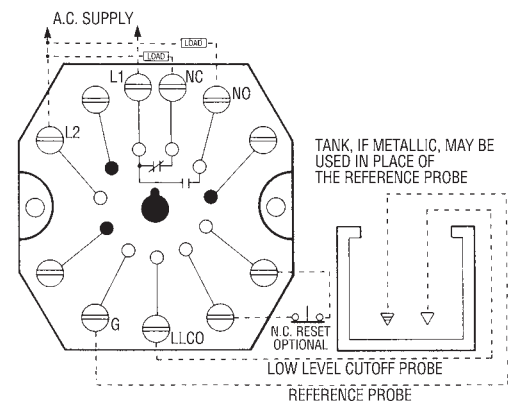
- Low-Water Cutoff
- Point Level
- Alarms

## Dimensions



Note: Controls also available with DIN mount socket.

## Wiring



Caution: Contacts are powered. If non-powered contacts are required, request information on Series 26NM.

Socket Details and Option Availability are located on web site.

# Series 26 Low Water Cutoff – Standoff Mount

- ▶ Meets CSD1 Requirements
- ▶ Non Powered Contacts
- ▶ Time Delays Available
- ▶ LED Monitoring
- ▶ Test Feature
- ▶ AC Current Minimizes Electrolysis
- ▶ Snap-Thru Standoff Mounting
- ▶ Compact Size
- ▶ Power Outage Feature
- ▶ U.L. “Limit Control”

## Series 26 – General Purpose Control

Designed for boiler low-water cutoff protection. A snap-through standoff mounting device is available for Series 26 units. Optional Power Outage feature resets after nuisance outages. Optional reset button is used when device has been deactivated because of low water condition. Reset is functional only if water has returned to normal level. Optional Test Feature available allows LLCO circuit to be tested without draining the water level in the boiler. Built-in 3 second time delay is standard. Up to 90 seconds available for increasing and decreasing levels.

## Specifications

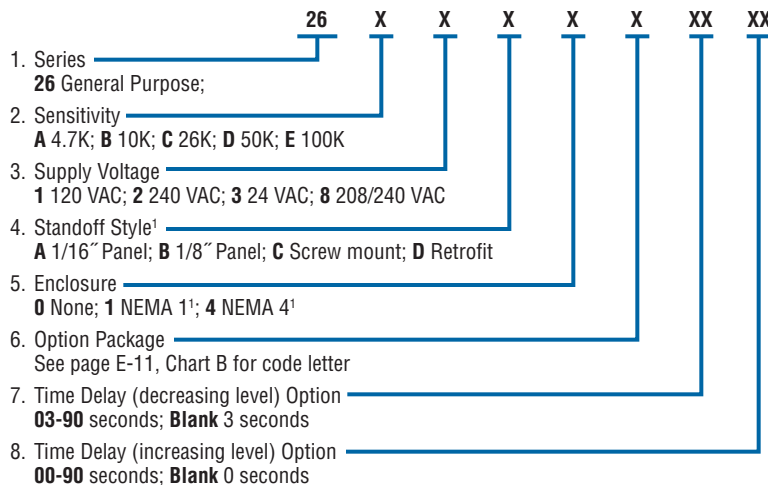
<b>Contact Design</b>	1 N.O. & 1 N.C. (1 form C)
<b>Contact Rating</b>	10 amp Resistive 1/3 hp at 120, 240 VAC
<b>Mode of Operation</b>	Direct
<b>Sensitivity</b>	0-100K ohm, factory set
<b>Primary Voltage</b>	120 VAC, 240 VAC <sup>1</sup> , 24 VAC, 208/240 VAC (+10%/-15%) 50/60 Hz
<b>Secondary Voltage</b>	12 VAC, 1.5 mA
<b>Temperature</b>	-40°F to +150°F (-40°C to +65°C)
<b>Approvals<sup>1</sup></b>	U.L. 353, U.L. 508 File # MP1430
<b>Terminal Style</b>	Spade connection
<b>Options</b>	Time Delays, Power Outage, Retrofit Plate, Test Feature, See page E-11 for descriptions

Notes:

1. 240 VAC and 208/240 VAC are not U.L. recognized

## How to Order

Use the **Bold** characters from the chart below to construct a product code.



Notes:

1. Standoff Style **D** only.

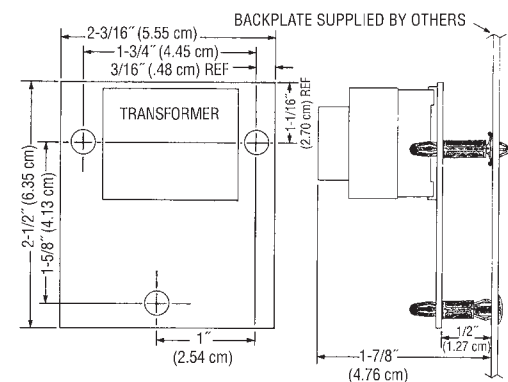
Socket Details and Option Availability are located on web site.



