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MicroTCA MTC600 Series

600 Watts

Total Power: 600 Watts
# of Channels: 16



RoHS 2002/95/EC

µTCA™

Special Features

- 600 W output power
- 16 Channels of
  - 12 V @ 7.6 A max
  - 3.3 V @ 150 mA max
- Supports:
  - 12x AMC's
  - 2x MCH's
  - 2x CU's
- Supports N+1 output redundancy, N≤3
- Supports 1+1 input redundancy

Compliance

- PICMG MicroTCA.0 (Revision 1.0)
- PICMG HPM.1 Firmware Upgrade (Revision 1.0)

Safety

UL, cUL	60950-1
CSA	60950-1
VDE	60950-1

Product Description

General

The MTC600 series of Power Modules are designed for use in MicroTCA systems and can support shelves, cube and other implementations and is compliant to PICMG MicroTCA .0 Revision 1.0 specification.

The MTC600 Power Modules implement the functionality necessary to power, manage and protect a MicroTCA system comprising up to:

- 12x AdvancedMCs
- 2x MicroTCA Carrier Hubs
- 2x Cooling Units

The MTC600 Power Modules will:

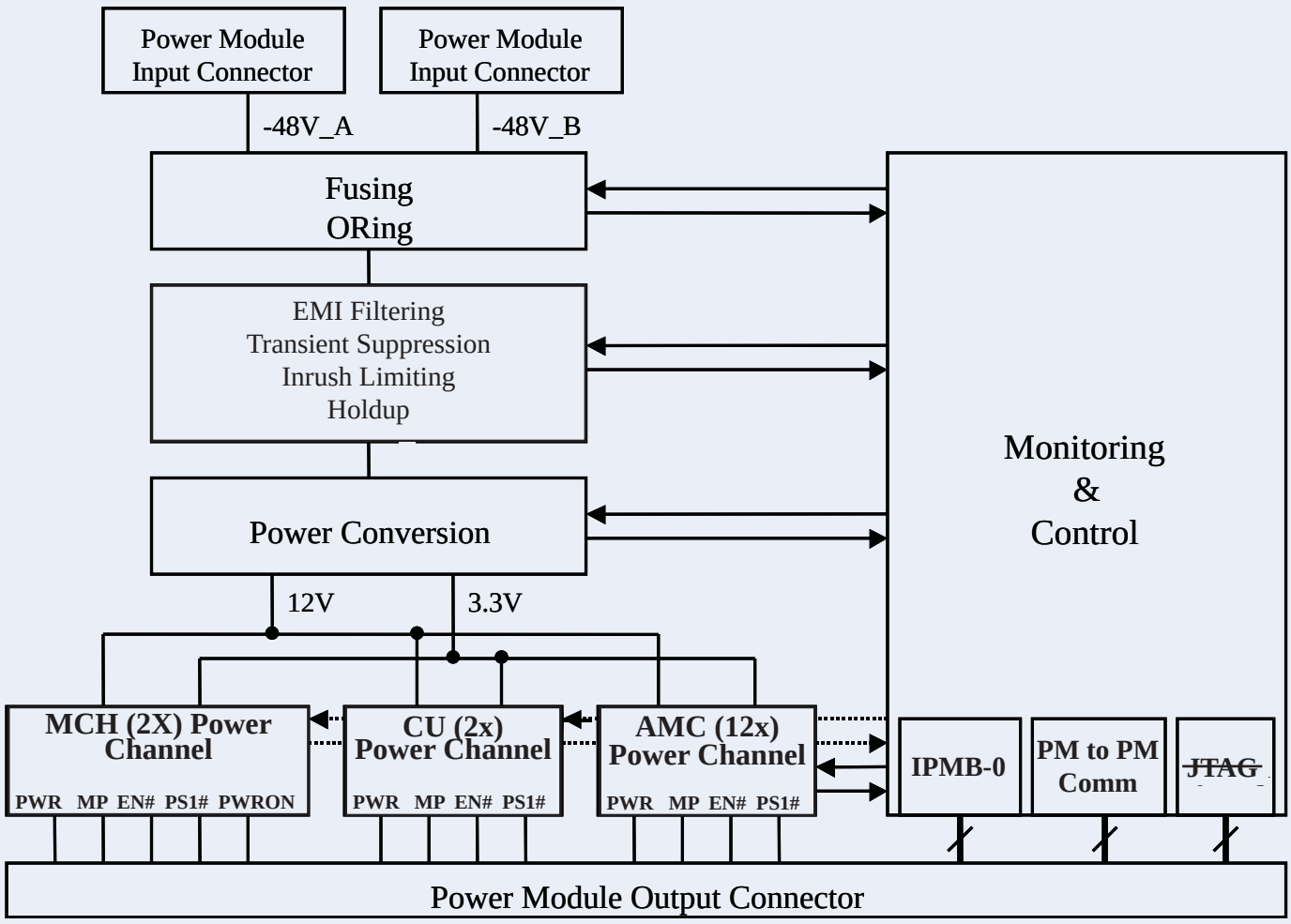
- On system bring-up, provide the power necessary for MCH and CU system elements.
- Support redundant IPMI (IPMB-0) communication with the MCH/ Carrier-Manager
- Under the command of the carrier manager, enable and provide power to AMCs, CUs and additional MCHs
- Monitor and Report power system status and conditions of operation
- Manage and isolate faults affecting the power system

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Network Power

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Product Description (continued)

