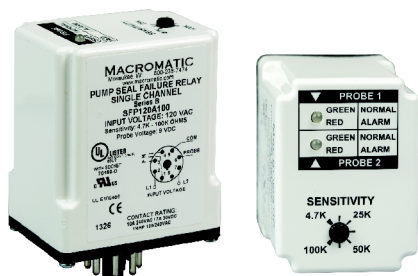


# PUMP SEAL FAILURE RELAYS

## SINGLE & DUAL CHANNEL SFP SERIES PLUG-IN



Single Channel

Dual Channel

- ◆ Monitors Submersible Pump Seals for Leakage
- ◆ Single or Dual Channel for Monitoring 1 or 2 Pumps
- ◆ Two Adjustable Sensitivity Ranges
- ◆ Probe is Pulsed with a DC Voltage to Prevent Electroplating
- ◆ Low-Profile Adjustment Knob
- ◆ Uses industry-standard 8 & 11 pin octal sockets



with appropriate socket



800-238-7474

www.macromatic.com  
sales@macromatic.com

SFP Series Pump Seal Failure Relays are designed to monitor the shaft seals of submersible pumps. A resistive-measuring probe is installed in the pump seal cavity. If the seal starts to leak, contaminating fluid enters the seal cavity. This lowers the resistance between the internal probe & the common connection. When the resistance drops below the user-adjustable sensitivity set-point of the relay, the output relay energizes & the LED turns Red ON. The relay output can be used to give an alarm indication of a leaking seal. These products will automatically reset when the fault condition clears.

Three output configurations are offered: an 8 pin SPDT single channel relay & an 11 pin DPDT single channel relay to monitor a single pump, and an 8 pin dual channel relay (with 2 SPNO contacts) to monitor two pumps. Probes are pulsed with a DC voltage to prevent electroplating issues.

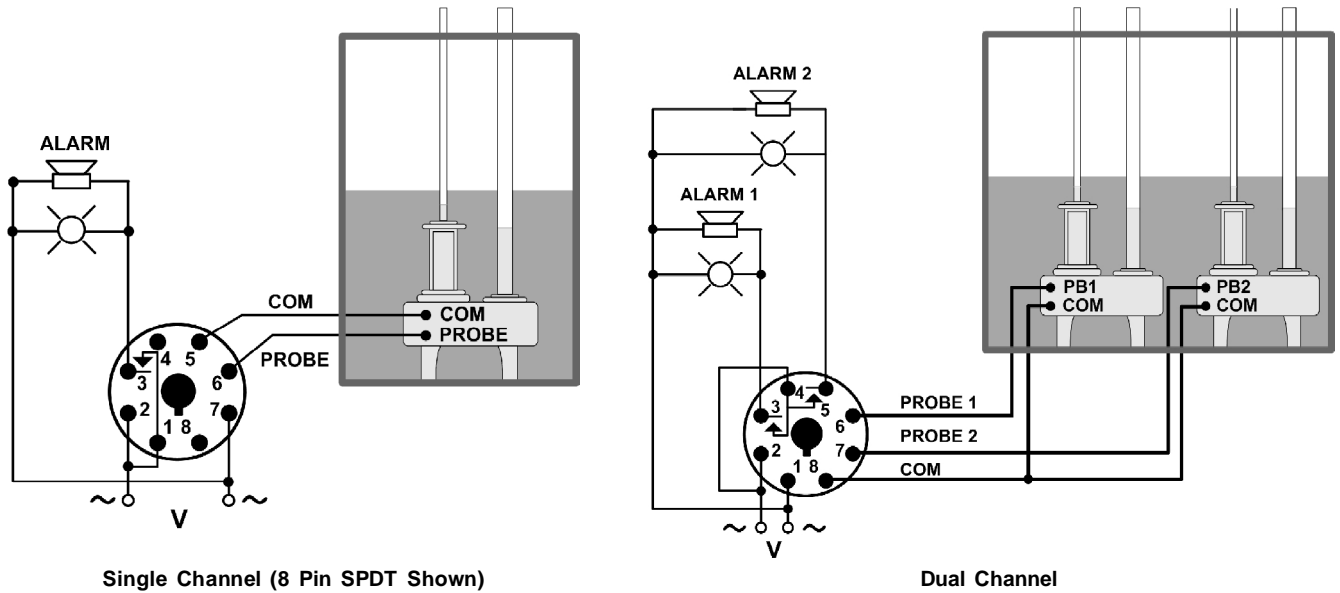
CONFIGURATION	INPUT VOLTAGE	SENSITIVITY RANGE	PRODUCT NUMBER	WIRING/SOCKET ■
SINGLE CHANNEL 8 Pin SPDT	120V AC	4.7K to 100KΩ 1K to 250KΩ	SFP120A100 SFP120A250	8 Pin Octal <b>70169-D</b>  <b>DIAGRAM 163</b>
	240V AC	4.7K to 100KΩ 1K to 250KΩ	SFP240A100 SFP240A250	
SINGLE CHANNEL 11 Pin DPDT	120V AC	4.7K to 100KΩ 1K to 250KΩ	SFP120B100 SFP120B250	11 Pin Octal <b>70170-D</b>  <b>DIAGRAM 162</b>
	240V AC	4.7K to 100KΩ 1K to 250KΩ	SFP240B100 SFP240B250	
DUAL CHANNEL 8 Pin (2) SPNO	120V AC	4.7K to 100KΩ 1K to 250KΩ	SFP120C100 SFP120C250	8 Pin Octal <b>70169-D</b>  <b>DIAGRAM 164</b>
	240V AC	4.7K to 100KΩ 1K to 250KΩ	SFP240C100 SFP240C250	