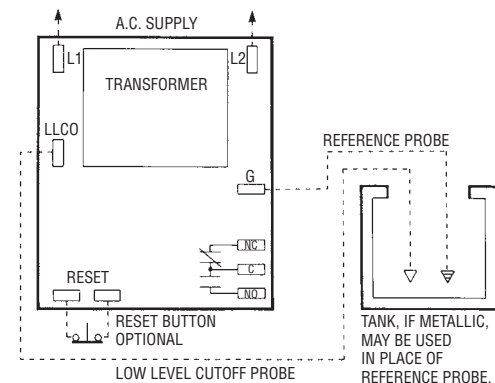
## Applications

- Low-Water Cutoff
- Point Level
- Valve Control
- Single-Level Service
- Alarms
- Pump Control

## Dimensions



## Wiring



## Series DF Dual Function Controls

- ▶ Solid State Reliability
- ▶ Compact Size
- ▶ Meets CSD1 Requirements
- ▶ U.L. "Motor Control"
- ▶ AC Current Minimizes Electrolysis
- ▶ Optional Test Feature
- ▶ Optional Dirty Electrode Detection
- ▶ Spade Terminals for Easy Wiring
- ▶ Manual Reset (optional)
- ▶ Power Outage Feature (optional)
- ▶ U.L. "Limit Control"
- ▶ U.L. "Limit Control"
- ▶ Time Out Option

Dual function Series DF models are designed to control two independent level functions, one single-level control operation and one differential-level operation.

Optional Power Outage feature resets after nuisance outages. Optional Reset Button is used when device has been deactivated due to low water condition. Reset is activated only after water has returned to normal level. This control is ideal in applications on boilers, food service equipment, and chemical delivery systems.

### Specifications

<b>Contact Design</b>	1 N.O. & 1 N.C. (1 form C) extra function
<b>Contact Rating (120, 240 VAC)</b>	10 amp Resistive 1/3 hp
<b>Mode of Operation</b>	H/L Direct/Inverse, LLCO – factory set
<b>Sensitivity</b>	0-26K ohm, factory set
<b>Primary Voltage</b>	120 VAC, 240 VAC <sup>1</sup> , 24 VAC (+10%/-15%) 208/240: 187 V min. to 255 V max. VAC 50/60 Hz
<b>Secondary Voltage</b>	12 VAC
<b>Temperature</b>	-40°F to +150°F (-40°C to +65°C)
<b>Approvals</b>	U.L. 508 File # E44426, U.L. 353 File # MP1430
<b>Terminal Style</b>	Spade connection
<b>Options</b>	Time Delays, Manual Reset, Power Outage, Retrofit Plate, Test Feature, Dirty Electrode Detection; See page E-11 for descriptions

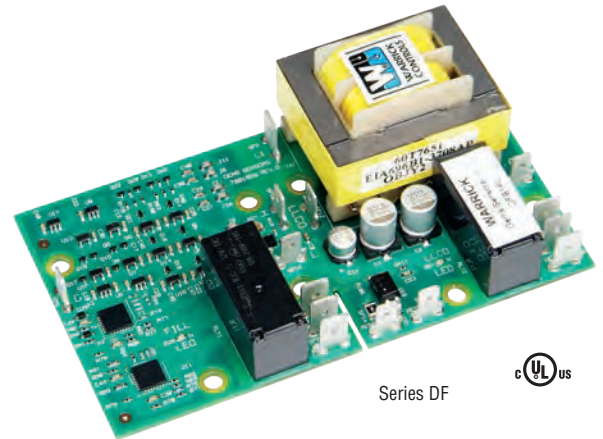
**Notes:**

- 240 VAC and 208/240 VAC units do not carry U.L. Limit Control recognition.

### How to Order

Use the **Bold** characters from the chart below to construct a product code.

	<b>DF</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>XX</b>	<b>XX</b>	<b>XX</b>
1. Series	DF	X	X	X	X	X	XX	XX	XX
2. Mode of Operation	Direct	Inverse							
	<b>A</b> – 4.7K	<b>K</b> – 4.7K							
	<b>B</b> – 10K	<b>L</b> – 10K							
	<b>C</b> – 26K	<b>M</b> – 26K							
	<b>D</b> – 50K	<b>N</b> – 50K							
	<b>E</b> – 100K	<b>P</b> – 100K							
3. Supply Voltage	<b>1</b> – 120 VAC; <b>2</b> – 240 VAC;								
	<b>3</b> – 24 VAC; <b>8</b> – 208/240 VAC								
4. Standoff Style*	<b>A</b> – 1/16" Panel	<b>C</b> – Screw Mount							
	<b>B</b> – 1/8" Panel	<b>D</b> – Retrofit							
5. Enclosure	<b>0</b> – None; <b>1</b> – NEMA 1; <b>4</b> – NEMA 4								
6. Option Package	See page E-11, Chart B for code letter.								
7. Time Delay (increasing level) H/L function	<b>00-90</b> seconds; <b>Blank</b> 0 seconds								
8. Time Delay (decreasing level) H/L function	<b>00-90</b> seconds; <b>Blank</b> 0 seconds								
9. Time Delay (decreasing level) LLCO function only	<b>03-90</b> seconds; <b>Blank</b> 3 seconds								