Input



Electrical Specifications

Input

-48 Vdc Models		
Input Range (Operating)	-39.5 to -72 Vdc	Supports -48 V and -60 V battery plants
Input Range (Non-operating)	0 to -39.5 Vdc -72 to -75 Vdc	Power Module may or may not operate in part of this range, but will not be damaged
Input Fusing	Internal 24 A Fuses	In both A & B feeds and A & B return lines
Input ORing	Internal	In both A & B feeds and A & B return lines
Inrush Current	≤80 A	For t < 1 ms
Input Current	12.8 A 18.2 A	Typical with 600 W out, -54.0 Vin Maximum with 600 W out, -39.5 Vin
Holdup Time	5 ms 7 ms 10 ms 10 ms	Minimum at 600 W with one PM Typical at 600 W with one PM Typical at 400 W with one PM Minimum at 600 W with two PMs
UnderVoltage Lockout	39.5 ±1.0 V 37.0 ±1.0 V	Turn-On voltage Turn-Off voltage
Reverse Polarity Protection	Included	Protected against reverse polarity over magnitude of specified input range
AC Models		
Input Range (Operating)	90 to 264 Vac	Supports typical worldwide single-phase inputs
Input Range (Non-operating)	0 to 90 Vac 264 to 282 Vac	Power Module may or may not be operating in part of this range, but will not be damaged
Frequency	47 to 63 Hz	
Input Fusing	Internal 15 A Fuses	
Inrush Current	≤45 A	I^2t integral compatible with 15 A fast-blow fuse
Power Factor	0.99 typical	Meets EN61000-3-2
Harmonics	<2.30 Arms (odd) <1.08 Arms (even)	
Input Current	2.95 A 6.6 A	Typical with 600 W out, 230 Vac Maximum with 600 W out, 110 Vac
Holdup Time	16.7 ms 20 ms	At 110 Vac, 60 Hz At 230 Vac, 50 Hz
UnderVoltage Lockout	87 ± 2.5 V 83 ± 2.5 V	Turn-On voltage Turn-off voltage
OverVoltage Lockout	282 Vac	Power Module will turn-off if input voltage exceeds this voltage and not turn on until input voltage is reduced below this level

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Electrical Specifications (continued)

Output - All Models (continued)

12 V Outputs (Payload Power)[1,2]		
Management Power Interdependence	12 V will not be applied without 3.3 V applied to a load	Removal of 3.3 V also removes 12 V and de-asserts ENABLE#
Setpoint	12.6 Vdc typical 11.8 Vdc typical	Configured as Primary PM Configured as Redundant PM
Total Regulation Range	12.25 to 12.95 Vdc 11.60 to 12.00 Vdc	Configured as Rrimary PM Configured as Redundant PM
Rated Load	600 W maximum 80 W / 7.6 A maximum	Per Power Module, input voltage ≥110 Vac Per load channel
Minimum Load	No load	No loss of regulation ≥110 Vrms
Output Rise TIme (per channel)	25 ms maximum	With 1600 µF on output under test
Output Noise (PARD)[3]	75 mV maximum 100 mV maximum	0 to 30 MHz 0 to 100 MHz
Output Voltage Overshoot	2% maximum	Referenced to setpoint
Transient Response	3% maximum deviation 2 ms recovery time	2 A loadstep @ 1 A/µs Referenced to load current and setpoint at onset of transient. Recovery time to within 1% of setpoint at onset of transient
Voltage Sag	1.00 V maximum	Primary PM to redundant PM transition with maximum of 80 W load per output or 600 W load per PM
Short Circuit Protection	9.7 A maximum 10 ms maximum	Output to return
Channel Fault Operation (Output to Return)	12V Payload Power Output under fault is shutdown. 3V3 MP on the same channel is not affected. The other channels are not affected	After removal of fault, the output channel is available again under control of the Carrier Manager. PM_OK# is not de-asserted and redundant failover is not initiated
Channel Fault Operation (Output to Output)	No damage to Power Module	Either or both outputs may shut down until fault is removed
PS1# Extraction Delay	100 µs maximum	Time from de-assertion of PS1# to disabling of the channel outputs and de-assertion of the ENABLE# signal
Reflected Ripple Tolerance on Cooling Unit Outputs[4]	100 mV pk-pk 0.8 A pk-pk	Tolerance of Power Module to ripple generated by fans or motors connected to Payload Power on Cooling Units

Note 1: All channels and outputs must be configued by the carrier manager with the exception of MCH and CU channels and outputs which are configured during Startup and/or autonomous operation,

Note 2: All measurements are made at the output connector of the Power Module. Unless otherwise specified,specs apply to all AMC, MCH, and CU outputs.

Note 3: Measured with a 0.1 µF ceramic and 10 µF tantalum capacitor on any output and oscilloscope bandwidth set for 200 MHz.

Note 4: Consult with the factory if other outputs are expected to product significant ripple current.

