

VOLTAGE MONITOR RELAYS

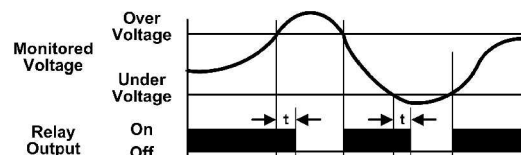
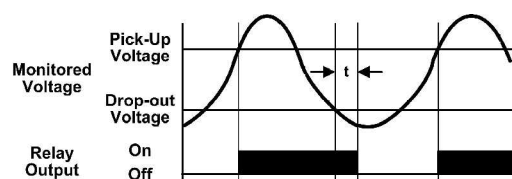
PRODUCT SUMMARY



Voltage Monitor Relays monitor either AC single phase (50-60Hz) or DC voltages to protect equipment against voltage fault conditions. No separate supply (input) voltage is required on any Macromatic Voltage Monitor Relays. All versions are available in a compact plug-in case utilizing an 8 pin octal socket.

Macromatic offers two styles of Voltage Monitor Relays:

- ◆ **Over/Under Voltage Relays**--provides protection to equipment where either an over or under voltage condition is potentially damaging. When used as an under voltage relay, they provide protection to equipment that is required to operate above a minimum voltage. When used as over voltage relays, they protect equipment against excessive voltage conditions. Over/Under Voltage Relays are designed to operate when the operating voltage reaches a preset value and drop-out when the operating voltage drops to a level below the preset value.
- ◆ **Voltage Band Relays**--provides protection to equipment that is required to operate within an upper & lower voltage limit. As long as the operating voltage remains within an OVER & UNDER voltage range, the internal relay stays energized. If the operating voltage falls outside this range, the relay will drop-out.



These products are summarized below:

OVERVOLTAGE/UNDERVOLTAGE RELAYS					
Monitored Voltage	Pick-up Setting	Drop-out Setting	Time Delay on Drop-out	Series	Page
12V DC, 24V AC, 24V DC, 48V DC, 110V DC & 120V AC	Adjustable	Fixed	Fixed 500ms	VMP	23
	Adjustable	Adjustable	Fixed 500ms	VMKP	23
	Adjustable	Fixed	Adjustable 0.5-10 Seconds	VAP	24
	Adjustable	Adjustable	Adjustable 0.5-10 Seconds	VAKP	24
208-240V AC	Adjustable	Adjustable	Adjustable 0.1-10 Seconds	VAKPU	26
VOLTAGE BAND RELAYS					
Monitored Voltage	Overvoltage Setting	Undervoltage Setting	Time Delay on Drop-out	Series	Page
12V DC, 24V AC, 24V DC, 48V DC, 110V DC & 120V AC	Adjustable	Adjustable	Fixed 500ms	VWP	28
	Adjustable	Adjustable	Adjustable 0.5-10 Seconds	VWKP	28
208-240V AC	Adjustable	Adjustable	Adjustable 0.1-10 Seconds	VWKPU	30

VOLTAGE MONITOR RELAYS

VW SERIES VOLTAGE BAND (WINDOW)

12-120V PLUG-IN



- ◆ Monitors AC single phase and DC voltages
- ◆ Provides voltage band (window) protection
- ◆ Wide range of user-adjustable Over Voltage and Under Voltage settings
- ◆ Fixed or adjustable time delay on drop-out
- ◆ LED indicates output relay status
- ◆ Compact plug-in case utilizing industry standard 8 pin octal socket
- ◆ 10A DPDT output contacts

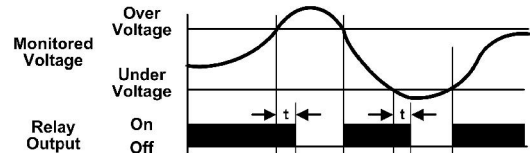


(with appropriate socket)

Voltage Band Relays provide protection to equipment that is required to operate within an upper & lower voltage limit. As long as the operating voltage remains within an OVER & UNDER voltage range, the internal relay stays energized. If the operating voltage falls outside this range, the relay will drop-out.