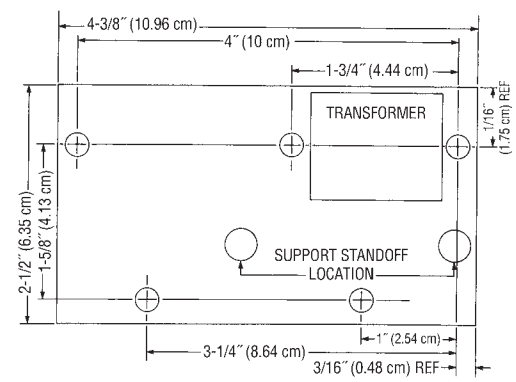
Series DF



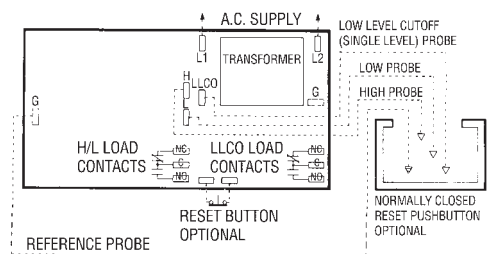
### Applications

- Dual Function
- Single-Level Service
- Differential Service
- Feedwater Control / Low-Water Cutoff
- High Level / Low Level
- Pump Down / High Level

### Dimensions



### Wiring

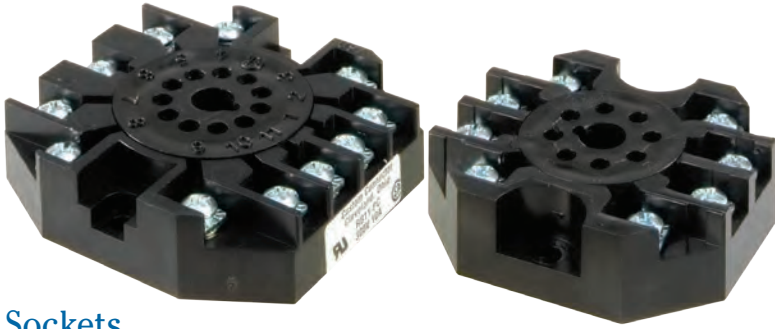


Note: For single level service, use "H" and "G" connections.

Socket Details and Option Availability are located on web site.

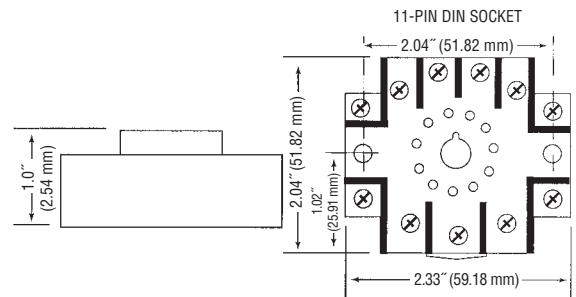
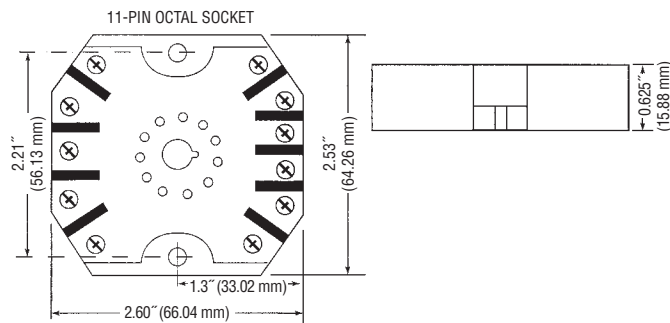
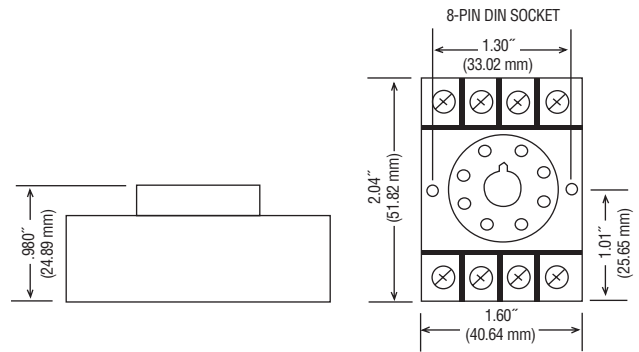
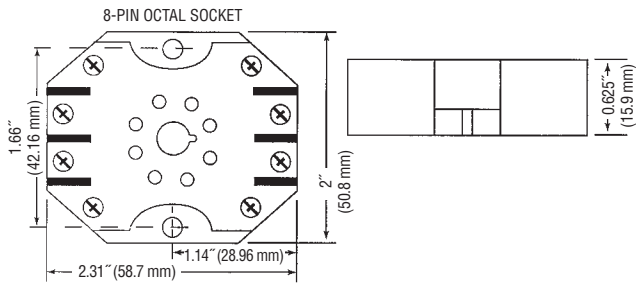
WARRICK CONDUCTIVITY SENSORS

## Sockets and Standoffs – 16, 26 and DF Series Only



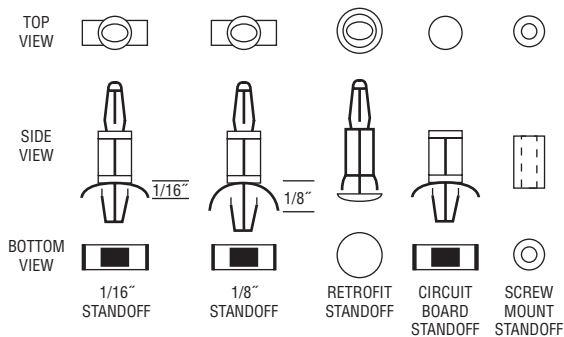
### Sockets

Warrick provides four different types of sockets for use with plug-in control modules.