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Electrical Specifications (continued)

Output - All Models (continued)

3.3 V Outputs (Management Power) [5,6]		
Payload Power Interdependence	3.3 V must be applied before 12 V	Removal of 3.3 V also removes 12 V and de-asserts ENABLE#
Setpoint	3.3 Vdc typical	
Total Regulation Range	3.16 to 3.63 Vdc	
Rated Load	8 W maximum 0.5 W / 150 mA maximum	Per Power Module Per load channel
Minimum Load	No load	No loss of regulation
Output Rise TIme (per channel)	25 ms maximum	With 150 µF on output under test
Output Noise (PARD)[3]	50 mV maximum 75 mV maximum	0 to 30 MHz 0 to 100 MHz
Output Voltage Overshoot	2% maximum	Referenced to setpoint
Transient Response	3% maximum deviation 2 ms recovery time	37.5 mA loadstep @ 1 A/µs Referenced to load current and setpoint at onset of transient. Recovery time to within 1% of setpoint at onset of transient
Voltage Sag	150 mV maximum	Primary PM to redundant PM transition with max of 80 W load per output or 600 W load per PM
Short Circuit Protection	225 mA maximum 12 ms maximum	Output to return
Channel Fault Operation (Output to Return)	Output channel under fault is shutdown. Both 3.3V and 12V are removed and ENABLE# is de-asserted. The other channels are not affected	After removal of fault, the output channel is available again under control of the Carrier Manager. PM_OK# is not de-asserted and redundant failover is not initiated
Channel Fault Operation (Output to Output)	No damage to Power Module	Either or both channels may shut down until fault is removed
PS1# Extraction Delay	100 µs maximum	Time from de-assertion of PS1# to disabling of the channel outputs and de-assertion of the ENABLE# signal

Note 5: All channels and outputs must be configued by the carrier manager with the exception of MCH and CU channels and outputs which are configured during Startup and/or autonomous operation.

Note 6: All measurements are made at the output connector of the Power Module. Unless otherwise specified,specs apply to all AMC, MCH, and CU outputs.

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Electrical Specifications (continued)

Output - All Models (continued)		
General		
Turn-on Time	4 seconds maximum	After power-on of the PM, the time for autonomous outputs to reach regulation band
Early Power	Supported	PM supports Early Power requirements referenced in MicroTCA.0 Rev 1.0 Section 4.4.11.1
Normal Power	Supported	PM supports Normal Power requirements referenced in MicroTCA.0 Rev 1.0 Section 4.4.11.2
Autonomous Operation	Supported	PM supports Autonomous Operation requirements referenced in MicroTCA.0 Rev 1.0 Section 4.4.11.3
Diagnostic Mode	Supported [GA2,GA1,GA0] = 101, or [GA2,GA1,GA0] = 110 LED1 displays yellow	In Diagnostic Mode PM disables the IPMI controls and slots are powered up based only on PSI# signals
Redundancy[7]		
Hot-Swap Operation (controlled)	Supported	Removal or addition of a PM will not cause a fault or out-of-regulation condition
Hot-Swap Operation (uncontrolled)	Supported	Removal or addition of a PM will not cause a fault or out-of-regulation condition
Power Module Failover	Supported	When configured as a redundant PM, the PM is capable of accepting the load of a failed PM within specified voltage magnitude and timing parameters
Fault Isolation	Supported	A fault in one PM will not cause the shutdown of another PM

Note 7: All specifications in the redundancy sub-section assume the system is populated with Power Modules with the same manufacturer's model numbers or otherwise compatible Power Modules. At the time of print, PICMG does not have a formal methodology for verifying compatibility.

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Electrical Specifications (continued)

Input Signals - All models

Geographic Address: GA0, GA1, GA2
Internal pull ups to 3.3 V. Source current limited by 11 Kohm (300 µA with GAx at 0.0 V)

	MIN	MAX
Logic Level Low - V_{IL}		0.5 V
Logic Level High- V_{IH}	1.63 V	

PS1_[SLOT]#: PS1_M1, PS1_M2, PS1_CU1, PS1_CU2, PS1_1, ...PS_12
Internal pull ups to 3.3 V. Source current limited by 10 Kohm (330 uA with PS1_[SLOT]# at 0.0 V)

	MIN	MAX
Logic Level Low Voltage - V_{IL}		1.1 V
Logic Level High Voltage - V_{IH}	2.6 V	

PWRON_[MCH]: PWRON_MI, PWRON_M2
Internal 10 Kohm pull down. Compatible with MicroTCA.0 R1.0 Section A.5.4

	MIN	MAX
Logic Level Low - V_{IL}		0.5 V
Logic Level High - V_{IH}	1.63 V	

RST_PM_IN#: RST_PM_IN#

	MIN	MAX
Logic Level Low - V_{IL}		0.6 V
Logic Level High - V_{IH}	2.4 V	

PMP_[x]#: PMP_A#, PMP_B#, PMP_C#
Internal pull up to 3.3 V. Source current limited by 10 Kohm (330 uA with PMP_[x]# at 0.0 V)

	MIN	MAX
Logic Level Low Voltage - V_{IL}		0.5 V
Logic Level High Voltage - V_{IH}	1.63 V	

PS_PM#: PS_PM#
Internal pull up to 3.3 V. Source current limited by 10 Kohm

	MIN	MAX
Logic Level Low Voltage - V_{IL}		0.6 V
Logic Level High Voltage - V_{IH}	2.4 V	

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Electrical Specifications (continued)

Output Signals - All Models

EN1_[SLOT]#: EN1_M1, EN1_M2, EN1_CU1, EN1_CU2, EN1_1, EN1_2...EN1_12
Open collector output. Isink, max=10 mA. No internal current limit

	MIN	MAX
Logic Level Low Voltage - V_{OL}		0.8 V
Voltage Withstand - V_{max}		5.5 V

