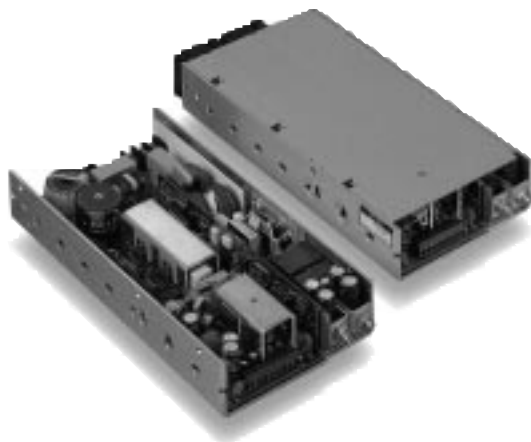
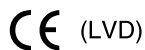


## CMP350 SERIES

Quad output



[ 2 YEAR WARRANTY ]



- 10 x 5 inch footprint with 1.75 inch low profile
- EN61000-3-2 compliant
- Current sharing
- Individually protected outputs
- Power fail signals
- 350W with 300LFM
- EN55022, EN55011 conducted emissions level B
- UL, VDE and CSA safety approvals

The CMP350 series is a 350W universal input AC/DC power supply in a 10 x 5 x 1.75 inch package. The series has the lowest standard 350W profile in the industry, input harmonic current emission correction as standard, current sharing and has 3.3V models to support the industry's transition from 5V to lower operating voltages. The CMP350 provides 350W of output power with 300LFM of forced air. Standard features include isolated outputs with individual overvoltage and overload protection on each output. The series has an enclosure with end-mounted fans option that does not change the overall height. The series, with full international safety approval and the CE mark, meets conducted emissions EN55022 level B and has immunity compliance to EN61000-4-2, -3, -4, -5, -6. The CMP350 series is designed for use in medium power data networking, computer and telecom applications such as hubs, routers, file servers, graphic workstations and mass storage peripherals. It is also suitable for industrial, test and office applications.

### SPECIFICATION All specifications are typical at nominal input, full load at 25°C unless otherwise stated

OUTPUT SPECIFICATIONS		
Output accuracy		±1.0%
Total regulation (Line and load)	Main and auxiliary V1 output Auxiliary output (V2) Auxiliary output (V3)	±1.0% ±6.0% ±5.0%
Transient response	Main output 25% step load change at 1A/μs	2.0% max. dev., 500μs recovery
Temperature coefficient		±0.02%/°C
Ripple and noise	0Hz to 20MHz See Note 3	50mV pk-pk or 1.0%
Overvoltage protection	Latching	See table
Short circuit protection	All channels	Indefinite, auto recovery
Overload protection	All channels	Yes
Thermal protection		Auto shutdown, auto recovery
Current sharing	Main output and Aux. 1 (5V and 3V3)	±10% of rating
INPUT SPECIFICATIONS		
Input voltage range	Universal (30s brown-out at 85VAC)	90 to 264VAC
Input frequency range		47Hz to 63Hz
Input surge voltage	300VAC	20ms
Inrush current	264VAC, cold start	75A max.
Safety ground leakage current		0.72mA
Input current	110VAC, 350W	4.2Arms max.
Input fuse	UL, IEC approved	6.3A 250V
Power factor	110/220VAC full load	0.97 min.

EMC CHARACTERISTICS		
Conducted emissions	EN55022, FCC part 15	Level B
Radiated emissions	EN55022, FCC part 15	Level A
Harmonic current emission correction	EN61000-3-2	Compliant
ESD air	EN61000-4-2	Level 3
ESD contact	EN61000-4-2	Level 3
Surge	EN61000-4-5	Level 3
Fast transients	EN61000-4-4	Level 3
Radiated immunity	EN61000-4-3	Level 3
Conducted immunity	EN61000-4-6	Level 3
GENERAL SPECIFICATIONS		
Hold-up time	110VAC, 60Hz, 350W	16ms
Efficiency		75% typical
Isolation voltage	Input/output Input/chassis Output/output	3000VAC 1500VAC 50VDC
Switching frequency		150kHz
Approvals and standards	EN60950, VDE0805, UL1950, CSA C22.2 No. 950	
Weight		2.0kg (4.4lbs)
Size (See Note C)	Open frame Enclosed	10.0 x 5 x 1.75 inches 10.5 x 5 x 1.75 inches
MTBF	MIL-HDBK-217F Bellcore TR-NWT-332	212,707 hours 959,870 hours
ENVIRONMENTAL SPECIFICATIONS		
Thermal performance	Operating ambient, FL Cooling +50°C to +70°C, ambient Non-operating	0°C to +50°C 300LFM airflow required Derate to 50% load on all channels -40°C to +85°C
Relative humidity	Non-condensing	5% to 95% RH
Altitude	Operating Non-operating	10,000 feet max. 30,000 feet max.
Vibration, See Note 15	5Hz to 500Hz	2.4G rms peak