### Standoffs

Warrick provides four different types of standoffs designed to connect circuit boards to panels.



# Optional Character Reference – 16, 26 and DF Series Only

## Manual Reset

### Available on Series 26, 26M and DF controls

(Normally closed pushbutton across reset terminals. Pushbutton ordered separately): Manual reset only applies to the function associated with terminal LLCO. When the liquid rises to the electrode on terminal LLCO, the control will remain de-energized (load contacts in original state) until the pushbutton is depressed. The control will then energize, (LED will be lit) changing the state of the contacts. The control remains energized until the liquid level recedes below electrode on terminal LLCO. The control then de-energizes, (LED will go off) returning load contacts to their original state. Unless otherwise specified, there is a three second time delay on decreasing level. Liquid must be below probe on terminal LLCO for full three seconds before control de-energizes.

## Manual Reset with Power Outage Feature

### Available on Series 26, 26M, and DF controls

Reset (Normally closed pushbutton across reset terminals. Pushbutton ordered separately) Control will ignore power loss to control. With liquid in contact with electrode on terminal LLCO, a power outage will cause the control to de-energize, but will automatically energize upon return of power. However, loss of liquid will cause control to de-energize and remain so until liquid again rises to electrode and pushbutton is depressed.

## Time Delays Associated with Terminals H and L

### Available on Series 16, 16M, and DF controls

With time delay on increasing level, the liquid must be in contact with the high electrode for the full duration of the time delay before control will operate. With delay on decreasing level, the liquid must be below the low electrode for the full duration of the time delay before control will operate. In single level service, terminals 3 and 4 must be jumpered together to achieve time delays on both increasing and decreasing levels or just decreasing level.

## Time Delays Associated with Terminal LLCO

### Available on Series 26, 26M, and DF controls

3 Second time delay on decreasing level is standard. Delay up to 90 seconds, can be specified and would act in the same manner as listed above.

## Time Out Option

### Available on Series 16, 16M, and DF controls

The latching circuit for the high and low electrode has an optional timer. In some applications the High or Low electrode may become short circuited or disconnected. Such an occurrence may potentially over fill in fill applications, or cause the pump to run dry in pump down applications. The time option is custom programmed up to 3 minutes. When a fault condition occurs, the FILL LED will have a blink sequence of .5 seconds on 2 seconds off. See Chart A for time delay options.

## Test Feature

### Available on Series 26, 26M, and DF controls

Allows LLCO circuit to be tested. Holding down the reset button for 3 seconds will allow the LLCO circuit to trip which simulates the loss of water, without the need of draining the water level in the boiler. The control will return to normal operation once the reset button is pressed a second time. (Test feature option only available with the manual reset function.)

Chart A – Time Out Option

Optional Character	Time Out (in seconds)					
	30	60	90	120	150	180
K	•					
L		•				
M			•			
N				•		
P					•	
Q						•

Chart B – Optional Character Information

Reset Function	Option Components				Control Series	Optional Character
	Normally Closed Pushbutton*	Power Outage	Retrofit Plate	Test Feature		
•					DF "LLCO"	D
•	•				26, 26M, 26NM	C
•		•			26, 26M, 26NM	E
•			•		16, 16D, 26, DF	R
•	•				DF "LLCO"	S
•		•			DF "LLCO"	K
•			•		DF	W
•				•	26, 26M, 26NM, DF"LLCO"	B
•	•	•			26, 26M, 26NM	F
•		•	•		26	N
•	•	•			DF "LLCO"	G
•	•		•		DF	T
•	•			•	26, 26M, 26NM, DF"LLCO"	Y
•		•	•		DF	L
•		•		•	26, 26M, 26NM, DF"LLCO"	Z
•	•	•	•		26	P
•	•	•	•		DF	J
•	•	•		•	26, 26M, 26NM, DF"LLCO"	A
No options						X

\* N.C. pushbutton when purchased in conjunction with open control must be remotely mounted by customer



# Series 19MR

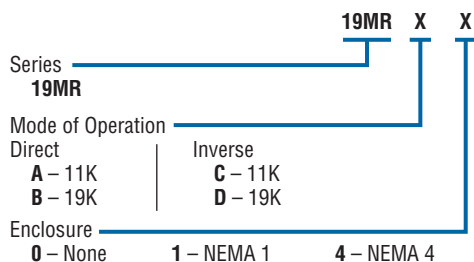
## Direct Motor Load of 30 Amps @ 240 VAC

Series 19MR controls are the ideal choice where pump up or pump down service is necessary. This control eliminates the need for contactors because it can directly handle motors up to 1 HP at 120 VAC, or motors up to 2 HP at 240 VAC.