PM_OK#: PM_OK#
Open collector output, Isink max = 10 mA. No current limit

	MIN	MAX
Logic Level Low Voltage - V_{OL}		0.8 V
Voltage Withstand - V_{max}		5.5 V

RST_PM_[x]#: RST_PM_A#,RST_PM_B#,RST_PM_C#
Open collector output, Isink, max = 10 mA. No current limit

	MIN	MAX
Logic Level Low Voltage, - V_{OL}		0.8 V
Voltage Withstand - V_{max}		5.5 V

Shared Signals - All Models

SMP: SMP
Compliant to MicroTCA.0 R1.0 Section 4.6.5.4.3, requirements 4.221-4.225

	MIN	MAX
Voltage Range	4.5 V	6 V
Isink		750 mA
Isource		350 mA

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Electrical Specifications (continued)

I²C Interface - All Models

Operating Parameters

I²C Operating Voltage	3.3 V	Nominal
I²C Operating Frequency	100 kHz	

SDA_[x]: SDA_A, SDA_B
Internal pull ups to 3.3 V. Source current limited by 10 Kohm (330 µA with SDA_[x] at 0.0 V). Bufferede to support hot-swap

	MIN	MAX
Logic Level Low - V_{IL}		0.7 V
Logic Level High - V_{IH}	2.70 V	

SCL_[x]: SCL_A, SCL_B
Internal pull ups to 3.3 V. Source current limited by 10 Kohm (330 uA with SCL_[x] at 0.0 V). Buffered to support hot-swap.

	MIN	MAX
Logic Level Low Voltage - V_{IL}		0.7 V
Logic Level High Voltage - V_{IH}	2.70 V	

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IPMB-0 Interface

PM-EMMC

Functionality
A PM-EMMC is implemented per MicroTCA.0 R1.0 requirements 4.116 through 4.120

IPM Device	
IPMB Interface	PM-EMMC aggregates IPMB-A and IPMB-B IPMI v1.5 protocol
SDR Repository	
Sensors	Implements mandatory 2 temp sensors; Implements voltage and current senors
Watchdog Timer	Implements a watchdog timer for resetting PM's own PM-EMMC
FRU Inventory	
Initialization Agent	PM-EMMC is responsible for initializing it's own event generation and sensors
Internal Event Generation	
External Event Generation	Events sent over IPMB-0

Power Channel Mapping

Power Channel	Management Power	Payload Power	PS1#	ENABLE#	Autonomous Power
1, 2	MP_M1, MP_M2	PP_M1, PP_M2	PS1_M1#, PS1_M2#	EN_M1#, EN_M2#	Depends on PWRON_M1, PWRON_M2
3, 4	MP_CU1, MP_CU2	PP_CU1, PP_CU2	PS1_CU1#, PS1_CU2#	EN_CU1#, EN_CU2#	Yes
5-16	MP_1 - MP_12	PP_1 - PP_12	PS1_# - PS1-12#	EN_1# - EN_12#	No

Supported Commands

Global Commands
NetFN App Request=06h; Response=07h

Command	CMD	Note
Get Device ID	01h	As defined in IPMI v1.5; Broadcast Get Device ID not supported
Cold Reset	02h	As defined in IPMI v1.5

Event Commands
NetFN S/E Request=04h; Response=05h

Command	CMD	Note
Set Event Receiver	00h	As defined in IPMI v1.5
Get Event Receiver	01h	As defined in IPMI v1.5
Platform Event	02h	As defined in IPMI v1.5

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IPMB-0 Interface (continued)

Supported Commands (Continued)

Sensor Device Commands
NetFN S/E Request=04h; Response=05h

Command	CMD	Note
Get Device SDR Info	20h	As defined in IPMI v1.5
Get Device SDR	21h	As defined in IPMI v1.5
Reserve Device SDR Repository	22h	As defined in IPMI v1.5
Set Sensor Hysteresis	24h	As defined in IPMI v1.5
Get Sensor Hysteresis	25h	As defined in IPMI v1.5
Set Sensor Threshold	26h	As defined in IPMI v1.5
Get Sensor Threshold	27h	As defined in IPMI v1.5
Get Sensor Reading	2Dh	As defined in IPMI v1.5

FRU Device Commands
NetFN Storage Request=0Ah; Response=0Bh

Command	CMD	Note
Get FRU Inventory Area Info	10h	As defined in IPMI v1.5
Read FRU Data	11h	As defined in IPMI v1.5
Write FRU Data	12h	As defined in IPMI v1.5

PICMG Commands
NetFN Storage Request=2Ch; Response=2Dh

Command	CMD	Note
Get PICMG Properties	00h	As defined in MicroTCA.0 R1.0
Get FRU LED Properties	05h	As defined in PICMG3.0 R2.0 (ATCA)
Get LED Color Capabilities	06h	As defined in PICMG3.0 R2.0 (ATCA)
Set FRU LED State	07h	As defined in PICMG3.0 R2.0 (ATCA)
Get FRU LED State	08h	As defined in PICMG3.0 R2.0 (ATCA)
Set IPMB State	09h	As defined in PICMG3.0 R2.0 (ATCA)
Get Device Locator Reader ID	0Dh	As defined in PICMG3.0 R2.0 (ATCA)
Get IPMB Link Info	18h	As defined in PICMG3.0 R2.0 (ATCA)

MicroTCA Commands
NetFN PICGMG Request=2Ch; Reponse=2Dh

Command	CMD	Note
Power Channel Control	24h	As defined in MicroTCA.0.0 R1.0
Get Power Channel Status	25h	As defined in MicroTCA.0.0 R1.0
PM Reset	26h	As defined in MicroTCA.0.0 R1.0
Get PM Status	27h	As defined in MicroTCA.0.0 R1.0
PM Heartbeat	28h	As defined in MicroTCA.0.0 R1.0

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IPMB-0 Interface (continued)

Sensors - Mandatory per PICMG and Related Standards

Event and Status Sensors
These sensors are implemented according to the requirements and specifications of the relevant standards.