Application Data & Dimensions—Page 39  
Sockets & Accessories—Pages 80 & 81

# PUMP SEAL FAILURE RELAYS

**SINGLE & DUAL CHANNEL**  
**SFP SERIES PLUG-IN**  
**APPLICATION DATA & DIMENSIONS**

## TYPICAL INSTALLATIONS



Single Channel (8 Pin SPDT Shown)

Dual Channel

## APPLICATION DATA

### Voltage Tolerance:

AC Operation: +10/-15% of nominal at 50/60 Hz.

### Load (Burden):

3VA

### Probe Voltage:

5V DC Pulsed

### Response Time:

Pick-up: 1 Second

Drop-out: 1 Second

### LED Indicator:

Green ON with input voltage applied; Red ON when seal leak detected and relay energized

### Temperature:

-28° to 65°C (-18° to 149°F)

### Output Contacts:

Single Channel Relays:

8 Pin SPDT: 10A @ 240V AC / 7A @ 28V DC, 1/4HP @ 120V AC (N.O.)

11 Pin DPDT: 7A @ 240V AC / 7A @ 28V DC, 1/4HP @ 120V AC (N.O.)

Dual Channel Relays:

(2) 5A @ 240V AC / 5A @ 28V DC, 1/4HP @ 120V AC (N.O.)

### Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

### Mounting

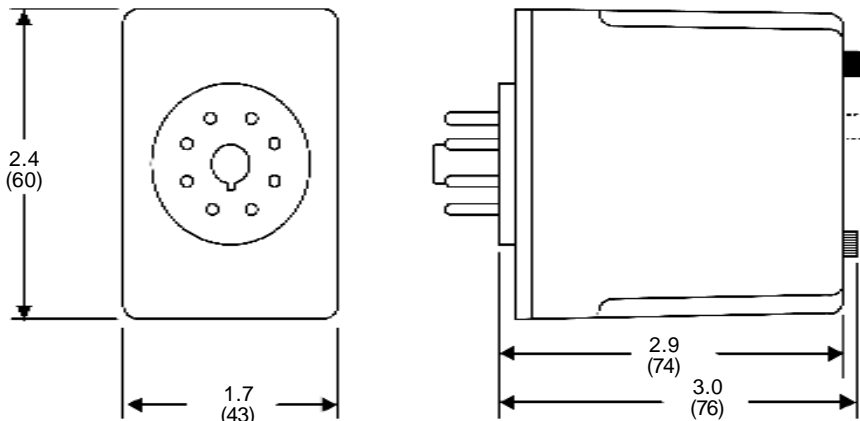
Requires Industry-Standard 8 Pin Octal Socket (Macromatic 70169-D or equivalent) or 11 Pin Octal Socket (Macromatic 70170-D or equivalent)