Enclosures	Optional
Output Contact Rating	30 amp @ 240 VAC
Powered Output Contact	SPST 30 A at supply voltage (120 or 240 VAC)
Horsepower Range	1 hp for 120 VAC; 2 hp for 240 VAC
Terminals	3/16" spade lug on probe connections 1/4" spade lug on power connections
Primary Voltage	120 VAC or 240 VAC (+10%/-15%), 50/60 Hz
Secondary Voltage	11.0 VAC, 1.5 mA
Temperature	-40°F to +150°F (-40°C to +65°C)
Approvals	U.L. 508 File # E44426, Vol. 1 Sec. 6

### How to Order

Use the **Bold** characters from the chart below to construct a product code.

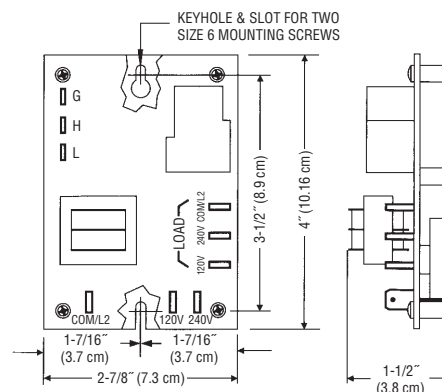


Series 19MR

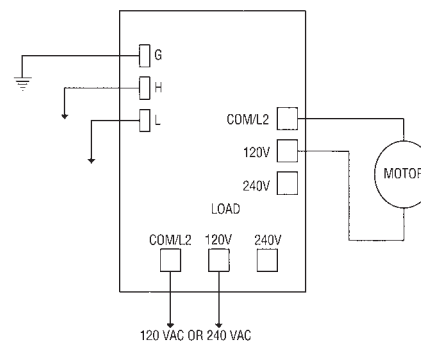
### Applications

- Carbonators
- Appliances
- Sumps
- Low-Water Cutoff
- Direct Motor Load

### Dimensions



### Wiring



**Caution:** 19MR contacts are powered contacts. When power is applied to the 19MR controller, power may be present on relay output connections. Output voltage will be same as input voltage.

WARRICK CONDUCTIVITY SENSORS

## Series DC For Remote Applications

Series DC controls are designed for applications where only direct current power is available. DC units can be used as differential level controls or single point alarm contactors. Because of solid state reliability, plug-in convenience, and choice of 12 or 24 VDC supply voltage, Warrick DC controls can be used with confidence in many applications.

<b>Contact Design</b>	SPDT 1 N.O. & 1 N.C. (1 form C), non-powered contacts
<b>Contact Rating</b>	5 amp @ 30 VDC or 120 VAC Resistive 1/8 hp
<b>Mode of Operation</b>	Direct/Inverse, factory set
<b>Sensitivity</b>	0 - 1M ohm maximum, factory set
<b>Primary Voltage</b>	12 VDC, 24 VDC, negative ground (±20%)
<b>Supply Current</b>	40 mA when relay energized, 10 mA w/relay de-energized
<b>Secondary Voltage</b>	12 VDC
<b>Terminal Style</b>	Screw connector
<b>Temperature</b>	-50°F to +150°F (-46°C to +65°C)
<b>Options</b>	Time Delay



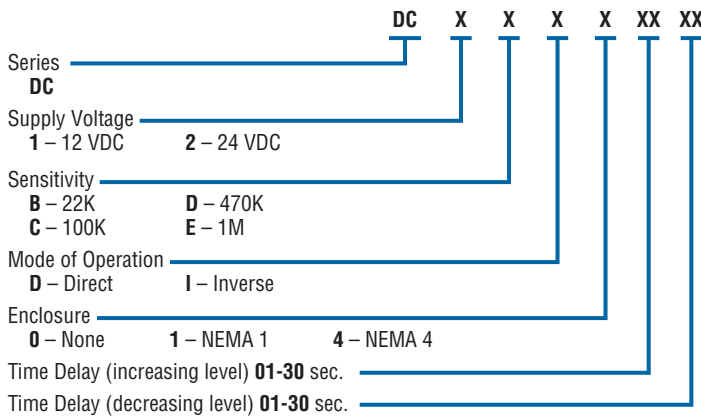
Series DC

### Applications

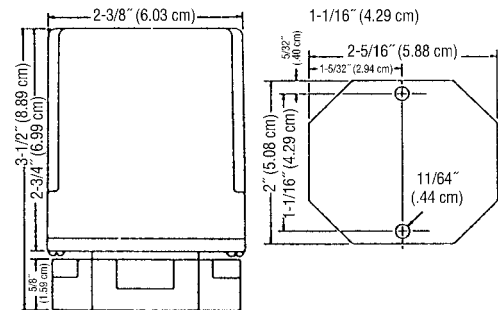
- Single and Differential Service
- Solar and Wind Powered Pumps
- Portable Cleaning Equipment
- Battery-Powered Level Control
- Well Pumps
- Remote Reservoirs
- Remote Irrigation
- Onboard Ship Level Control

### How to Order

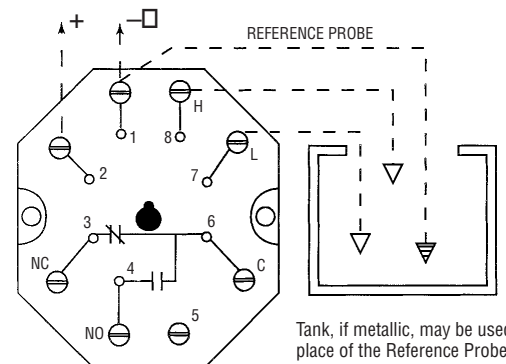
Use the **Bold** characters from the chart below to construct a product code.



