

# 400/600 Watts

## CCH400-600 Series



- Baseplate Cooled
- High Efficiency up to 90%
- -40 °C to +85 °C Operation
- Industrial & MIL-STD461E EMC Compliance
- Power Fail, Inhibit, Overtemp & Current Share
- 5V Standby Output
- 3 Year Warranty

### Specification

#### Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-400 Hz <sup>(1)</sup>
Input Current	• CCH400: 4.3/2.1 A typ. at 115/230 VAC, CCH600: 6.3/3.1 A typ. at 115/230 VAC, full load
Inrush Current	• 60 A max at 230 VAC, 25 °C cold start
Power Factor	• >0.9
Earth Leakage Current	• 0.7/1.1 mA at 115/230 VAC at 60/50 Hz
Input Protection	• Internal F10 A/250 V fuse

#### Output

Output Voltage	• 12-48 VDC
Output Voltage Trim	• ±10%
Initial Set Accuracy	• ±1% V1, ±3% V2
Minimum Load	• No minimum load required
Start Up Delay	• Typically 1 s
Start Up Rise Time	• 50 ms typical
Hold Up Time	• 20 ms min
Drift	• ±0.2% after 20 min warm up
Line Regulation	• ±0.5% max
Load Regulation	• ±1% V1, ±5% V2 max
Over/Undershoot	• 1% typical
Transient Response	• 4% max. deviation, recovery to within 1% in 500 µs for a 50-75-50% load change
Ripple & Noise	• Typically 1% pk-pk V1, V2 2%, 20 MHz bandwidth
Overvoltage Protection	• 110-140% Vnom, recycle input to reset
Overload Protection	• 105-140% V1 only
Short Circuit Protection	• Continuous, approximately constant current
Temperature Coefficient	• 0.05% /°C
Overtemp. Protection	• Fitted
Remote Sense	• Compensates for 0.5 V total voltage drop
Remote On/Off	• Uncommitted isolated optocoupler diode, powered diode inhibits V1

#### General

Efficiency	• 89% typical
Isolation	• 3000 VAC Input to Output, 1500 VAC Input to Ground, 500 VDC Output to Ground
Switching Frequency	• 30-333 kHz PFC, 51.1 kHz main and 138 kHz standby converter
Signals	• Power Fail, Inhibit, Current Share, Overtemperature Warning and 5 V Standby
MTBF	• 300 kHrs to MIL-HDBK-217F at 25 °C, GB

#### Environmental

Operating Temperature	• -40 °C to +85 °C baseplate, see thermal considerations
Cooling	• Baseplate, conduction cooling
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• -40 °C to +85 °C
Operating Altitude	• 3000 m
Shock	• MIL-STD 810F Clause 516.5 proc 1
Vibration	• MIL-STD 810F figure 514.5C-17

#### EMC & Safety

Low Voltage PSU EMC Emissions	• EN61204-3, high severity level
Harmonic Currents	• EN55022 level B conducted, level A radiated, MIL-STD 461D-F, CE102
Voltage Flicker	• EN61000-3-2, class A
Radiated Immunity	• EN61000-3-3
EFT/Burst	• EN61000-4-3, level 3 Perf Criteria A
Surge	• EN61000-4-4, level 3 Perf Criteria A
Conducted Immunity	• EN61000-4-5, installation class 3 Perf Criteria A
Dips & Interruptions	• EN61000-4-6, level 3 Perf Criteria A, MIL-STD 461 CS114
Safety Approvals	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B
Equipment Protection Class	• IEC60950-1 CB report, UL60950-1, TUV EN60950-1

#### Notes

1. Safety approvals cover frequency 47-63 Hz.

## Models and Ratings

# CCH400/600

Output Power	Output Voltage V1	Output Current V1	Standby Supply V2	Model Number
411 W	12.0 VDC	34.0 A	5.0 V/0.5 A	CCH400PS12
411 W	24.0 VDC	17.0 A	5.0 V/0.5 A	CCH400PS24
409 W	28.0 VDC	14.5 A	5.0 V/0.5 A	CCH400PS28
411 W	48.0 VDC	8.5 A	5.0 V/0.5 A	CCH400PS48
603 W	12.0 VDC	50.0 A	5.0 V/0.5 A	CCH600PS12
603 W	24.0 VDC	25.0 A	5.0 V/0.5 A	CCH600PS24
605 W	28.0 VDC	21.5 A	5.0 V/0.5 A	CCH600PS28
603 W	48.0 VDC	12.5 A	5.0 V/0.5 A	CCH600PS48