# 350 Watt AC/DC high wattage power supplies with PFC

OUTPUT VOLTAGE	OUTPUT TYPE	OUTPUT CURRENT		RIPPLE <sup>(3)</sup>	TOTAL REGULATION	OVP THRESHOLD	ADJUST RANGE	MODEL NUMBERS <sup>(A)</sup>
		MIN <sup>(1)</sup>	MAX <sup>(2)</sup>					
5V	Main	0A	50A	50mV	±1.0%	5.75 to 6.75V	+10, -5%	CMP350-9604 <sup>(8)</sup>
3.3V <sup>(2)</sup>	Aux 1	1.0A	20A <sup>(8)</sup>	50mV	±1.0%	4.15 to 4.35V	+20, -5%	
12V <sup>(2)</sup>	Aux 2	1.0A	10A <sup>(8)</sup>	120mV	±1.0%	13.2 to 14.5V	±5%	
12V <sup>(2)</sup>	Aux 3	0.5A	5.0A <sup>(8)</sup>	120mV	±5.0%	12.6 to 15.2V <sup>(4)</sup>	(6)	
5V	Main	0A	50A	50mV	±1.0%	5.75 to 6.75V	+10, -5%	CMP350-9601
12V <sup>(2)</sup>	Aux 1	1.0A	10A	120mV	±1.0%	13.2 to 14.5V	±5%	
12V <sup>(2)</sup>	Aux 2	0.5A	5.0A	120mV	±5.0%	12.6 to 15.2V <sup>(4)</sup>	(5)	
5V <sup>(2)</sup>	Aux 3	0.5A	5.0A	50mV	±1.0%	5.75 to 6.75V	(7)	
5V	Main	0A	50A	50mV	±1.0%	5.75 to 6.75V	+10, -5%	CMP350-9602
12V <sup>(2)</sup>	Aux 1	1.0A	10A	120mV	±1.0%	13.2 to 14.5V	±5%	
12V <sup>(2)</sup>	Aux 2	0.5A	5.0A	120mV	±5.0%	12.6 to 15.2V <sup>(4)</sup>	(5)	
24V <sup>(2)</sup>	Aux 3	0.2A	2.0A	240mV	±1.0%	26.4 to 28.8V	(7)	
5V	Main	0A	50A	50mV	±1.0%	5.75 to 6.75V	+10, -5%	CMP350-9606
15V <sup>(2)</sup>	Aux 1	0.8A	8.0A	150mV	±1.0%	16.5 to 18.0V	±5%	
15V <sup>(2)</sup>	Aux 2	0.4A	4.0A	150mV	±5.0%	15.7 to 19.0V <sup>(4)</sup>	(5)	
24V <sup>(2)</sup>	Aux 3	0.2A	2.0A	240mV	±1.0%	26.4 to 28.8V	(7)	
5V	Main	0A	50A	50mV	±1.0%	5.75 to 6.75V	+10, -5%	CMP350-9603
12V <sup>(2)</sup>	Aux 1	1.0A	10A	120mV	±1.0%	13.2 to 14.5V	±5%	
12V <sup>(2)</sup>	Aux 2	0.5A	5.0A	120mV	±5.0%	12.6 to 15.2V <sup>(4)</sup>	(5)	
12V <sup>(2)</sup>	Aux 3	0.3A	3.0A	120mV	±1.0%	13.2 to 14.5V	(7)	
3.3V	Main	0A	50A	50mV	±1.0%	4.15 to 4.35V	+20, -5%	CMP350-9692 <sup>(9)</sup>
5V <sup>(2)</sup>	Aux 1	1.0A	15A <sup>(9)</sup>	50mV	±1.0%	5.75 to 6.75V	+10, -5%	
12V <sup>(2)</sup>	Aux 2	0.5A	5.0A <sup>(9)</sup>	120mV	±1.0%	13.2 to 14.5V	±5%	
12V <sup>(2)</sup>	Aux 3	0.5A	5.0A <sup>(9)</sup>	120mV	±5.0%	12.6 to 15.2V <sup>(4)</sup>	(6)	
24V	Main	0A	10A	240mV	±1.0%	26.4 to 28.8V	±5%	CMP350-9623
5V	Aux 1	1.0A	15A	50mV	±1.0%	5.75 to 6.75V	+10, -5%	
12V	Aux 2	1.0A	10A	120mV	±1.0%	13.2 to 14.5V	±5%	
12V	Aux 3	5.0A	5.0A	120mV	±5.0%	12.6 to 15.2V <sup>(4)</sup>	(6)	