### Dimensions



### Wiring



Tank, if metallic, may be used in place of the Reference Probe.

# Series 17 and 27 Intrinsically Safe Controls

- ▶ Cannot Ignite Flammable Materials
- ▶ Solid State Reliability
- ▶ Up to 470K Ohm/cm Sensitivity (Series 17)
- ▶ Internal Surge Suppression
- ▶ SPST Contacts (Series 17)
- ▶ SPDT Contacts (Series 27)
- ▶ Can Be Used for Single Level or Differential Service

## Series 17 – FM Approved

Series 17 is FM Approved for use in Class I or II, Division 1, Groups A-G hazardous atmospheres. SPST isolated contacts. **Field adjustable sensitivity by use of external resistors.**

## Series 27 – UL-CSA Approved

Series 27 is UL approved for use in Class I, Groups A, B, C, D; Class II, Groups E, F, G; and Class III hazardous locations. SPDT output contacts. UL Pilot Duty rated.

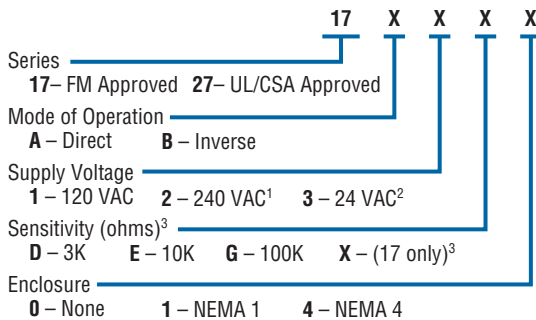
CSA Certified for Class 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III

## Specifications

<b>Contact Design</b>	
Series 17	1 N.O. & 1 N.C. Isolated Contacts
Series 27	1 N.O. & 1 N.C. (1 form C)
<b>Contact Rating (24/120/240VAC)</b> 8 amp Resistive	
<b>Mode of Operation</b> Direct/Inverse, factory set	
<b>Sensitivity</b>	
Series 17	0-470K ohm, field adjustable
Series 27	0-100K ohm, factory set
<b>Primary Voltage</b>	
Series 17	24 VAC, 120 VAC, 240 VAC (+10%/-15%) 50/60 Hz
Series 27	120 VAC, 240 VAC (+10%/-15%) 50/60Hz
<b>Secondary Voltage</b>	
Series 17	13 VAC, 4 mA
Series 27	11 VAC, 2.3 mA
<b>Temperature</b> -40°F to +150°F (-40°C to +65°C)	
<b>Approvals</b>	
Series 17	FM File # 1G9A1.AX
Series 27	U.L. 913 File # E44570; CSA #2174246
<b>Connections</b> All screw type connections	

## How to Order

Use the **Bold** characters from the chart below to construct a product code.



**Notes:**

- 240V standard in Series 17. Non-standard, but available in Series 27.
- 24V available only in Series 17.
- Series 27 only. Series 17 includes a full set of resistors (3.3K, 4.7K, 10K, 47K, 100K, 220K, 470K ohms) to allow modification of sensitivity in the field. Product code symbol in this position for Series 17 is "X."



Series 17

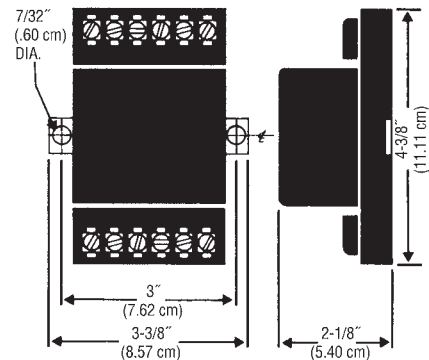


Series 27

## Applications

- Hazardous Atmospheres
- Pumps
- Waste Treatment
- Alarms
- Sewage
- CP Industry

## Dimensions



## Series 47 4-Channel Relay, Alarm Panel Control

- ▶ Solid State Reliability
- ▶ 0-50K Ohm/cm Sensitivity
- ▶ Alarm Contacts for Audible and Visual Alarms
- ▶ 4 Channel Relay
- ▶ Removable Terminal Strips
- ▶ Inverse or Direct Acting Field Selectable
- ▶ U.L. Listed

Series 47 controls offer complete alarm panel control in a single package. Powered output contacts allow quick connection of lights and audible alarms. Test and silence functions are built in. Unit also carries one SPDT master alarm contact for remote alarm activation.