## Mechanical Details



Signal Connector	
Pin	Function
1	Current Share
2	Inhibit
3	Overtemp. Warning
4	Power Fail
5	+Sense
6	-Sense
7	-Standby
8	-Standby
9	+Standby
10	+Standby

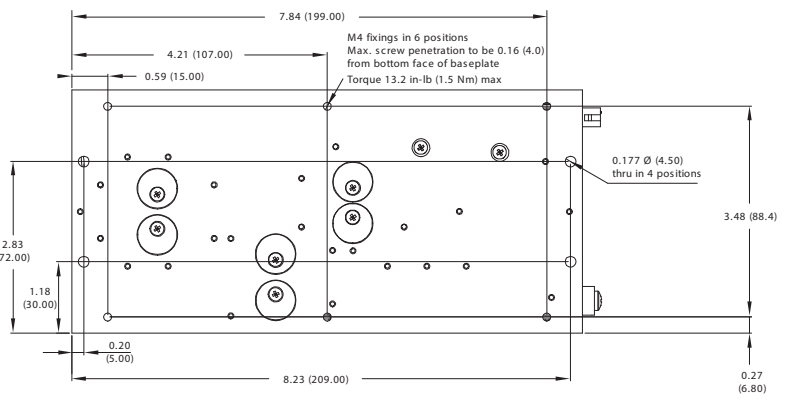
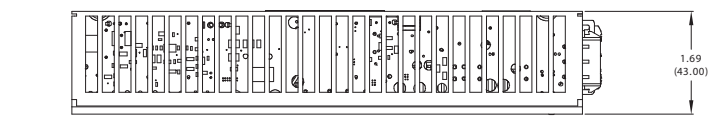
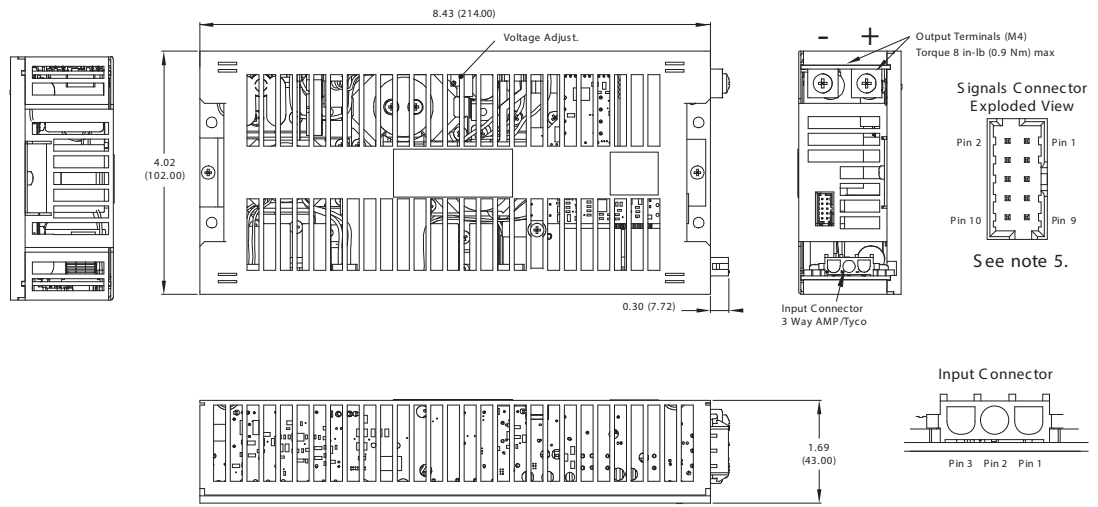
Connector: 10 WAY 2mm pitch p/n MOLEX 87833-1031  
 Mating half: p/n MOLEX 51110-1056  
 Contact: p/n MOLEX 50394-8100

Input Connector	
Pin	Function
1	Earth
2	Neutral
3	Line

Connector: 3 way AMP/Tyco type MATE-N-LOK 1-350943-0  
 Mates with MATE-N-LOK 350766-1

### Notes

- All dimensions in inches (mm).
- Tolerance .xx = ±0.02 (0.50);  
.xxx = ±0.01 (0.25)
- Weight 3.3 lbs (1.5 kg)
- Connector kit available, order part no. 'CCH CONKIT'
- Inhibit, overtemperature and power fail are referenced to the OV power terminal.



## Thermal Considerations

The baseplate must be maintained at or below 85 °C and therefore a suitable heatsink must be selected to remove the heat from the power supply. Details of the heatsink calculations and other considerations can be found in the longform datasheet.