Sensor Name	Sensor Number
Management Controller Device Locator	00h
Power Channel Notification	01h
PM Status	02h
IPMB Physical Link	03h
Hot Swap	04h

Temperature Sensors
All temperature sensors have an accuracy of 5%.
All temperature sensors have an offset of -40 °C.

Sensor Name	Sensor Number	Resolution	Applicable Models
Hotspot Temperature	05h	1 °C / bit	All
Ambient Temperature	06h	1 °C / bit	All
Thresholds	**Assertion/Deassertion**	**Comparison Returned**	**Settable/Readable**
Upper Non-Recoverable	Yes	Yes	R
Upper Critical	Yes	Yes	S/R
Upper Non-Critical	Yes	Yes	S/R
Lower Critical	Yes	Yes	S/R
Lower Non-Critical	Yes	Yes	S/R

Sensors - Non-Mandatory per PICMG and Related Standards

Internal Voltage Sensors
All voltage sensors have an accuracy of 2%.

Sensor Name	Sensor Number	Resolution	Applicable Models
12 Volt	07h	100 mV / bit	All
3V3 Volt	08h	50 mV / bit	All
5 V Volt	09h	50 mV / bit	All
Thresholds	**Assertion/Deassertion**	**Comparison Returned**	**Settable/Readable**
Upper Critical	Yes	Yes	S/R
Lower Critical	Yes	Yes	S/R

Internal Current Sensors
All current sensors have an accuracy of 2%.

Sensor Name	Sensor Number	Resolution	Applicable Models
12 V Current	0Ah	0.5 A / bit	All
3V3 Volt	0Bh	50 mA / bit	All
Thresholds	**Assertion/Deassertion**	**Comparison Returned**	**Settable/Readable**
Upper Critical	Yes	Yes	S/R

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IPMB-0 Interface (continued)

Sensors - Non-Mandatory per PICMG and Related Standards (continued)

Input Voltage Sensors
All voltage sensors have an accuracy of 2%.

Sensor Name	Sensor Number	Resolution	Applicable Models
AC Input Voltage	0Ch	2.0 V / bit	MTC600-AC only
DC Input Votlage A	0Ch	0.5 V / bit	MTC600-48 only
DC Input Voltage B	0Dh	0.5 V / bit	MTC600-48 only
DC Input Or-ed	0Eh	0.5 V / bit	MTC600-48 only
Thresholds	**Assertion/Deassertion**	**Comparison Returned**	**Settable/Readable**
Upper Critical	Yes	Yes	S/R
Lower Critical	Yes	Yes	S/R
Lower Non-Recoverable	Yes	Yes	R

Input Current Sensors
All current sensors have an accuracy of 2%.

Sensor Name	Sensor Number	Resolution	Applicable Models
AC Input Current	0Dh	100 mA / bit	MTC600-AC only
DC Input Current	0Fh	100 mA / bit	MTC600-48 only
Thresholds	**Assertion/Deassertion**	**Comparison Returned**	**Settable/Readable**
No thresholds implemented	n/a	n/a	n/a

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Environmental Specifications

Temperature and Altitude Derating[8]

60 m below to 1800 m above sea level

Condition	Temperature	Load
Storage Non-Operating	-45 ˚C to +70 ˚C	-
Cold Start	-20 ˚C to -5 ˚C	Any valid condition
Normal Operation	-5 ˚C to 45 ˚C	100%
Short Term Operation[9]	45 ˚C to 55 ˚C	Linear derating to 80% at 55 ˚C

1800 m to 4000 m above sea level

Condition	Temperature	Load
Storage Non-Operating	-45 ˚C to +70 ˚C	-
Cold Start	-20 ˚C to -5 ˚C	Any valid condition
Normal Operation	-5 ˚C to 35 ˚C 35 ˚C to 45 ˚C	100% System dependent
Short Term Operation[9]	45 ˚C to 55 ˚C	System dependent

Other Environmental

Criteria	Specification	Reference
Relative Hunidity	5% - 95%, non-condensing	GR-63-CORE, R4-7; IEC 60068-2-56, 2-30
Vibration	0.1 g @ 5-100 Hz and back to 5 Hz at a rate of 0.1 octave/min or 1.5 g @ 100-500 Hz with 0.25 octave/min; 1.5 mm @ 2-9 Hz, 0.5 g @ 9-200 Hz	GR-63-CORE, R4-58, R4-59; IEC 60068-2-6, 2-36
Shock	4 g @ 22 ms	IEC 60068-2-27, 2-29
Drop	Packaged: 450 mm drop height; Unpackaged: 25 mm drop height; Transportation: 1.2 m free fall	GR-63-CORE, R4-8, R4-9 IEC 60068-2-32
Fire Resistance	All material UL 94V-1 or better	

Standards Compliance for Telecommunications Applications

The Power Module will not hinder system compliance to the following environmental specifications:

- Telcordia GR-63-CORE
- Telcordia GR-1089-CORE
- NEBS Level 3, per SR-3580
- ETS300 019-1-1, Part 1-1 (Class 1.2E equipment)
- ETS300 019-1-2, Part 1-2 (Class 2.3 equipment)
- ETS300 019-1-3, Part 1-3 (Class 3.2 equipment)

Note 8: 12 CFM airflow for -48 V model; 15 CFM airflow for AC model.
Note 9: Short Term Operation defined as total period of not more than 96 consecutive hours and total of not more than 15 days in 1 year.