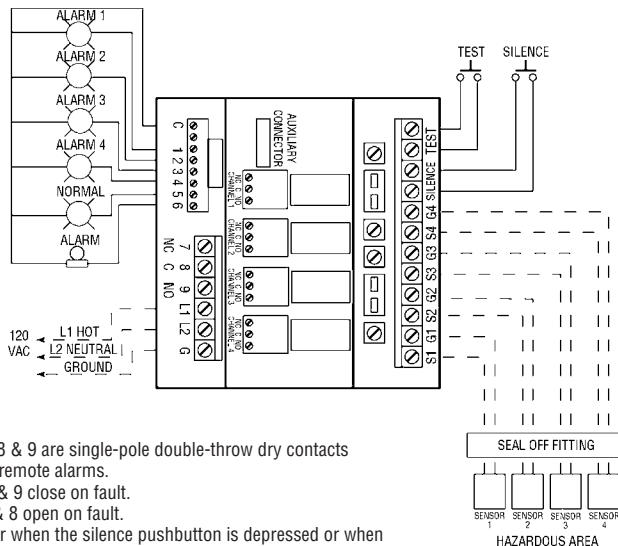
Approved for Class I, II, III, Division 1, Groups C, D, E, F, G hazardous atmospheres, Series 47 controls supply four channels which can be used with conductivity liquid level sensors or dry contact sensors.

This device functions as an alarm or single point control. Field adjustable for direct or inverse operation, it can operate separate visual alarms with a common audible alarm channel. Silence and test terminals are standard. For additional lights, alarms or outputs, auxiliary contacts must be ordered.

### Alarm Specifications

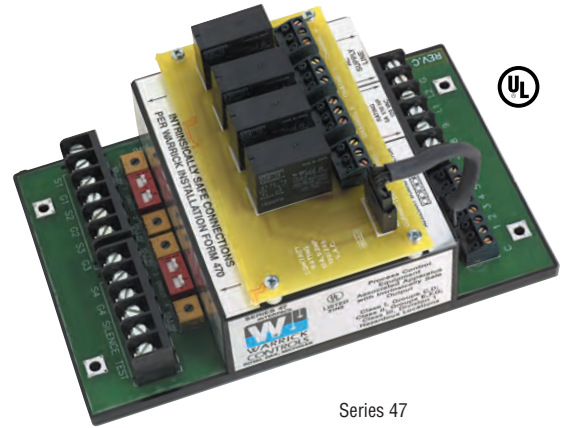
<b>Contact Design</b>	SPDT 1 N.O. & 1 N.C.
<b>Master Alarm Contact Rating (30VDC, 120/240VAC)</b>	5 amp Resistive, 1/10 hp
<b>Indicator Contacts</b>	Powered 120 VAC 25mA
<b>Indicator Contacts for Audible Alarm</b>	Powered 120 VAC 5A
<b>Auxiliary Contacts (optional)</b>	SPDT 120 VAC 10A (not powered)
<b>Sensitivity</b>	0-50K ohm maximum specific resistance
<b>Primary Voltage</b>	120 VAC (+10%/-15%) 50/60 Hz
<b>Secondary Voltage</b>	12 VAC @ 6mA RMS
<b>Temperature</b>	-40°F to +150°F (-40°C to +65°C)
<b>Approvals</b>	U.L. 913 File # E44570

### Wiring



**Notes:**

1. Terminals 7, 8 & 9 are single-pole double-throw dry contacts designed for remote alarms.
2. Terminals 8 & 9 close on fault.
3. Terminals 7 & 8 open on fault.
4. Contacts clear when the silence pushbutton is depressed or when the fault condition is cleared.

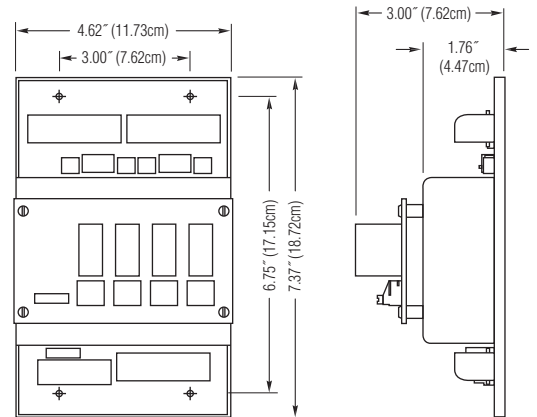


Series 47

### Applications

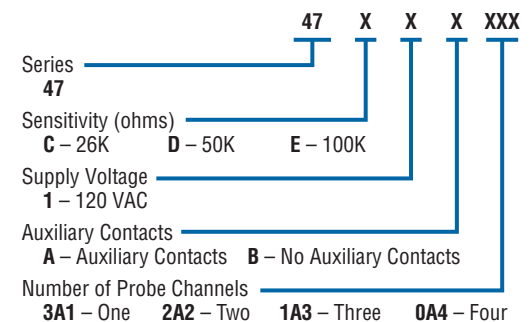
- Hazardous Atmospheres
- Monitoring and Control
- Storage Tank Alarm Panels
- Input for Computer
- Input for Phone Dialer

### Dimensions



### How to Order

Use the **Bold** characters from the chart below to construct a product code.



See Our Interstitial Tank Monitoring Products on page A-22.



