

MICROFUSION SEMI

Specifically designed for the precise control requirements of the semiconductor industry.

FEATURES

Auto-Ranging Input Voltage

24 - 600 Vac, 45 - 65 Hz

AC Output

8, 16, 32, 40, 50 Amp
(@ 6000 ft [1829 m], 122°F [50°C])

Control Features

Microprocessor-based controller, phase lock loop timing
Firing modes:

Phase Angle and HiPER Mode

Feedback: Voltage, Current, True Power, Resistance

Adjustable Soft Start: Phase Angle

Missing Cycle Detection

Adjustable Output Limits: Voltage, Current, Power

Dedicated Input Bit for Run/Stop

kWh Meter

Resistance Measurement

Resistance to Temp LUT and Control

High Performance

True RMS Power, High Resolution Control Loop
Load Voltage, Load Current Feedback, and
Load Resistance Feedback

Fieldbus Interface

EtherCAT

Alarm Relay

Relay Output

Easy Setup via Plug-n-Play USB

Load / Save Controller Configurations
Chart Diagnostics and Log Operations

Two Year Warranty



OPTIONAL FEATURES

External, Touchsafe Class T Fusing



DESCRIPTION

MicroFUSION SEMI is an ultra-compact high-performance microprocessor-based power controller specifically designed for the precise control requirements of the semiconductor industry.

Resistive or transformer-connected loads can be controlled in either phase angle or HiPER Mode. Output is controlled linearly with respect to command signal and can be set to the RMS value of the voltage and current, as well as true instantaneous power.

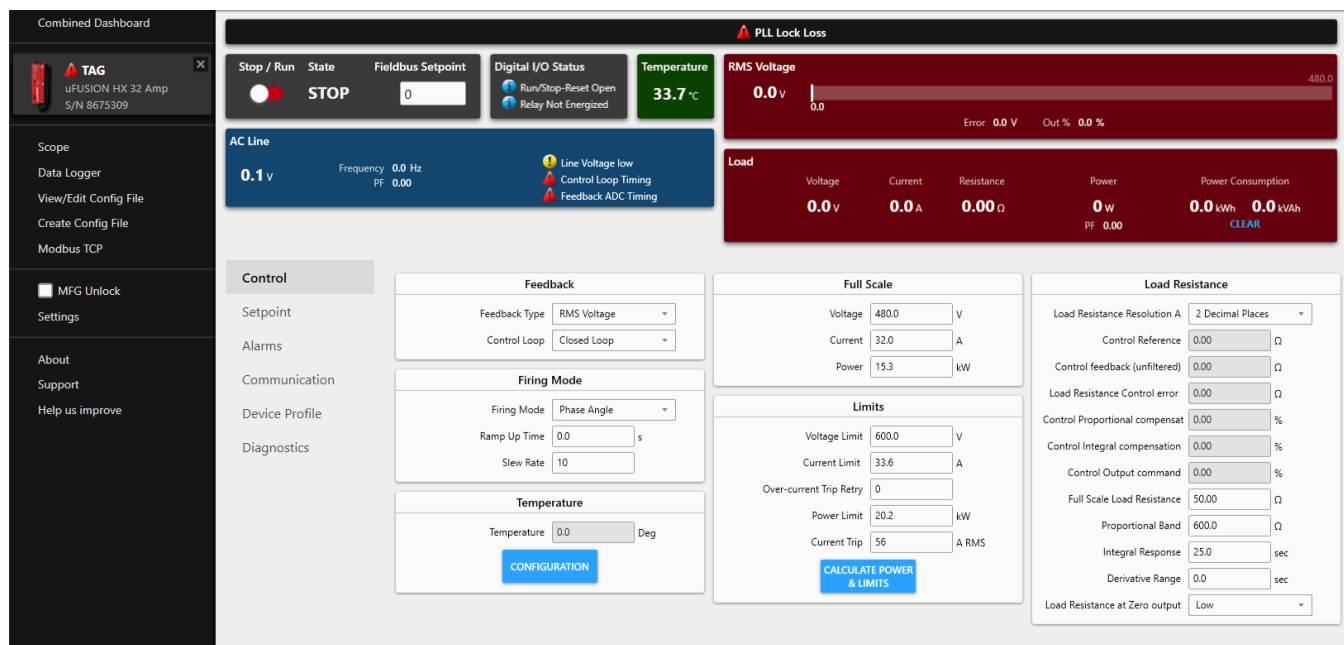
MicroFUSION SEMI power controllers are available in current ratings from 8 - 50A AC. Auto-ranging voltage circuitry enables main supply voltage from 24 - 600 Vac (45 - 65 Hz), eliminating the need for hardware jumpers or stocking multiple controllers for international voltages. A separate 24 Vdc power source supplies the control electronics and maintains critical communications to your control system when the mains are absent.