### Approvals:



File #E109466

## DIMENSIONS



All Dimensions in Inches (Millimeters)

# SOCKETS & ACCESSORIES

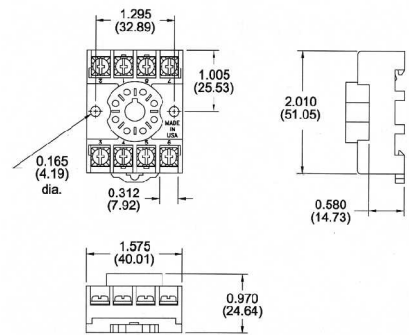
## 8 Pin Octal Socket-- Surface or DIN Rail-Mounted

10A @ 600V \*  
1 or 2 #12-22 AWG Wire  
Recommended Tightening Torque  
of 6-7 in-lbs. (12 in-lbs maximum)  
Pressure Wire Clamp Terminations



File #E169693 File #LR701114

### Product Number 70169-D



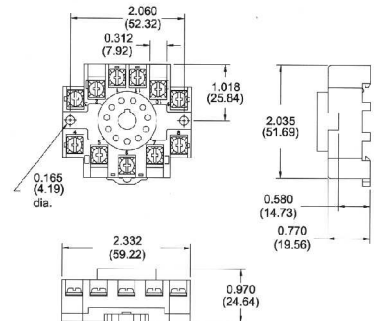
## 11 Pin Octal Socket-- Surface or DIN Rail-Mounted

10A @ 300V  
1 or 2 #12-22 AWG Wire  
Recommended Tightening Torque  
of 6-7 in-lbs. (12 in-lbs maximum)  
Pressure Wire Clamp Terminations



File #E169693 File #LR701114

### Product Number 70170-D



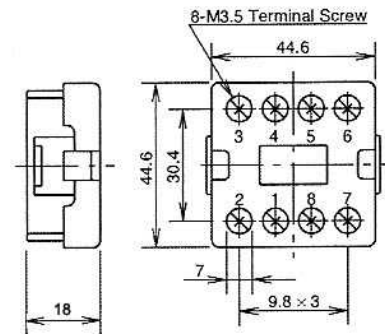
## 8 Pin Octal Socket-- Back-Mounted

10A @ 300V  
Pressure Wire Clamp Terminations



File #E62437

### Product Number SR6P-M08G



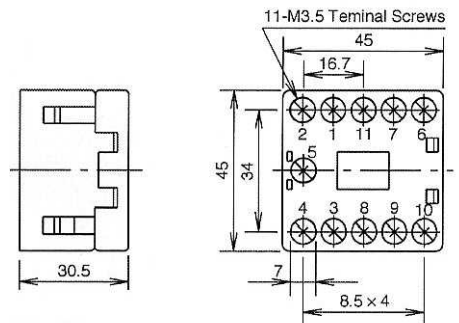
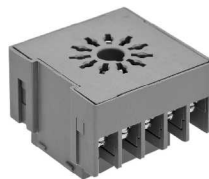
## 11 Pin Octal Socket-- Back-Mounted

10A @ 300V  
Pressure Wire Clamp Terminations



File #E62437

### Product Number SR6P-M11G



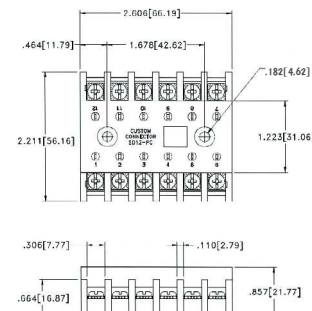
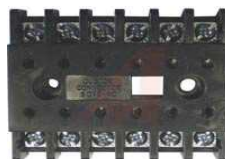
## 12 Pin Socket-- Surface-Mounted

10A @ 600V  
#12-20 AWG Wire  
Pressure Wire Clamp Terminations



File #E60008 File #LR29513

### Product Number SD12-PC



\* Plug-in Three-Phase Monitor Relays require a 600V-rated socket when used on system voltages greater than 300V.