When nominal operating voltage with a value between the UPPER & LOWER setting is applied, the internal relay will energize (Pick-up). If the operating voltage falls outside the preset OVER trip point

(adjustable 100-125% of nominal) or UNDER trip point (adjustable 75-100% of nominal) for a period longer than the drop-out time delay (t), the relay will de-energize (Drop-out). When the voltage returns to normal (within the preset OVER & UNDER trip points), the unit automatically resets and the relay energizes. Choose between a unit with fixed drop-out time of 500ms or one with an adjustable 0.5-10 second drop-out time.



Fixed Drop-Out Time Delay (500ms)

NOMINAL VOLTAGE	OVER VOLTAGE RANGE	UNDER VOLTAGE RANGE*	PRODUCT NUMBER	WIRING/ SOCKET
24V AC 120V AC	24-30V AC 120-150V AC	18-24V AC 90-120V AC	VWP024A VWP120A	8 Pin Octal 70169-D MONITORED VOLTAGE DIAGRAM 20
12V DC 24V DC 48V DC 110V DC	12-15V DC 24-30V DC 48-60V DC 110-137V DC	9-12V DC 18-24V DC 36-48V DC 83-110V DC	VWP012D VWP024D VWP048D VWP110D	

Adjustable Drop-Out Time Delay 0.5 - 10 Seconds

NOMINAL VOLTAGE	OVER VOLTAGE RANGE	UNDER VOLTAGE RANGE*	PRODUCT NUMBER	WIRING/ SOCKET
24V AC 120V AC	24-30V AC 120-150V AC	18-24V AC 90-120V AC	VWKP024A VWKP120A	8 Pin Octal 70169-D MONITORED VOLTAGE DIAGRAM 20
12V DC 24V DC 48V DC 110V DC	12-15V DC 24-30V DC 48-60V DC 110-137V DC	9-12V DC 18-24V DC 36-48V DC 83-110V DC	VWKP012D VWKP024D VWKP048D VWKP110D	



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Application Data & Dimensions—Page 29
Sockets & Accessories—Pages 80 & 81

VOLTAGE MONITOR RELAYS

VW SERIES VOLTAGE BAND (WINDOW)

12-120V PLUG-IN

APPLICATION DATA & DIMENSIONS

APPLICATION DATA

Voltage Tolerance:

+25%/-50% of nominal voltage; AC voltages are 50-60Hz;
No separate supply (input) voltage is required.

Load (Burden): Less than 3VA

Voltage Settings:

Over Voltage: 100-125% of Nominal Voltage
Under Voltage: 75-100% of Nominal Voltage

Temperature:

-28° to 55° C (-18° to 131° F)

Indicator LED: Red Steady when Relay is energized; Green when Relay is Off.

Reset: Automatic.

Response Times:

Operate: 500ms

Release: Fixed 500 ms (VWP Series)

Adjustable 0.5 -10 Seconds (VWKP Series)

Output Contacts:

10A @ 240V AC/30V DC, 1/2HP @ 120/240V AC (N.O.),
1/3HP @ 120/240V AC (N.C.)

Life:

Mechanical: 10,000,000 operations

Full Load: 100,000 operations

Transient Protection:

10,000 volts for 20 microseconds

Approvals:

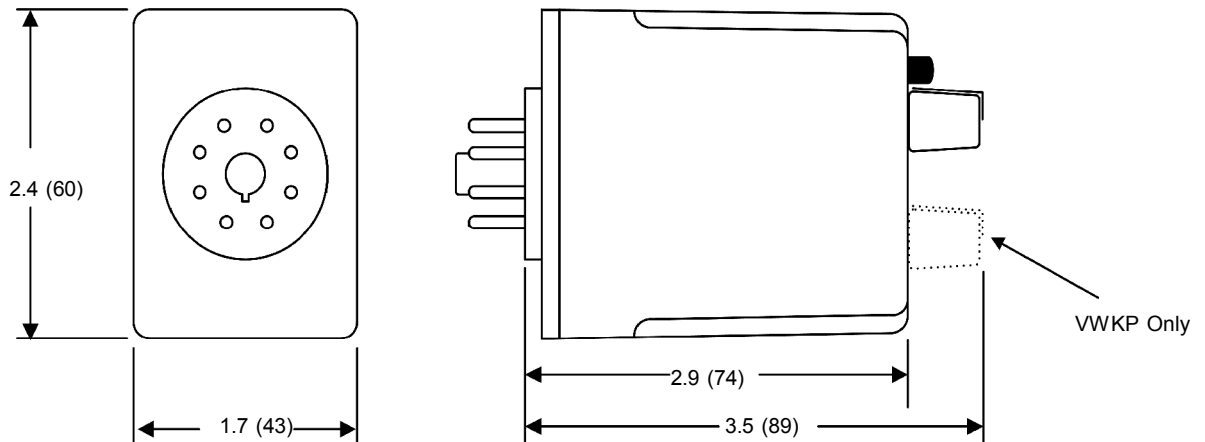
cULUS
File #E109466



Low Voltage & EMC Directives
EN60947-1, EN60947-5-1

UL LISTED
IND. CONT. EQUIP.
5007
with
appropriate
socket
File #E109466

DIMENSIONS



All Dimensions in
Inches (Millimeters)

SOCKETS & ACCESSORIES

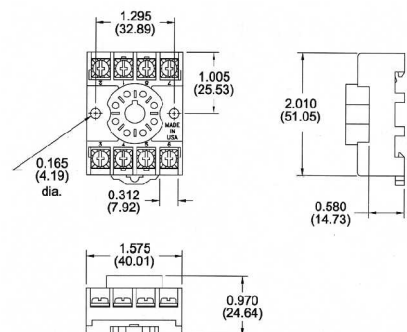
8 Pin Octal Socket-- Surface or DIN Rail-Mounted

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



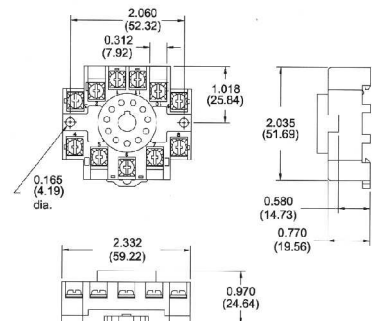
11 Pin Octal Socket-- Surface or DIN Rail-Mounted

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



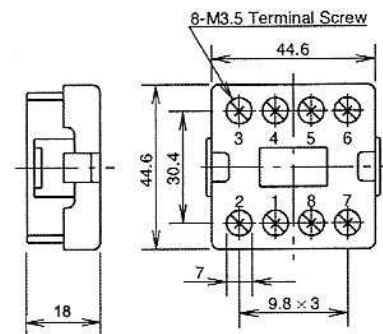
8 Pin Octal Socket-- Back-Mounted

10A @ 300V
Pressure Wire Clamp Terminations



File #E62437

Product Number SR6P-M08G



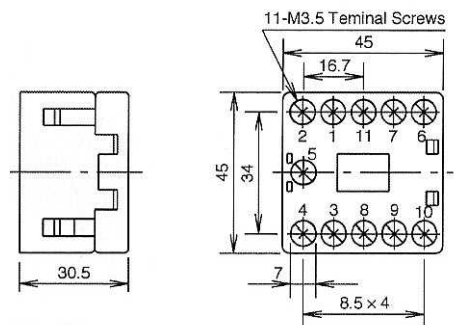
11 Pin Octal Socket-- Back-Mounted

10A @ 300V
Pressure Wire Clamp Terminations



File #E62437

Product Number SR6P-M11G



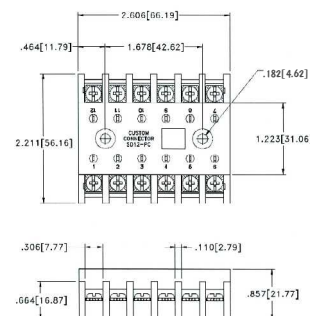
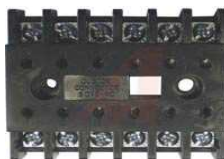
12 Pin Socket-- Surface-Mounted

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



File #E60008 File #LR29513

Product Number SD12-PC



NOTE: if a 12 Pin Socket is required for DIN-rail mounting, please contact Macromatic.