Status LEDs make operation and troubleshooting simple. A plug-n-play USB interface and free Control Panel software for your PC further simplifies installing and configuring the controller to its designated application. For multiple controllers, controller settings can be duplicated by simply loading a configuration file saved from a previous unit.

The robust design of the MicroFUSION SEMI allows for continuous full-frame current operation, without derating, up to 122°F [50°C], 6000 ft [1829 m] altitude. Cooling is accomplished through natural convection or forced air.

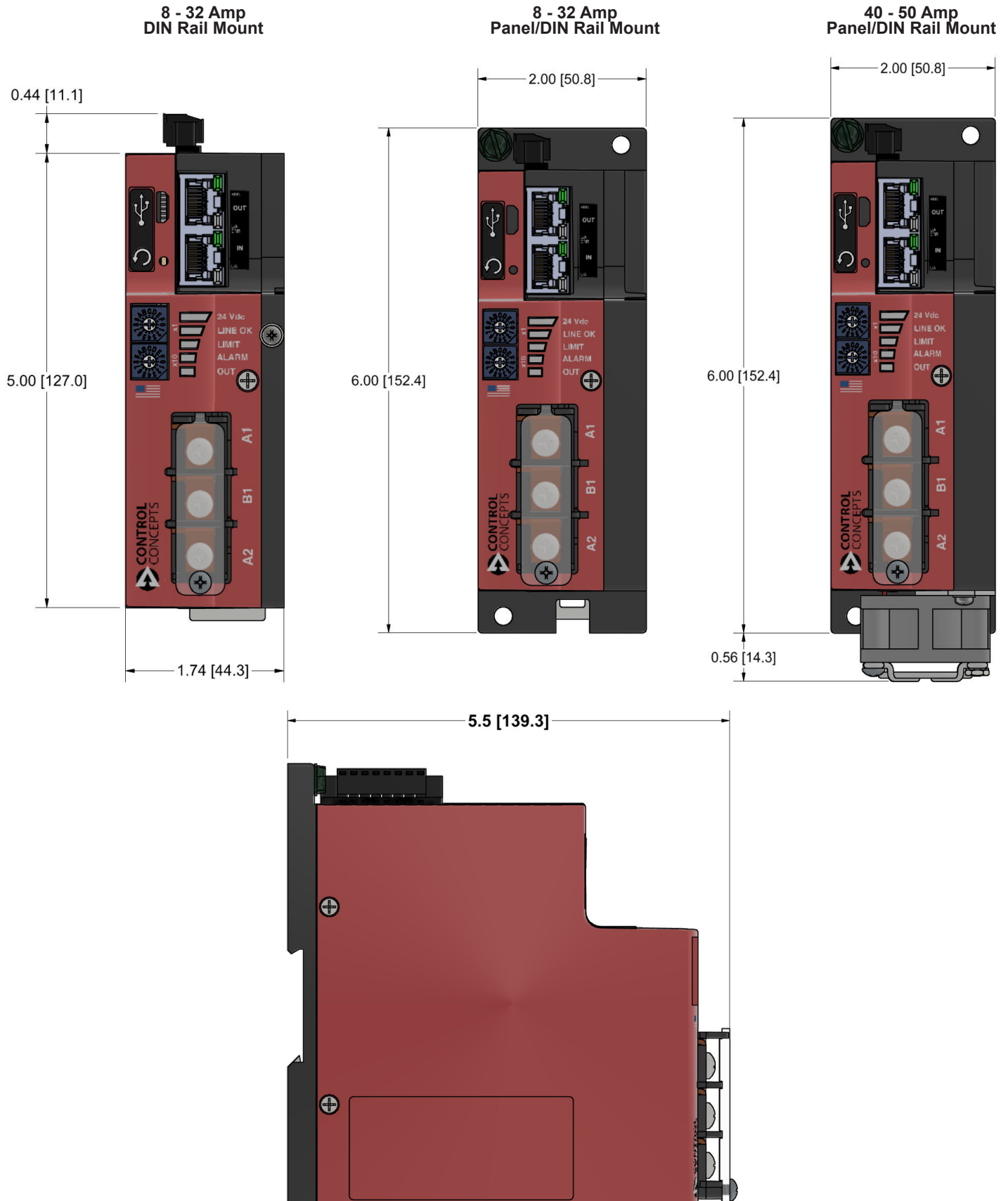
Free Control Panel Software for complete monitoring and control of single or multiple MicroFUSION SEMI controllers