# SOCKETS & ACCESSORIES

## Hold Down Spring Product Number 70166

Can be used for:

- ◆ Panel-Mounted Sockets
- ◆ Sockets Mounted to 35mm DIN Track \*

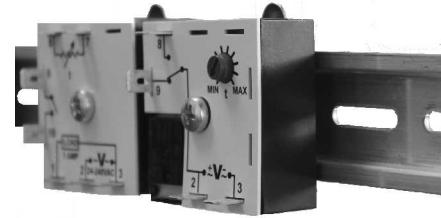
\* Requires two machine screws with washers & nuts-- contact Macromatic or [www.macromatic.com/70166](http://www.macromatic.com/70166) for more information.



## DIN Rail Adaptor Kit Product Number 70500

Quick & Economical Way to Install Any THx Series 2" x 2" Encapsulated Time Delay Relays on 35mm DIN Track

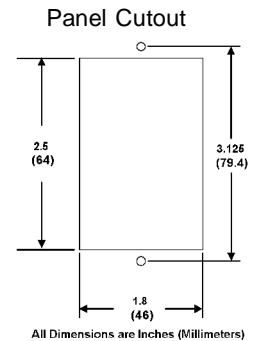
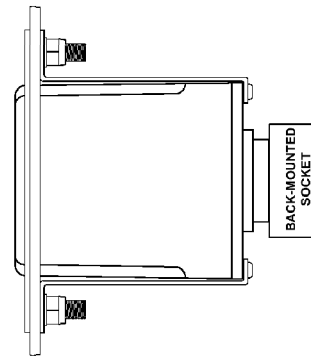
- ◆ Clip Comes with a Threaded Hole to Eliminate Need for a Washer & Nut
- ◆ All Mounting Hardware Included



## Panel Mount Assembly For Panel Mounting Standard Plug-in Products Product Number 70400

This assembly provides a simple & economical method to mount plug-in products to the deadfront of an enclosure/panel:

- ◆ Sturdy Aluminum Construction
- ◆ Stainless Steel Studs
- ◆ All Mounting Hardware Included
- ◆ White Textured Painted Finish
- ◆ 2 3/16" W x 3 7/16" H



(Relay Not Included with Assembly--  
Shown for Reference Only)

## INDEX BY PRODUCT NUMBER

Product *	Page	Product *	Page	Product *	Page	Product *	Page	Product *	Page	Product *	Page
70166	81	ARP024A6	32	ATP024A1R	36	CMKP10A68	18	COKP01A68	19	COP10A62	19
70169-D	80	ARP024A6R	32	ATP024A7R	36	CMP01A22	18	COKP05A22	19	COP10A68	19
70170-D	80	ARP120A2	32	ATP120A1	36	CMP01A28	18	COKP05A28	19	CUH05Ayyy ***	16
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70500	81	ARP120A3	34	ATP120A7R	36	CMP01A68	18	COKP05A68	19	CUH50Ayyy ***	16
ARP012A2	32	ARP120A3R	34	CAH05Ayyy	16	CMP05A22	18	COKP10A22	19	CUP01A22	20
ARP012A2R	32	ARP120A5	34	CAH20Ayyy	16	CMP05A28	18	COKP10A28	19	CUP01A28	20
ARP012A3	34	ARP120A5R	34	CAH50Ayyy	16	CMP05A62	18	COKP10A62	19	CUP01A62	20
ARP012A3R	34	ARP120A6	32	CMKP01A22	18	CMP05A68	18	COKP10A68	19	CUP01A68	20
ARP012A5	34	ARP120A6R	32	CMKP01A28	18	CMP10A22	18	COP01A22	19	CUP05A22	20
ARP012A5R	34	ARP240A2	32	CMKP01A62	18	CMP10A28	18	COP01A28	19	CUP05A28	20
ARP012A6	32	ARP240A2R	32	CMKP01A68	18	CMP10A62	18	COP01A62	19	CUP05A62	20
ARP012A6R	32	ARP240A3	34	CMKP05A22	18	CMP10A68	18	COP01A68	19	CUP05A68	20
ARP024A2	32	ARP240A3R	34	CMKP05A28	18	COH05Ayyy	16	COP05A22	19	CUP10A22	20
ARP024A2R	32	ARP240A5	34	CMKP05A62	18	COH20Ayyy	16	COP05A28	19	CUP10A28	20
ARP024A3	34	ARP240A5R	34	CMKP05A68	18	COH50Ayyy	16	COP05A62	19	CUP10A62	20
ARP024A3R	34	ARP240A6	32	CMKP10A22	18	COKP01A22	19	COP05A68	19	CUP10A68	20
ARP024A5	34	ARP240A6R	32	CMKP10A28	18	COKP01A28	19	COP10A22	19		
ARP024A5R	34	ATP024A1	36	CMKP10A62	18	COKP01A62	19	COP10A28	19		