# Series 67 Multi-Function Control Duplex Pump System Control

- ▶ Inverse or Direct Acting, Field Selectable
- ▶ Solid State Reliability
- ▶ Compact Size
- ▶ Four Independent Channels – 2 Single, 2 Differential
- ▶ Field Adjustable, Sensitivity and Mode Selection
- ▶ LED Channel Indicators
- ▶ Built-in Silence/Acknowledge Circuit
- ▶ U.L. “Intrinsically Safe”

Warrick's Series 67 four channel level control is an ideal solution to liquid level problems in hazardous applications for the sewage, waste water, chemical and groundwater remediation industries.

Connected to floats or conductance probes this versatile control provides simplex or duplex pump/solenoid valve control; automatic or manual alternation; high and/or low level alarms with silence/acknowledge capabilities.

The Series 67 can be used in hazardous applications as an intrinsically safe interface to non-powered contacts and sensors such as push button operators, limit, temperature, pressure and vacuum switches.

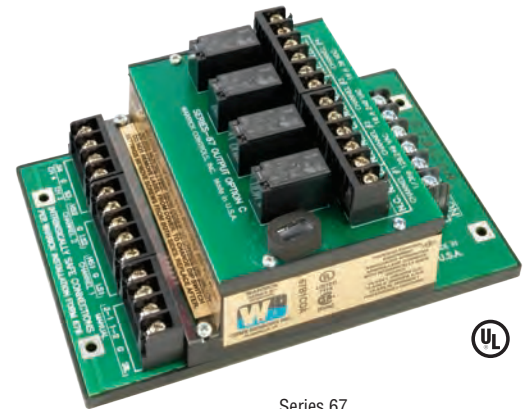
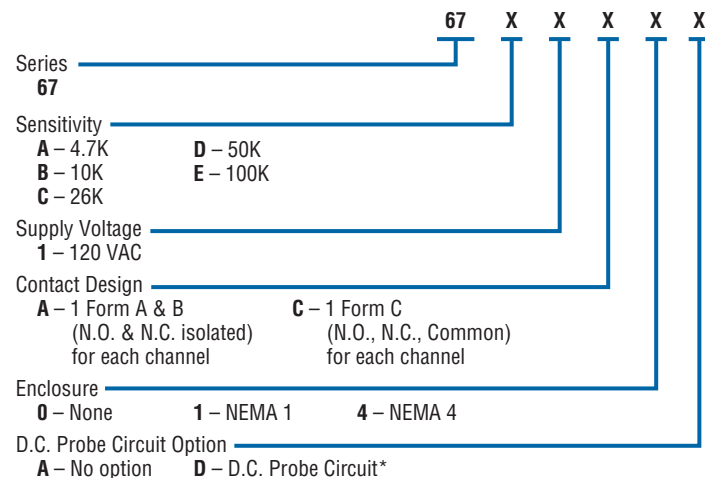
Designed for hazardous applications, its low cost, integrated features and compact size also make it ideal for non-hazardous applications.

## Specifications

<b>Contact Design</b>	Standard N.O., N.C. (form C); Optional N.O., N.C.
<b>Contact Rating (30VDC, 120/240VAC)</b>	10 amp (style C); 5 amp (style A)
<b>Primary Voltage</b>	120 VAC, 50/60 Hz
<b>Secondary Voltage</b>	12 VAC @ 6mA RMS
<b>Sensitivity</b>	4.7K - 100K ohms maximum specific resistance, factory set
<b>Temperature</b>	-40°F to +150°F (-40°C to +65°C)
<b>Approvals</b>	U.L. 913 File # E44570

## How to Order

Use the **Bold** characters from the chart below to construct a product code.

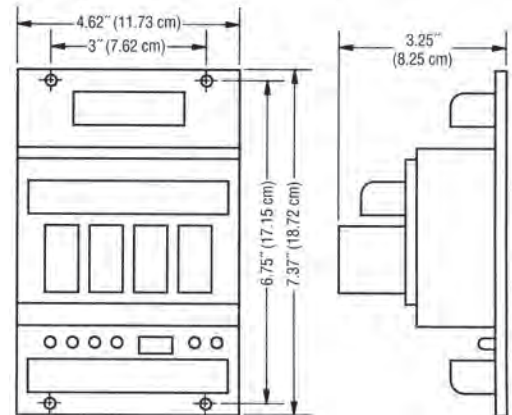


Series 67

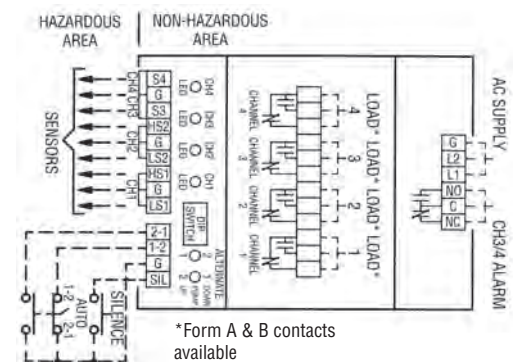
## Applications

- Hazardous Atmospheres
- Multiple Functions
- Simplex or Duplex
- High/Low Level Alarms
- Auto or Manual Alternation
- Pump/Solenoid Valves
- Sewage Lift Stations
- Wastewater Treatment
- Chemical Plants
- Groundwater Remediation

## Dimensions



## Wiring



See Our Interstitial Tank Monitoring Products on page A-22.