* 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 *

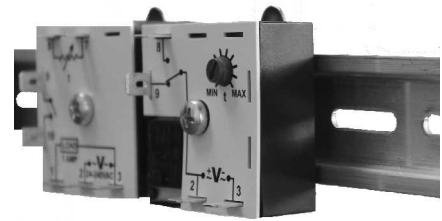
* Requires two machine screws with washers & nuts--
contact Macromatic or www.macromatic.com/70166
for more information.



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

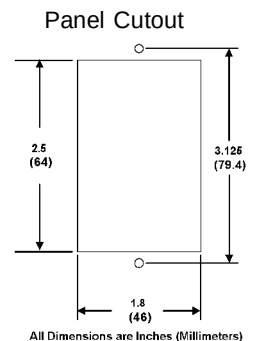
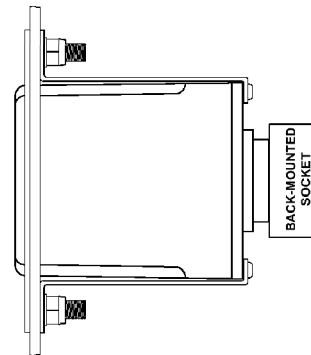
- ◆ Clip Comes with a Threaded Hole to Eliminate Need
for a Washer & Nut
- ◆ All Mounting Hardware Included



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

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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
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ARP024A2	32	ARP240A3R	34	CMKP05A28	18	COH05Ayyy	16	COP05A22	19	CUP10A22	20
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* 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.

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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
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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
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TAA2U	74	THR-10962-xx	43	THR-14161-xxJT	48	THS-1654D-xx	51	TR-56526-xx	58	VMP012D	23
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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	VWKP012D	28
TD-70526	70	THR-11361-xxJ	46	THR-14166-xxJ	46	TR-50522-xx	56	TR-60522	62	VWKP024A	28
TD-70528	70	THR-11361-xxJT	48	THR-14166-xxJT	48	TR-50526-xx	56	TR-60526	62	VWKP024D	28
TD-70821	70	THR-11361-xxT	47	THR-14166-xxT	47	TR-50528-xx	56	TR-60528	62	VWKP048D	28
TD-70822	70	THR-11362-xx	45	THR-14168-xx	45	TR-50821-xx	56	TR-60621	62	VWKP110D	28
TD-70826	70	THR-11362-xxJ	46	THR-14168-xxJ	46	TR-50822-xx	56	TR-60622	62	VWKP120A	28
TD-70828	70	THR-11362-xxJT	48	THR-14168-xxJT	48	TR-50826-xx	56	TR-60628	62	VWKP120A	28
TD-71521	70	THR-11362-xxT	47	THR-14168-xxT	47	TR-50828-xx	56	TR-60821	62	VWKP120A	28
TD-71522	70	THR-11366-xx	45	THR-15161-xx	43	TR-51321-xx	57	TR-60822	62	VWKP120A	28
TD-71526	70	THR-11366-xxJ	46	THR-15161-xxJ	44	TR-51322-xx	57	TR-60826	62	VWKP120A	28
TD-71528	70	THR-11366-xxJT	48	THR-15162-xx	43	TR-51326-xx	57	TR-60828	62	VWKP120A	28
TD-71621	70	THR-11366-xxT	47	THR-15162-xxJ	44	TR-51328-xx	57	TR-60921	62	VWKP120A	28
TD-71622	70	THR-11368-xx	45	THR-15166-xx	43	TR-51361-xx	60	TR-60922	62	VWKP120A	28
TD-71626	70	THR-11368-xxJ	46	THR-15166-xxJ	44	TR-51362-xx	60	TR-60926	62	VWKP120A	28
TD-71628	70	THR-11368-xxJT	48	THR-15168-xx	43	TR-51366-xx	60	TR-60928	62	VWKP120A	28
TD-78121	69	THR-11368-xxT	47	THR-15168-xxJ	44	TR-51368-xx	60	TR-61321	63		