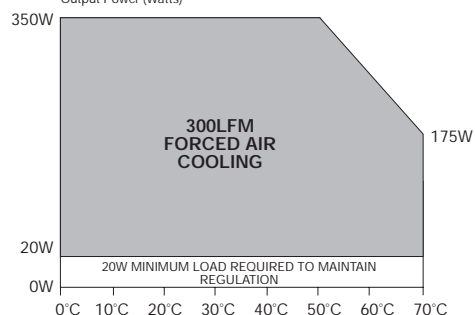
## International Safety Standard Approvals

 VDE0805/EN60950/IEC950 Licence No. 96709

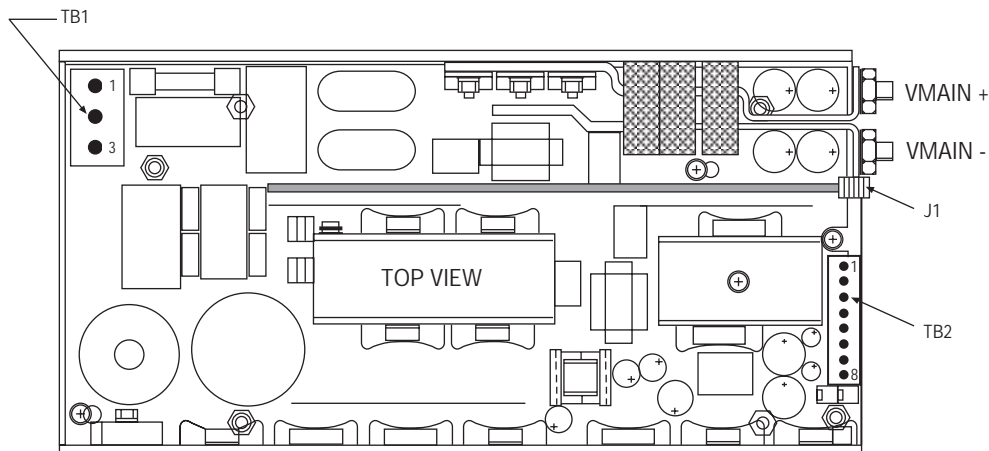
 UL1950 File No. E136005

 CSA C22.2 No. 950 File No. LR41062C

DERATING CURVE, See Notes 10 & 11  
Output Power (Watts)



# 350 Watt AC/DC high wattage power supplies with PFC



## Notes:

There are three external accessible connectors in the unit besides the main Busbar. The first one is designated as TB1 which is the input power connector.

### Pin assignment (TB1)

Input connector TB1 is a standard screw type terminal block. An IEC type connector is provided on enclosed models (suffix 'CF').

PIN CONNECTIONS	
Input connector TB1	
PIN NO.	FUNCTION
TB1-1	Live
TB1-2	Ground
TB1-3	Neutral

### Main output connector

Main output Busbar connector VMAIN+ and VMAIN-.

PIN CONNECTIONS	
Output Busbar connector	
PIN NO.	FUNCTION
VMAIN+	Positive
VMAIN-	Negative

### Auxiliary output pin assignment (TB2)

TB2 auxiliary output connector is used on models -9601, -9602, -9603, -9606.

PIN CONNECTIONS (TB2)		
PIN NO.	REFERENCE	FUNCTION
TB2-1	AUX CH. 1	Positive
TB2-2	AUX CH. 1	Positive
TB2-3	AUX CH. 1	Negative
TB2-4	AUX CH. 1	Negative
TB2-5	AUX CH. 2	Positive
TB2-6	AUX CH. 2	Negative
TB2-7	AUX CH. 3	Positive
TB2-8	AUX CH. 3	Negative

### Auxiliary output pin assignment (TB2 and TB3)

TB2 and TB3 auxiliary output connectors are used on models -9604 and -9692. See page 72 for detail.