Compatible with Microsoft Windows PC computers

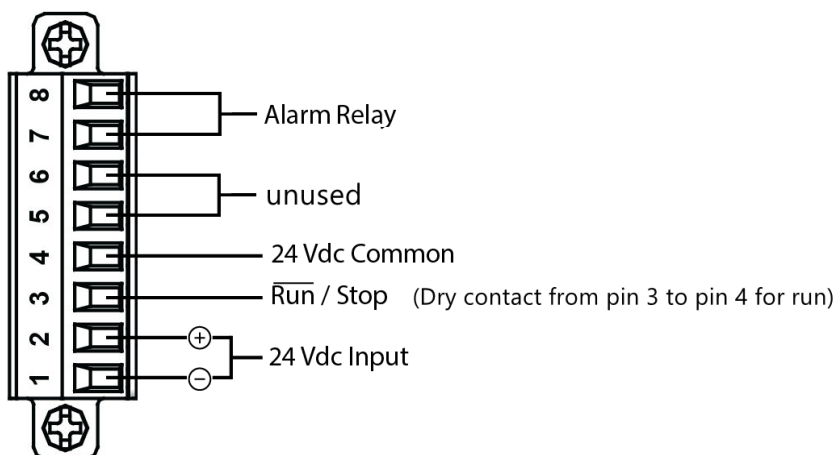


DIMENSIONS

Dimensions in Inches [mm]. MicroFUSION SEMI can be DIN rail or panel mounted.

