

MCU-3G

DC-DC Converter Modules



The **Eaton 3G Modular Converter Units (MCUs)** are designed to convert from one DC voltage to another and to be used within the Eaton Modular Converter Solutions (MCS-3G) sub-racks. Multiple parallel units allow for high power systems within compact and dense housings, and they also allow for active redundancy.

The 3G architecture is reliable, power dense and compact. The high power density allows as little as 1U of rack space to be occupied by power, therefore maximizing space available for telecom and industrial equipment.

The MCU-3G products are suitable for integration within Eaton’s DC Rack Power Systems to provide multiple voltages, earth polarity and DC distribution within the same system.

The MCU-3G converter incorporates a combination of leading edge high frequency switch mode technology for a flexible and efficient DC power conversion source, with dual thermostatically controlled fans which further contributes to its high overall reliability.

The MCU-3G is designed to operate with the Eaton SC200 system controllers² in any of the versatile Access Power Solutions.

Features

- Intelligent microprocessor controlled
- Automatic² set-up from system controller
- Narrow profile
- Dual thermostatically controlled cooling fans
- Up to 10 units in a 19”, 3U sub-rack
- Up to 500W¹ per module
- Fast on-line replacement of modules
- Hot swap (plug in)
- Parallel operation with active² load share
- Facilitates cost-effective n+1 deployment
- Colour coded
- Fully isolated input to output (5KVDC)
- Input voltages
 - 110 V, 48 V, 24 V and 12 V
- Output voltages
 - 48 V, 24 V and 12 V

1. *The maximum input current is the main limit to the converter’s power performance. At lower voltages the continuous power is limited to the maximum input current rating.*
2. *Product release 2 will include active load sharing and SC200 controller communication.*

Item Model	Voltage Input (nom)	Efficiency @ FL	Voltage Output (nom)	Current Output	Power Watts	Voltage Designator
MCU12120-3G	12	80	12.0	22.25	300	■ ■ ■
MCU12240-3G	12	80	24.0	12.5	300	■ ■ ■
MCU12480-3G	12	80	48.0	6.3	300	■ ■ ■
MCU24120-3G	24	85	12.0	30.0	400	■ ■ ■
MCU24240-3G	24	90	24.0	21.0	500	■ ■ ■
MCU24480-3G	24	90	48.0	10.5	500	■ ■ ■
MCU48120-3G	48	85	12.0	30.0	400	■ ■ ■
MCU48240-3G	48	90	24.0	21.0	500	■ ■ ■
MCU48480-3G	48	90	48.0	10.5	500	■ ■ ■
MCU110120-3G	110	85	12.0	30.0	400	■ ■ ■
MCU110240-3G	110	90	24.0	21.0	500	■ ■ ■
MCU110480-3G	110	90	48.0	10.5	500	■ ■ ■



Technical Specifications

Electrical

All Models

Nominal input voltage (V d.c.)	110 V	48 V	24 V	12 V
Input voltage range (V d.c.)	80-130V	40-60V	20-30V	10-15V

48 V Output Models

	MCU-110480	MCU-48480	MCU-24480	MCU-12480
Nominal output voltage (V d.c.)	48 V			
Output voltage range (V d.c.)	44-56 V (software adjusted ²)			
Default Factory set-point (V d.c.)	54.4 V (before output diode)			
Maximum Output current (A)	10.5 A	10.5 A	6.25 A	
Maximum Continuous Power (W)	500 W	500 W	300 W	
Over voltage alarm/shutdown (H/W)	set at approx 60 V			
Under voltage alarm (S/W)	set at approx 44 V			

24 V Output Models

	MCU-110240	MCU-48240	MCU-24240	MCU-12240
Nominal output voltage (V d.c.)	24 V			
Output voltage range (V d.c.)	23-32 V (software adjusted ²)			
Default Factory set-point (V d.c.)	28 V (before output diode)			
Maximum Output current (A)	21.0 A	21.0 A	12.5 A	
Maximum Continuous Power (W)	500 W	500 W	300 W	
Over voltage alarm/shutdown (H/W)	set at approx 32 V			
Under voltage alarm (S/W)	set at approx 22			

12 V Output Models

	MCU-110120	MCU-48120	MCU-24120	MCU-12120
Nominal output voltage (V d.c.)	12 V			
Output voltage range (V d.c.)	12-15 V (software adjusted ²)			
Default Factory set-point (V d.c.)	14 V (before output diode)			
Maximum Output current (A)	30.0 A	30.0 A	22.25 A	
Maximum Continuous Power (W)	400 W	400 W	300 W	
Over voltage alarm/shutdown (H/W)	set at approx 16 V			
Under voltage alarm (S/W)	set at approx 11 V			

All Models

Line regulation	< ±0.2%
Load regulation	< ±0.5% (20-100% load)
Output ripple	<10 mV rms
Output noise	< ±50 mV
Current limit	Software adjustable default 100%
Parallel/Redundant operation	Yes, output diode
Current Sharing	Yes, active ²
Isolation	5 kV d.c.

Mechanical

Dimensions	133 (h) x42 (w) x266 (d) mm
Weight	1.7 kg
Construction	3RU steel case, plastic front cover
Cooling	Dual fan cooled
Connector	Custom insertion type output +ve, pin 5 output -ve, pin 6 input +ve, pins 1 input -ve, pins 2 Communications ² , pins 3 & 4

Indicators

Input /Output Voltage OK	Green LED
Communications Fault	Amber LED
Critical Fault	Red LED
Alarm Contact ²	'closed on alarm' (default),

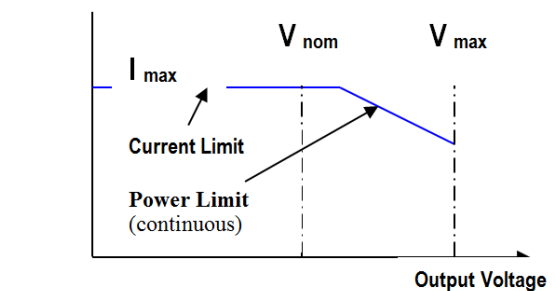
Protection

Input Polarity	reverse voltage protection
Output over voltage	over voltage shutdown
Output short circuit	short circuit shutdown
Over temperature	over temperature shutdown

Environment

EMC	AS3548, CISPR 22 class B
Operating temp.	-25 to 55 °C at rated power
Safety	AS/NZS 60950
Certification	AUS/NZ, RCM

Typical Converter Performance Characteristic Curve



The power limit (maximum continuous power) is due to the converter's heat dissipation capacity

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