PIN CONNECTIONS (TB2 AND TB3)		
PIN NO.	REFERENCE	FUNCTION
TB2-1	AUX CH. 2	Positive
TB2-2	AUX CH. 2	Positive
TB2-3	AUX CH. 2	Negative
TB2-4	AUX CH. 2	Negative
TB2-5	AUX CH. 3	Positive
TB2-6	AUX CH. 3	Negative
TB3-1	AUX CH. 1	Positive
TB3-2	AUX CH. 1	Negative

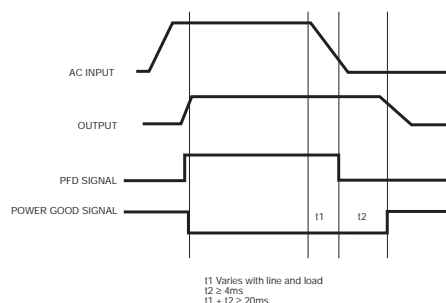
## USER INTERFACE PIN (J1) (B)

PIN NO.	REFERENCE	FUNCTION
J1-3	12CH1	12V Bias Refd. to Main Ch. -ve
J1-4	12CH2	12V Bias Refd. to Aux. Ch. #1 -ve, (-9601, -9602, -9603, -9606) 12V Bias Refd. to Aux. Ch. #2 -ve, (-9604, -9692)
J1-5	VSENMAIN+	Main Ch. Positive Remote Sense
J1-6 *	AUX1SET	See Note 14
J1-7	GND2	Ground Refd. to Aux. Ch. #1 -ve, (-9601, -9602, -9603, -9606) Ground Refd. to Aux. Ch. #2 -ve, (-9604, -9692)
J1-8	POK <sup>(13)</sup>	Power Good Detect Signal
J1-9	GND1	Ground Refd. to Main Ch. -ve
J1-10	PFD <sup>(13)</sup>	Power Fail Detect Signal
J1-12	VSENMAIN-	Main Ch. Negative Remote Sense
J1A-1 *	VAUXSEN-	Auxiliary Channel Negative Remote Sense
J1A-2 *	VAUXSEN+	Auxiliary Channel Positive Remote Sense
J1A-3 *	GND3	Ground Refd. to Aux. Ch. 1 +ve for -9604 and -9692 models
J1A-6 *	CSAUX <sup>(12)</sup>	Auxiliary Channel Current Share Pin
J1A-7 *	TRIMAU2	Trim Pin for 5V or 3.3V Auxiliary Channel
J1A-8	CSMAIN <sup>(12)</sup>	Main Channel Current Share Pin
J1A-9	INHIBIT-	Inhibit Signal Return
J1A-10	INHIBIT+	Inhibit Signal
J1A-11	TRIMAU	Trim Pin for 12V or 15V Auxiliary Channel
J1A-12	TRIMAIN	Main Channel Trim Pin

\* Applies to -9604, -9692 models only.

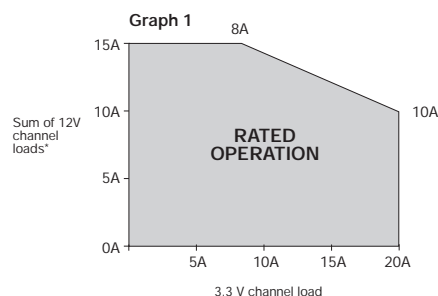
# 350 Watt AC/DC high wattage power supplies with PFC

FEATURES		
Current share	Forced See Note 12	Main output and auxiliary 1 if 5V or 3.3V
Power OK	Asserted Low See Note 13	Main output >75%
Remote-sense	0.4V	Main output and auxiliary 1 if 5V or 3.3V
System inhibit	Asserted high	Inhibits all outputs
Power fail detect	Asserted low See Note 13	Indicates loss of AC; 4ms warning