\* The "-xx" suffix denotes the time range for time delay relays with adjustable time delay. Contact Macromatic for any product not listed.

\*\*\* The "-yyy" suffix denotes the input voltage, trip delay & sensing delay for CxH Series encapsulated current sensing relays.

Continued on  
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# INDEX BY PRODUCT NUMBER (CONTINUED)

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ISP120A	40	TD-78126	69	THR-11561-xxJ	46	THR-16161-xxJ	44	TR-51522-xx	57	TR-61326	63
PAP120	8	TD-78128	69	THR-11561-xxJT	48	THR-16162-xx	43	TR-51526-xx	57	TR-61328	63
PAP208	8	TD-80221-xx	67	THR-11561-xxT	47	THR-16162-xxJ	44	TR-51528-xx	57	TR-61521	63
PAP240	8	TD-80222-xx	67	THR-11562-xx	45	THR-16166-xx	43	TR-51561-xx	60	TR-61522	63
PAP400	8	TD-80226-xx	67	THR-11562-xxJ	46	THR-16166-xxJ	44	TR-51562-xx	60	TR-61526	63
PAP480	8	TD-80228-xx	67	THR-11562-xxJT	48	THR-16168-xx	43	TR-51566-xx	60	TR-61528	63
PCP1	6	TD-80521-xx	67	THR-11562-xxT	47	THR-16168-xxJ	44	TR-51568-xx	60	TR-61621	63
PCP2	6	TD-80522-xx	67	THR-11566-xx	45	THR-16561-xx	45	TR-51621-xx	57	TR-61622	63
PLP120	6	TD-80526-xx	67	THR-11566-xxJ	46	THR-16561-xxJ	46	TR-51622-xx	57	TR-61626	63
PLP208	6	TD-80528-xx	67	THR-11566-xxJT	48	THR-16561-xxJT	48	TR-51626-xx	57	TR-61628	63
PLP240	6	TD-81521-xx	67	THR-11566-xxT	47	THR-16561-xxT	47	TR-51628-xx	57	TR-61721	63
PLP400	6	TD-81522-xx	67	THR-11568-xx	45	THR-16562-xx	45	TR-51661-xx	60	TR-61722	63
PLP480	6	TD-81526-xx	67	THR-11568-xxJ	46	THR-16562-xxJ	46	TR-51662-xx	60	TR-61726	63
PMD120	14	TD-81528-xx	67	THR-11568-xxJT	48	THR-16562-xxJT	48	TR-51666-xx	60	TR-61728	63
PMD600	14	TD-81621-xx	67	THR-11568-xxT	47	THR-16562-xxT	47	TR-51668-xx	60	TR-61821	63
PMDU	14	TD-81622-xx	67	THR-11661-xx	45	THR-16566-xx	45	TR-51721-xx	57	TR-61822	63
PMP120	10	TD-81626-xx	67	THR-11661-xxJ	46	THR-16566-xxJ	46	TR-51722-xx	57	TR-61826	63
PMP208-FA11	12	TD-81628-xx	67	THR-11661-xxJT	48	THR-16566-xxJT	48	TR-51726-xx	57	TR-61828	63
PMP240-FA11	12	TD-83121-xx	67	THR-11661-xxT	47	THR-16566-xxT	47	TR-51728-xx	57	TR-61921	63
PMPU	10	TD-83122-xx	67	THR-11662-xx	45	THR-16568-xx	45	TR-51761-xx	60	TR-61922	63
PMPU-FA12	12	TD-83126-xx	67	THR-11662-xxJ	46	THR-16568-xxJ	46	TR-51762-xx	60	TR-61926	63
PMPU-FA8	12	TD-83128-xx	67	THR-11662-xxJT	48	THR-16568-xxJT	48	TR-51766-xx	60	TR-61928	63