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Electromagnetic Compatibility

All Models

Radiated Emissions

Standard	Limits & Test Parameters	Frequency Range	Criteria
EN55022, Class A	Per Section 6	3 MHz to 1 GHz	N/A
GR-1089-CORE	Per Section 3.2	10 KHz to 10 GHz	N/A

Conducted Emissions

EN55022, Class A	Per Section 6	150 KHz to 30 MHz	N/A
GR-1089-CORE	Per Section 3.2	10 KHz to 30 MHz	N/A

ElectroStatic Discharge

EN61000-4-2	8 KV Contact, 15 KV Air discharge	Impulsive	B

Radiated Immunity

EN61000-4-3	10 V/m (level measure unmodulated) 80% AM, 1 KHZ	80 MHz to 1GHz	A

Conducted Immunity

EN61000-4-6	3 V (level measured unmodulated) 80% AM, 1HKz	150 KHz to 80 MHz	A

Voltage Dips & Interruptions

EN61000-4-11	-100% for 10 ms @ 0°; -100% for 10 ms @ 180°; -60% for 100 ms; -30% for 500 ms; -100% for 5 s	Impulsive	B,C

AC Models

Fast Transients

EN61000-4-4	5/50 ns 5 KHz pulse 1 KV direct	Impulsive	B

Surge

EN61000-4-5	1.2/50 µsec pulse 2 KV Line to Earth 1 KV Line to Line	Impulsive	B

-48 Vdc Models

Fast Transients

EN61000-4-4	5/50 ns 5 KHz pulse 500 V direct	Impulsive	B

Surge

EN61000-4-5	1.2/50 µsec pulse 500 V Line to Earth 500 V Line to Line	Impulsive	B

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Mechanical Specifications (continued)

Front Panel - MTC600-48

Input Connector:
Positronics QB7W2MN7T2,
FCI 10070158,
or equivalent

Mating Connector:
Positronics QB7W2F00QH0/AA,
FCI 10070165,
or equivalent

Pinout:
P1: Return
P2: -48 V
1: Not Used
2: Not Used

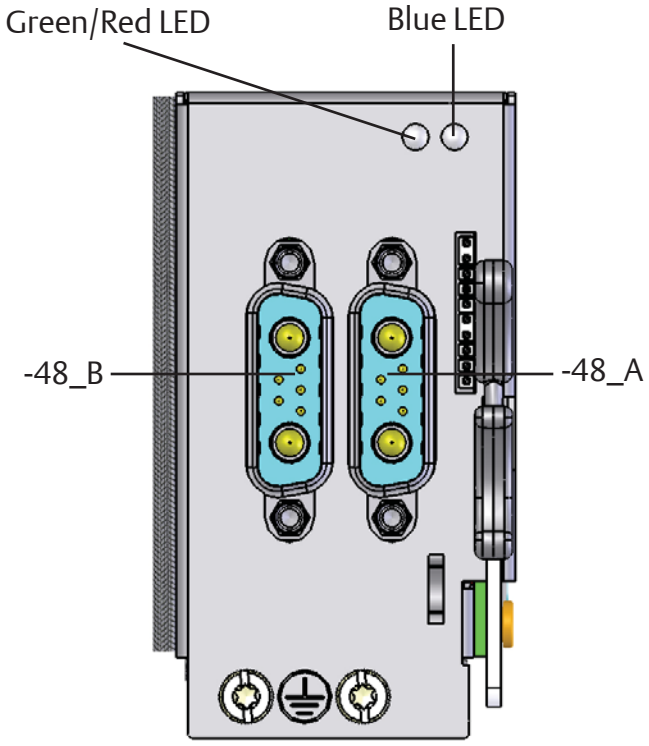
Front Panel - MTC600-AC

Input Connector:
IEC 320-C14,
or equivalent

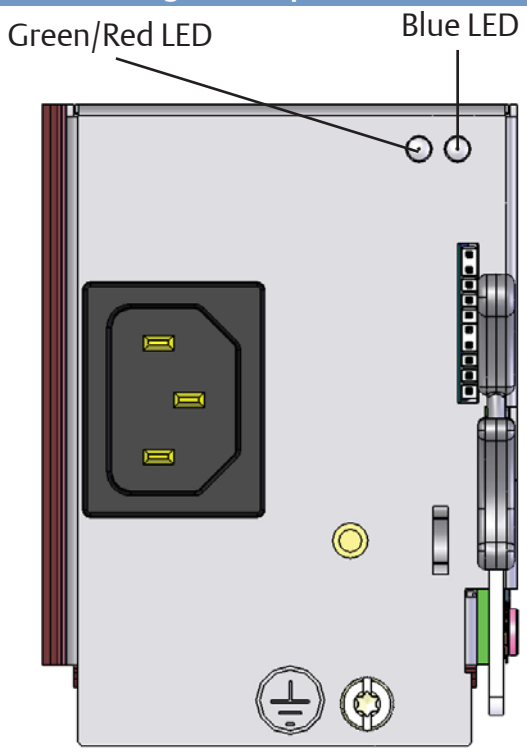
Mating Connector:
IEC 320-C13,
or equivalent