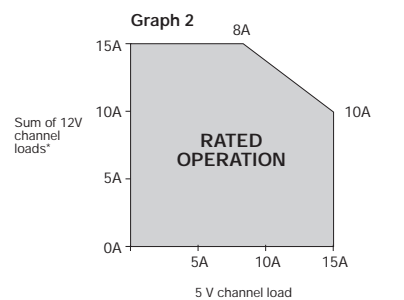
## Notes

- The unit must be powered up into the recommended minimum loads to ensure the outputs come up.
- Combined maximum output power for Aux. 1, 2 and 3 is 220W.
- For models -9604 and -9692, on the aux 1 channel, output ripple and noise is measured 6 inches down the output cables through a 1 foot long twisted pair terminated with a parallel combination of a 10μF electrolytic and a 0.1μF ceramic capacitors. For all other channels on all models, ripple and noise is measured directly at the output terminals.
- No shutdown or latch-up occurs; voltage is internally limited to specified range.
- Aux. 2 tracks Aux. 3, Aux. 4 not adjustable.
- Aux. 3 tracks Aux. 2.
- Output is not adjustable.
- CMP350-9604 rated operation:



The auxiliary channels must share power as indicated by graph 1.  
The maximum output power is 220W.

- CMP350-9692 rated operation:



The auxiliary channels must share power as indicated by graph 2.  
The maximum output power is 220W.

- A minimum of 300LFM of forced air cooling is required for proper operation of the CMP350.
- All outputs must be derated linearly from maximum specified loads during operation above 50°C.
- Current share is a single wire share circuit that allows the main output on multiple CMP350 units to be operated in parallel. Auxiliary channels share on -9604 and -9692 models by connecting the CSAUX channel.
- The power fail detect and power OK signals are open-collector outputs which will sink 40mA or less in the low state and should be pulled up to a bias voltage with an appropriately sized resistor.

	Min.	Max.
VOL	0V	0.4V
IOL	0A	-40mA
VOH	4V	40V

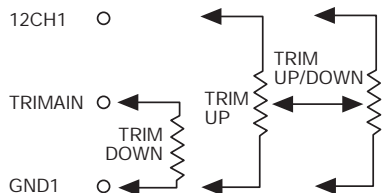
The system inhibit and output inhibit signals require a current source to be asserted high.

	Min.	Max.
VIH	3.5V	15.0V
IIH	0mA	-10mA

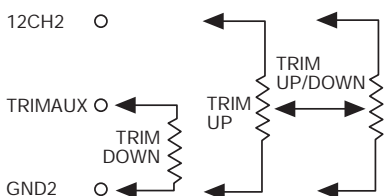
- Connection from TRIMAU2 to AUX1SET causes the output for Ch. aux. 1 on models -9604 and -9692 to regulate at its nominal factory set voltage.
- 3 orthogonal axes, random vibration, 10 minute test per axes.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.

## EXTERNAL OUTPUT TRIMMING (14)

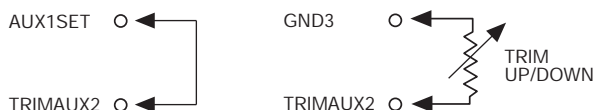
### Main channel trim connections



Aux. 1 channel trim connections. (-9601, -9602, -9603, 9606)  
Aux. 2 channel trim connections (-9604, -9692)