PMPU-FA8X	12	TD-85121-xx	67	THR-11662-xxT	47	THR-16568-xxT	47	TR-51768-xx	60	TR-63121	64
SD12-PC	80	TD-85122-xx	67	THR-11666-xx	45	THS-1024A-xx	50	TR-51821-xx	57	TR-63122	64
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SFP120A100	38	TD-85128-xx	67	THR-11666-xxJT	48	THS-1054A-xx	50	TR-51826-xx	57	TR-63128	64
SFP120A250	38	TD-88121	66	THR-11666-xxT	47	THS-1054D-xx	50	TR-51828-xx	57	TR-65121	64
SFP120B025	38	TD-88122	66	THR-11668-xx	45	THS-1094A-xx	50	TR-51861-xx	60	TR-65122	64
SFP120B100	38	TD-88126	66	THR-11668-xxJ	46	THS-1094D-xx	50	TR-51862-xx	60	TR-65126	64
SFP120B250	38	TD-88128	66	THR-11668-xxJT	48	THS-1134A-xx	51	TR-51866-xx	60	TR-65128	64
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SFP120C250	38	THR-10261-xxJ	44	THR-12261-xxJ	46	THS-1134D-xxT	52	TR-51922-xx	57	TR-66126	64
SFP240A025	38	THR-10262-xx	43	THR-12261-xxJT	48	THS-1154A-xx	51	TR-51926-xx	57	TR-66128	64
SFP240A100	38	THR-10262-xxJ	44	THR-12261-xxT	47	THS-1154A-xxT	52	TR-51928-xx	57	TR-66521	64
SFP240A250	38	THR-10266-xx	43	THR-12262-xx	45	THS-1154D-xx	51	TR-51961-xx	60	TR-66522	64
SFP240B025	38	THR-10266-xxJ	44	THR-12262-xxJ	46	THS-1154D-xxT	52	TR-51962-xx	60	TR-66526	64
SFP240B100	38	THR-10268-xx	43	THR-12262-xxJT	48	THS-1164A-xx	51	TR-51966-xx	60	TR-66528	64
SFP240B250	38	THR-10268-xxJ	44	THR-12262-xxT	47	THS-1164A-xxT	52	TR-51968-xx	60	VAKP012D	24
SFP240C025	38	THR-10561-xx	43	THR-12266-xx	45	THS-1164D-xx	51	TR-53121-xx	58	VAKP024A	24
SFP240C100	38	THR-10561-xxJ	44	THR-12266-xxJ	46	THS-1164D-xxT	52	TR-53122-xx	58	VAKP024D	24
SFP240C250	38	THR-10562-xx	43	THR-12266-xxJT	48	THS-1224A-xx	51	TR-53126-xx	58	VAKP048D	24
SR6P-M08G	80	THR-10562-xxJ	44	THR-12266-xxT	47	THS-1224A-xxT	52	TR-53128-xx	58	VAKP110D	24
SR6P-M11G	80	THR-10566-xx	43	THR-12268-xx	45	THS-1224D-xx	51	TR-54121-xx	58	VAKP120A	24
SS-6262-xx	76	THR-10566-xxJ	44	THR-12268-xxJ	46	THS-1224D-xxT	52	TR-54122-xx	58	VAKPU	26
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SS-6268-xx	76	THR-10568-xxJ	44	THR-12268-xxT	47	THS-1314D-xx	50	TR-54128-xx	58	VAP024A	24
SS-8062-xx	76	THR-10861-xx	43	THR-13161-xx	43	THS-1414A-xx	51	TR-55121-xx	58	VAP024D	24
SS-8066-xx	76	THR-10861-xxJ	44	THR-13161-xxJ	44	THS-1414A-xxT	52	TR-55122-xx	58	VAP048D	24