Pinout:
L: Line
N: Neutral
G: Ground

Front Panel Drawing for DC-input unit



Front Panel Drawing for AC-input unit



General - MTC600-48

Weight: 25 oz. (700 grams) typical

General - MTC600-AC

Weight: 30 oz. (850 grams) typical

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Mechanical Specifications (continued)

Output Connector

Output Connector:
EPT P/N 501-50096-183,
Tyco P/N 1469922-1,
or equivalent
Mating Connector:
EPT P/N 502-50096-183,
Tyco P/N 1469920-1,
or equivalent

Pin Description

PP_x	Payload Power (12V) for AMC/MCH/CU x
MP_x	Mgmt Power (3.3V) for AMC/MCH/CU x
GND	Output Return
PS_PM#	Last Mate Pin
GAx	Geographical address line x
PM_OK#	PM Present and OK [Output]
PMP_x#	PM x Present and OK [Input]
RST_PM_IN#	Resets PM EMMC [Input]
RST_PM_x#	Reset signal from PM x [Output]
PWR_ON_Mx	Power-On signal from MCH x
PS1_x#	Detects Presence of AMC/MCH/CU x
EN_x#	Enables (E)MMC of AMC/MCH/CU x
SCL_x	I2C Clock Line for Bus x
SDA_x	I2C Date Line for Bus x

Pinout

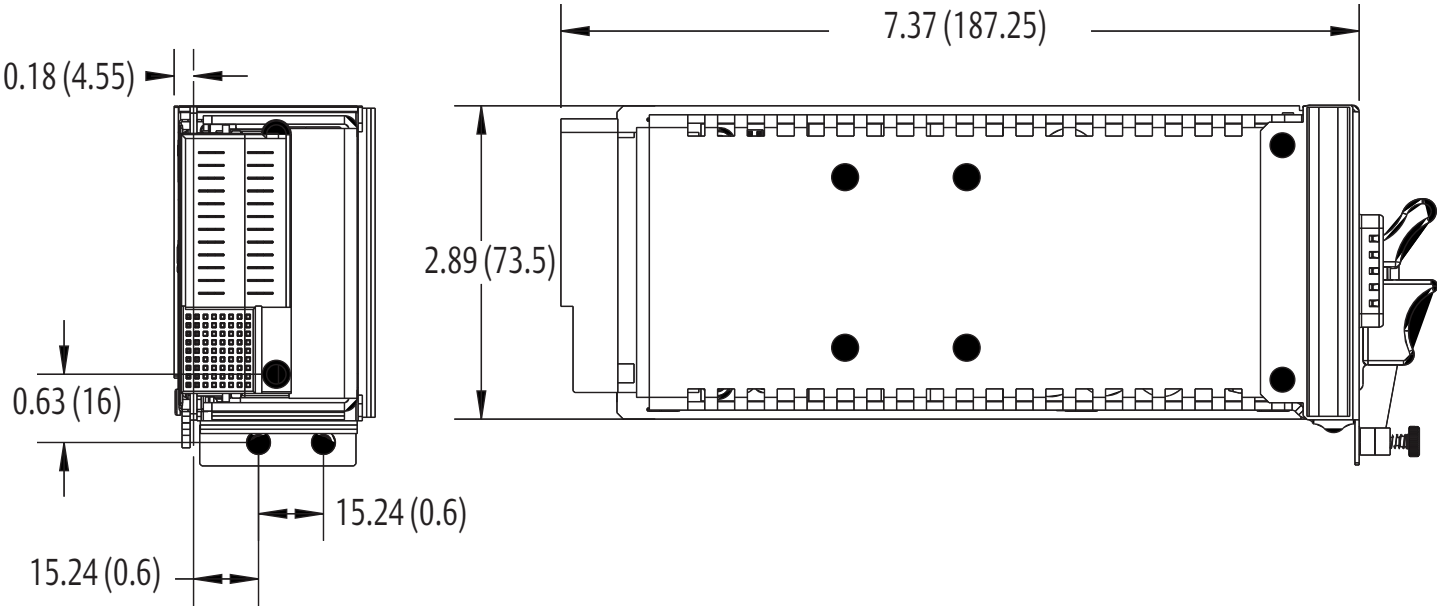
P1	PP_M1(2nd Mate)	PP_1(2nd Mate)	P13
P2	PP_CU1(2nd Mate)	PP_2(2nd Mate)	P14
P3	PP_CU2(2nd Mate)	PP_3(2nd Mate)	P15
P4	GND(1st Mate)	PP_4(2nd Mate)	P16
P5	GND(1st Mate)	PP_5(2nd Mate)	P17
P6	GND(1st Mate)	PP_6(2nd Mate)	P18
P7	GND(1st Mate)	PP_7(2nd Mate)	P19
P8	GND(1st Mate)	PP_8(2nd Mate)	P20
P9	GND(1st Mate)	PP_9(2nd Mate)	P21
P10	GND(1st Mate)	PP_10(2nd Mate)	P22
P11	GND(1st Mate)	PP_11(2nd Mate)	P23
P12	PP_M2(2nd Mate)	PP_12(2nd Mate)	P24