### Aux. 1 channel trim connections (-9604, -9692)



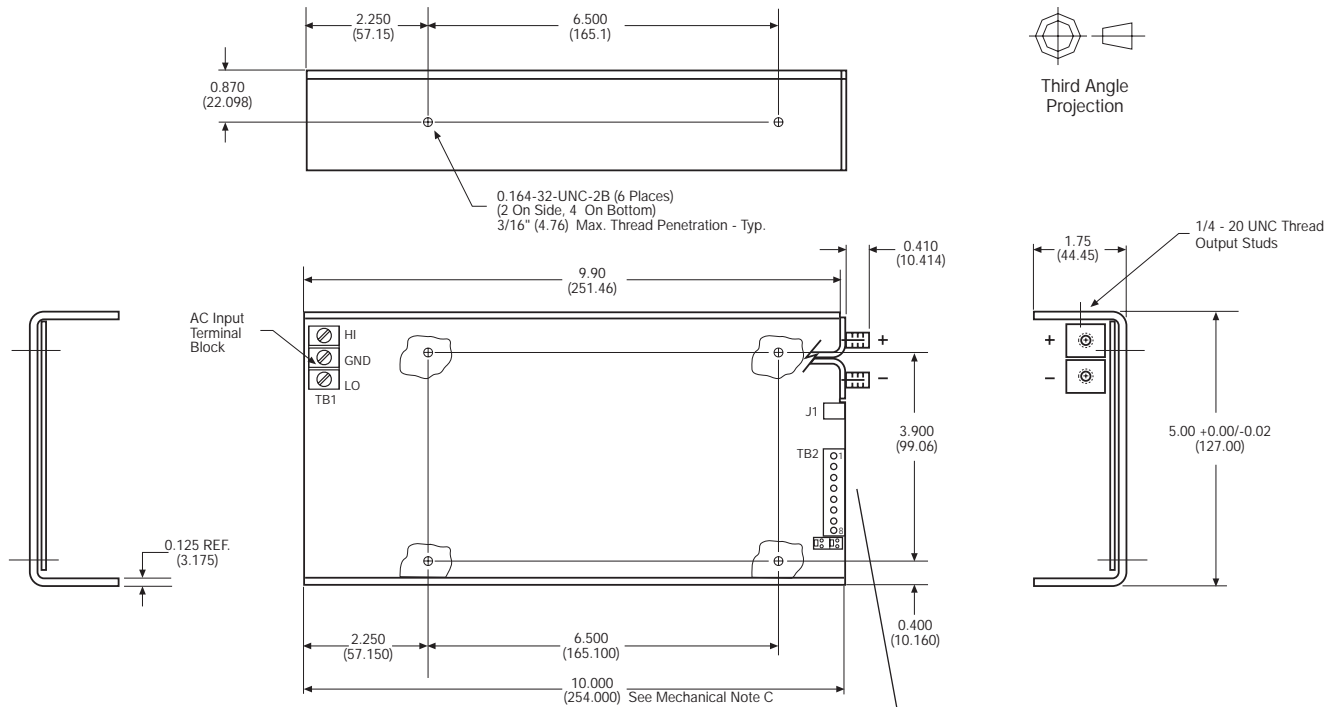
TRIMAU2 is connected to AUX1SET by a factory fitted jumper to ensure CH. 1 regulates at the nominal set voltage

To trim CH1, remove the jumper and connect a resistor between GND3 and TRIMAU2

# 350 Watt AC/DC high wattage power supplies with PFC

## Mechanical notes

- A A standard cover and fan assembly can be added during manufacturing. To order, add suffix 'CF' to the model number. e.g. **CMP350-9601CF**.
- B Visual arrangement for J1 as seen from the front (output) side of the unit.
- C The dimensions of the CMP350-9604 and CMP350-9692 are slightly larger than shown below. The open frame dimensions are 10.2 x 5 x 1.75 inches and the enclosed dimensions are 10.7 x 5 x 1.75 inches.



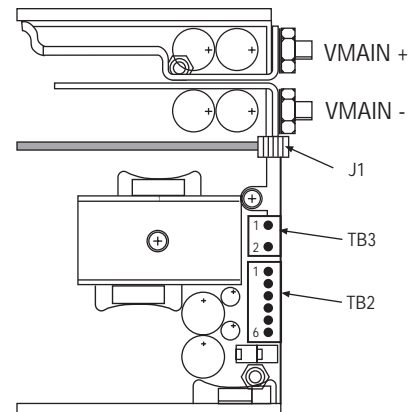
## ALL DIMENSIONS IN INCHES (mm)

Tolerances unless otherwise specified

.xx = ± 0.02

.xxx = ± 0.010

## Detail:



TB2 is a 6 way connector on models -9604 and -9692 as shown above.

## Mating connectors

### (J1) mating connector type

Molex P/N 22-55-2241 or equivalent with Molex P/N 70058 or equivalent crimp terminals.

## Input connector

IEC for all enclosed models (suffix '-CF').  
3-way 0.375 inch pitch terminal block for uncovered models.

## Output connectors

### (TB2) connector type

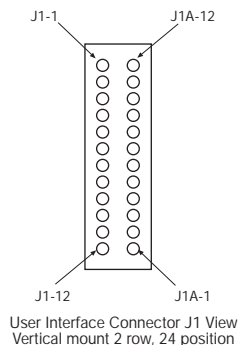
For models -9601, -9602, -9603 and -9606  
8-way 0.197 inch pitch terminal.

### (TB2) connector type

For models -9604 and -9692  
6-way 0.197 inch pitch terminal block.

### (TB3) connector type

For models -9604 and -9692.  
2-way 0.375 inch pitch terminal block.



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