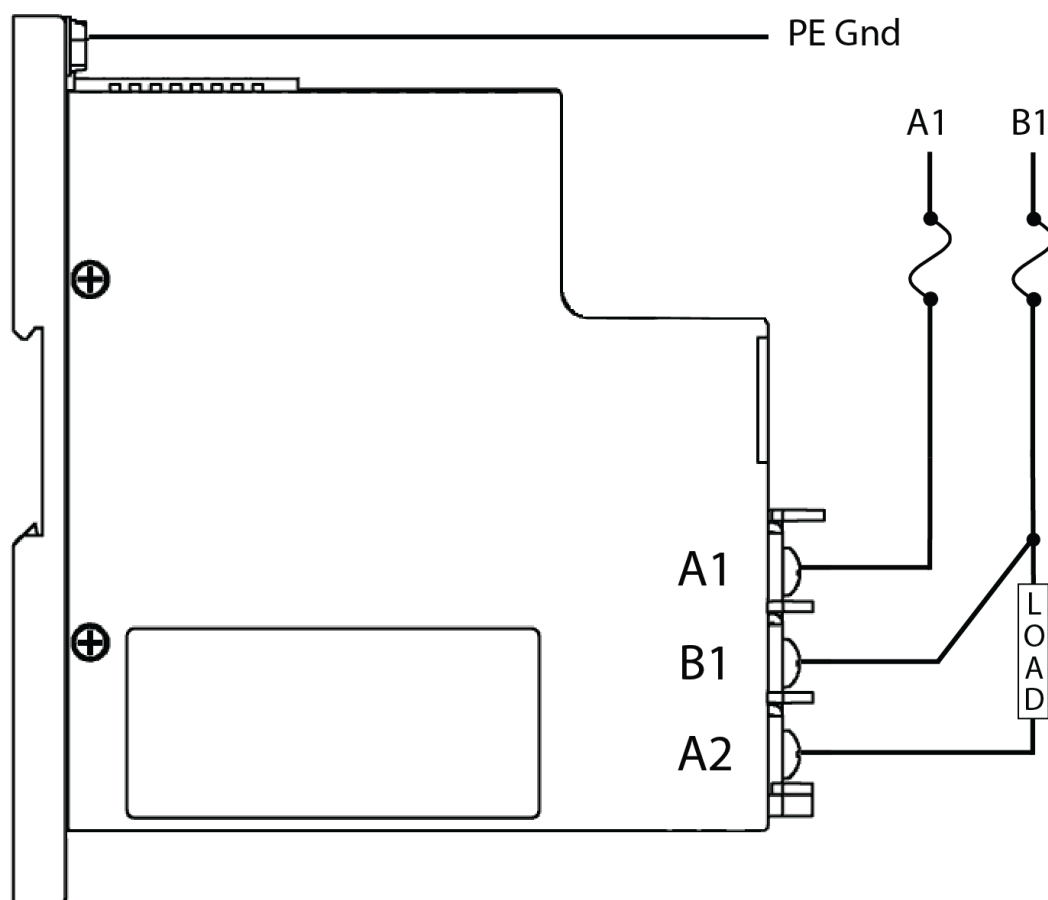


P1 CONNECTOR



LINE/LOAD CONNECTIONS

Panel Mount ground shown.



Use #8 ring terminal connectors.

14 AWG minimum wire size for A1 and A2 connections.

Maximum 0.48 mA @ 480V maximum through B1 connection.

FEATURES

FEATURE LIST
Auto-Ranging Input: 24 - 600 Vac
Phase Angle and Zero Cross Firing Modes
Adjustable Phase Angle Soft-Start
Touchsafe Design
100kA SCCR, UL and RoHS certifications <i>(pending)</i>
Micro USB Connection (USB Plug-N-Play)
Free Control Panel Software
DIN Rail or Panel Mount (DIN Rail only on 8-32A narrow heatsink model)
Run/Stop
Overcurrent Trip
Monitor Load Voltage
EtherCAT Fieldbus Connectivity
Adjustable Current Limit
Alarm Relay
Current Control
Load Voltage Control
Voltage Limit
Monitor Load Current - Provides load current data via software or fieldbus
Isolated I/O
Power Limit
True Power Control
Monitor True RMS Power - Provides true power data via software or fieldbus
High Resolution Control Loop
Kwh Meter
HiPer Mode - High performance low conduction angle firing mode
Resistance Measurement
Load Resistance to Temperature Control via Lookup Table

SPECIFICATIONS

POWER

Line Voltage (Auto Ranging)	UL/cUL: 24 - 600 Vac (Nominal) [+10% / -15%] (Contact CCI for other options) CE: 24 - 690 Vac (Nominal) [+10% / -15%] (Contact CCI for other options)
Line Frequency (Auto Ranging)	45 - 65 Hz
Frame Current Ratings (Amps)	Continuous RMS (AC) 8 16 32 40 50
Current Rating - Peak Surge	20x frame rating for 10 ms
Minimum Hold/Latch Current	500 mA up to 50 A
Max Leakage Current	10.6 mA @ 600 Vac 50/60 Hz
SCR Rating (PIV)	1600 V peak forward & reverse
Fusing	Optional external Class T, branch-rated, touch-safe fusing
Thermal	Integrated heat sink thermal sensor
Current Limit	20 - 105% of continuous rating of Frame Amp Rating
Current Trip	50 - 450% of continuous rating
Power Dissipation	1.3 W per A of load current per phase
Control Power / Operates Internal Control Electronics	24 Vdc (+10 / -15%)