1	PS_PM# (Last Mate)	PM_OK# (3rd Mate)	PS1_M1# (3rd Mate)	PS1_CU1# (3rd Mate)	EN_M1# (3rd Mate)	EN_CU1# (3rd Mate)	MP_M1# (3rd Mate)	MP_CU1# (3rd Mate)
2	N/C	PMP_A# (3rd Mate)	PS1_2# (3rd Mate)	PS1_1# (3rd Mate)	EN_2# (3rd Mate)	EN_1# (3rd Mate)	MP_2# (3rd Mate)	MP_1# (3rd Mate)
3	N/C	PMP_B# (3rd Mate)	PS1_4# (3rd Mate)	PS1_3# (3rd Mate)	EN_4# (3rd Mate)	EN_3# (3rd Mate)	MP_4# (3rd Mate)	MP_3# (3rd Mate)
4	N/C	PMP_C# (3rd Mate)	PS1_6# (3rd Mate)	PS1_5# (3rd Mate)	EN_6# (3rd Mate)	EN_5# (3rd Mate)	MP_6# (3rd Mate)	MP_5# (3rd Mate)
5	N/C	RST_PM_IN# (3rd Mate)	PS1_8# (3rd Mate)	PS1_7# (3rd Mate)	EN_8# (3rd Mate)	EN_7# (3rd Mate)	MP_8# (3rd Mate)	MP_7# (3rd Mate)
6	N/C	RST_PM_A# (3rd Mate)	PS1_10# (3rd Mate)	PS1_9# (3rd Mate)	EN_10# (3rd Mate)	EN_9# (3rd Mate)	MP_10# (3rd Mate)	MP_9# (3rd Mate)
7	GA0 (3rd Mate)	RST_PM_B# (3rd Mate)	PS1_12# (3rd Mate)	PS1_11# (3rd Mate)	EN_12# (3rd Mate)	EN_11# (3rd Mate)	MP_12# (3rd Mate)	MP_11# (3rd Mate)
8	GA1 (3rd Mate)	RST_PM_C# (3rd Mate)	PS1_M2# (3rd Mate)	PS1_CU2# (3rd Mate)	EN_M2# (3rd Mate)	EN_CU2# (3rd Mate)	MP_M2# (3rd Mate)	MP_CU2# (3rd Mate)
9	GA2 (3rd Mate)	SMP (3rd Mate)	SCL_B (3rd Mate)	SDA_B (3rd Mate)	SCL_A (3rd Mate)	SDA_A (3rd Mate)	PWR_ON_M2 (3rd Mate)	PWR_ON_M2 (3rd Mate)
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**

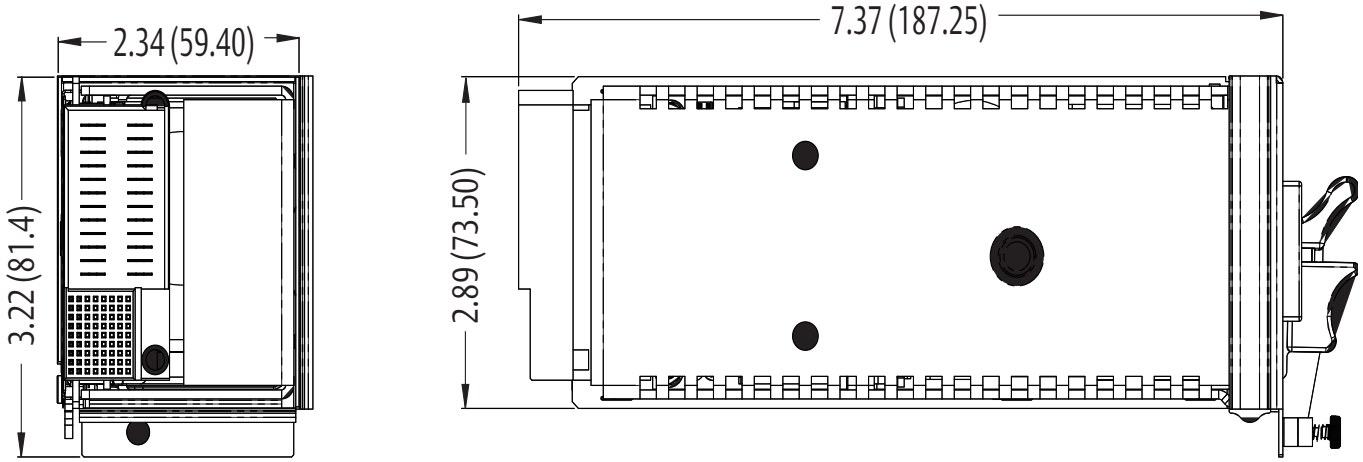
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Mechanical Specifications

MTC600-48



MTC600-AC



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Ordering Information

	Power Level		Input Voltage	Redundant	Channel Count	Width	Height	*Reserved*	
MTC	**ppp**	**-**	**vv**	**rr**	**nn**	**w**	**h**	**xx**	**J**
	600 = 600 W		48 = -48 Vdc AC = 90-264 Vac	RR = Redundant Input and Redundant Output NR = Non-Redundant Input and Redundant Output	16 = 16ch	S = Single Width	9 = 9 HP 1 = 12 HP	For modified standards	

MTC600-48RR16S9J
600 W, -48 Vin, Redundant I/P, Redundant O/P, 16 channel, SW 9 HP

MTC600-ACNR16S1J
600 W, AC-in, Non-Redundant I/P, Redundant O/P, 16 channel, SW 12 HP

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