SS-8068-xx	76	THR-10862-xx	43	THR-13162-xx	43	THS-1414D-xx	51	TR-55126-xx	58	VAP110D	24
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SS-8762-xx	76	THR-10868-xx	43	THR-13168-xx	43	THS-1614A-xx	50	TR-56126-xx	58	VMKP024D	23
SS-8766-xx	76	THR-10868-xxJ	44	THR-13168-xxJ	44	THS-1614D-xx	50	TR-56128-xx	58	VMKP048D	23
SS-8768-xx	76	THR-10961-xx	43	THR-14161-xx	45	THS-1654A-xx	51	TR-56521-xx	58	VMKP110D	23
TAA1U	74	THR-10961-xxJ	44	THR-14161-xxJ	46	THS-1654A-xxT	52	TR-56522-xx	58	VMKP120A	23
TAA2U	74	THR-10962-xx	43	THR-14161-xxJT	48	THS-1654D-xx	51	TR-56526-xx	58	VMP012D	23
TD-70221	70	THR-10962-xxJ	44	THR-14161-xxT	47	THS-1654D-xxT	52	TR-56528-xx	58	VMP024A	23
TD-70222	70	THR-10966-xx	43	THR-14162-xx	45	TR-50221-xx	56	TR-60221	62	VMP024D	23
TD-70226	70	THR-10966-xxJ	44	THR-14162-xxJ	46	TR-50222-xx	56	TR-60222	62	VMP048D	23
TD-70228	70	THR-10968-xx	43	THR-14162-xxJT	48	TR-50226-xx	56	TR-60226	62	VMP110D	23
TD-70521	70	THR-10968-xxJ	44	THR-14162-xxT	47	TR-50228-xx	56	TR-60228	62	VMP120A	23
TD-70522	70	THR-11361-xx	45	THR-14166-xx	45	TR-50521-xx	56	TR-60521	62	VVKP012D	28
TD-70526	70	THR-11361-xxJ	46	THR-14166-xxJ	46	TR-50522-xx	56	TR-60522	62	VVKP024A	28
TD-70528	70	THR-11361-xxJT	48	THR-14166-xxJT	48	TR-50526-xx	56	TR-60526	62	VVKP024D	28
TD-70821	70	THR-11361-xxT	47	THR-14166-xxT	47	TR-50528-xx	56	TR-60528	62	VVKP048D	28
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TD-70826	70	THR-11362-xxJ	46	THR-14168-xxJ	46	TR-50822-xx	56	TR-60622	62	VVKP120A	28
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TD-71522	70	THR-11366-xx	45	THR-15161-xx	43	TR-51321-xx	57	TR-60822	62	VW P024A	28
TD-71526	70	THR-11366-xxJ	46	THR-15161-xxJ	44	TR-51322-xx	57	TR-60826	62	VW P024D	28
TD-71528	70	THR-11366-xxJT	48	THR-15162-xx	43	TR-51326-xx	57	TR-60828	62	VW P048D	28
TD-71621	70	THR-11366-xxT	47	THR-15162-xxJ	44	TR-51328-xx	57	TR-60921	62	VWP110D	28
TD-71622	70	THR-11368-xx	45	THR-15166-xx	43	TR-51361-xx	60	TR-60922	62	VWP120A	28
TD-71626	70	THR-11368-xxJ	46	THR-15166-xxJ	44	TR-51362-xx	60	TR-60926	62		
TD-71628	70	THR-11368-xxJT	48	THR-15168-xx	43	TR-51366-xx	60	TR-60928	62		
TD-78121	69	THR-11368-xxT	47	THR-15168-xxJ	44	TR-51368-xx	60	TR-61321	63		

\* The "-xx" suffix denotes the time range for time delay relays with adjustable time delay. Contact Macromatic for any product not listed.