ENVIRONMENTAL

Surrounding Air Operating Temp	32°F [0°C] to 122°F [50°C]
Humidity	20% to 90% RH Non-Condensing
Rated Operating Altitude	Up to 6000 ft [1829 m] at full rated current
Contaminates	RoHS Compliant, Pollution Degree 2 (only non-conductive pollution occurs)
Storage Temperature	-4°F [-20°C] to 176°F [80°C]

PERFORMANCE

Setpoint Resolution	10k or 64k
Internal Control Loop Resolution	64k
Output Resolution	60k @ 50 Hz, 50k @ 60 Hz
Response Time	Adjustable from 50 ms to 2 s
Accuracy (Full Conduction)	
Voltage	0.5% of frame rating
Current	0.5% of frame rating
Power	1.0% of frame rating
Output Linearity	1.0% from (5 - 100%) output range
Accuracy	+10% to -15% line voltage change will result in a max output change of 0.05% from (5 - 100%) output range
Temperature Drift	Output shall not change greater than 0.2% per degree C max over the operating temperature range from (5 - 100%) output range

SPECIFICATIONS, continued

COOLING

8 - 32 A	Natural Convection
40 - 50 A	Forced Air

DC POWER CONSUMPTION

8 - 32 A	7 W
40 - 50 A	9 W

ENCLOSURE PROTECTIVE RATING

International	IP 20
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I²t DATA (8.3 - 10 msec)

Frame Size	Conditions	I ² t Data
8 - 50	Junction Temp 125°C	16200 A ² s

ISOLATION

Signal to Line/Load	3750 Vac minimum
Line/Load to Ground	2500 Vac minimum
Signal to Ground	1500 Vac minimum
Network	1500 Vac minimum
USB	2500 Vac minimum
Signal to Processor	1500 Vac minimum

TEMPERATURE CONTROL

Load Resistance to Temperature

Features	10 Point Lookup Table
	Resistance to 3 decimal places, Resolution setting
	Temperature to 1 decimal place, Range 0.1-3276.7
Control	Control loop update 100mS as an outer loop

SCCR - TYPE 1 COORDINATION

Frame	Required Fusing *	SCCR Rating**
8 A	10 A Fast Acting J or T	100 kA
16 A	20 A Fast Acting J or T	100 kA
32 A	40 A Fast Acting J or T	100 kA
40 A	50 A Fast Acting J or T	100 kA
50 A	60 A Fast Acting J or T	100 kA

* Maximum fuse A shown above, fuses with lower A rating can also be used.

** To meet SCCR rating Fast acting J or T fusing must be used.

ALARM RELAY

Max Voltage Rating	125 Vac / 30 Vdc
Max Switching Current	1 A
Vac Rating	125 Vac / 0.3 A
Vdc Rating	30 Vdc / 1 A

RELIABILITY

Mean Time Between Failure (MTBF)	Designed for 50,000 Hours
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MODEL NUMBERS

uFS - - SP

Amp Size

08 = 8 Amps 40 = 40 Amps
16 = 16 Amps 50 = 50 Amps
32 = 32 Amps

Frame

P = 16 - 32 A (DIN Mount) L Heatsink
Q = 8 A (DIN Mount) L Heatsink
R = 40 - 50 A (Panel Mount/DIN) L Heatsink
S = 8 - 32 A (Panel Mount/DIN) L Heatsink

Options

Blank = No option

Custom Configuration

Assigned by manufacturer

Special Product Code

Optional - Assigned by manufacturer

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Sales department for North & South America:
Europe / Africa / Asia / Pacific

Tel. +1(952) 474 - 6200 or +1(800) 765 - 2799

Web: www.ccipower.com

Email: info@ccipower.com



Sales department for India :

Tel. + 091 - 44249 60315

Web: www.pmacontrols.in

Email: info@pmacontrols.in



8077 Century Blvd
Chanhassen, MN 55317 USA

www.ccipower.com

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