

VadaTech UTC01X

User's Manual

April 16, 2010

Version 1.3



vadatech^{inc}
THE POWER OF VISION

™

Copyright

© 2010 VadaTech Incorporated

All rights reserved

VadaTech and the globe image are trademarks of VadaTech Incorporated.

All other product or service names mentioned in this document are the property of their respective owners.

Notice

While reasonable efforts have been made to assure the accuracy of this document, VadaTech, Inc. assumes no liability resulting from any omissions in this document or from the use of the information obtained herein. VadaTech reserves the right to revise this document and to make changes periodically and the content hereof without obligation of VadaTech to notify any person of such revision or changes.

Electronic versions of this material may be read online, downloaded for personal use, or referenced in another document as a URL to the VadaTech Incorporated Web site. The text itself may not be published commercially in print or electronic form, edited, translated, or otherwise altered without the permission of VadaTech, Inc.

It is possible that this publication may contain reference to or information about VadaTech products (machines and programs), programming, or services that are not available in your country. Such references or information must not be construed to mean that VadaTech intends to announce such products, programming, or services in your country.

Trademarks

The VadaTech, Inc name and logo are registered trademarks of VadaTech Incorporated in the U.S.A. All other product or service names mentioned in this document are the property of their respective owners.

© 2009, VadaTech Incorporated. Printed in the U.S.A., All Rights Reserved.

Revision History

Doc Rev	Description of Change	Revision Date
1.0	Document Created	01/16/2009
1.1	Updated for UTC010 release 1.3.0	03/12/2009
1.2	Update table with temperature sensors for 1.5.0	09/11/2009
1.3	Added documentation for UTC011 and UTC012	04/16/2010

Table of Contents

1	Overview	7
1.1	Document References.....	7
1.2	Acronyms Used in this Document.....	7
2	Front Panel	8
3	Sensors.....	10
4	Command Line Interface.....	12
4.1	Fuse & Management Power Status Display.....	12
4.2	Fuse Status.....	12
4.3	Management Power Status.....	13

Figures

Figure 1: PM Front Panels	8
Figure 2: Fuse and management power status display with all good status.....	12



Tables

Table 1: Acronyms.....	7
Table 2: Front Panel LEDs	8
Table 3: UTC010 Sensors.....	10
Table 4: UTC011 and UTC012 Sensors	11
Table 5: Fuse status	13
Table 6: Management power status.....	14

1 Overview

This document describes the operation of the UTC010, UTC011, and UTC012 MicroTCA Power Modules. Refer to the data sheet for the hardware capabilities and limitations.

1.1 Document References

- [VadaTech Power Module Command Line Interface Reference Manual](#)
- [PICMG® Advanced Mezzanine Card AMC.0 Specification R2.0 \(AMC.0\)](#)
- [PICMG® Specification MTCA.0 R1.0 \(MicroTCA\)](#)
- [PICMG® HPM.1 R1.0 \(HPM.1\)](#)

1.2 Acronyms Used in this Document

Acronym	Description
PM	Power Module

Table 1: Acronyms

2 Front Panel

The front panel provides two power connectors. The UTC010 and UTC012 front panels also provide a serial port, a hot-swap handle, and several LEDs. The UTC011 serial port is only accessible if the “clamshell” is removed.

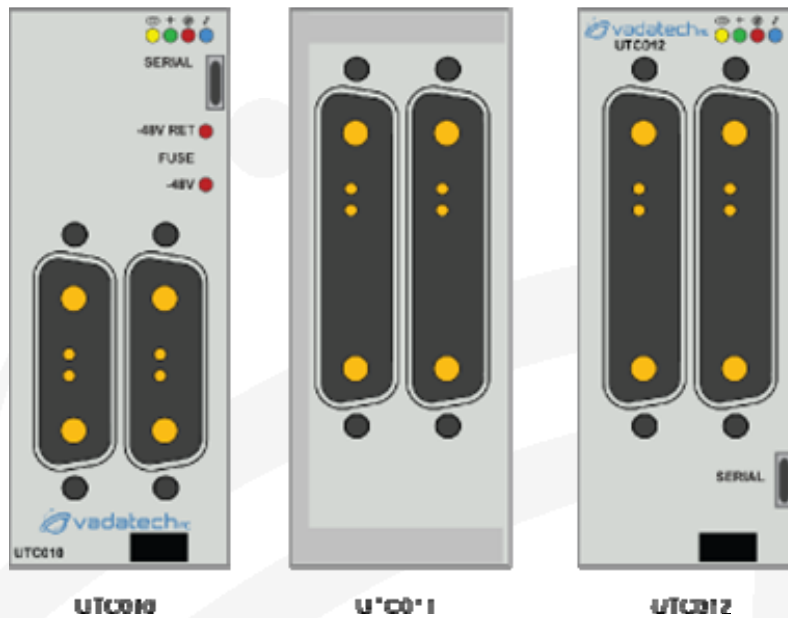


Figure 1: PM Front Panels

The LEDs on the front panel indicate the state of the PM.

Group	LED Name	Color	Description
ATCA	Hot Swap	Blue	Indicates PM hot-swap state, per AMC.0
	Fault	Red	ON when PM cannot provide power on any power channels. Reflects the state of PM_OK, per MicroTCA. This usually indicates a recoverable fault. For example, input power is not present, or the PM is over temperature.
	OK	Green	ON when PM is operating normally. This LED will be ON when the Fault LED is OFF, and vice versa.
	Upgrade	Amber	This LED blinks during operations that modify the firmware configuration. This includes SDR and FRU writes, and HPM.1 upgrade operations. The PM should not be removed or turned off while this LED is blinking.
FUSE	-48V RET	Amber	Blinking when input power is not redundant. ON when the -48 volt return fuse is blown. This is a non-recoverable fault.
	-48V	Amber	ON when the -48 volt fuse is blown. This is a non-recoverable fault.

Table 2: Front Panel LEDs

The serial port is a female micro-USB connector. To connect this serial port to a standard DB9 connector, use the cable provided with the PM, part number CBL-DB9MUSB1. The serial protocol is RS-232, 115200 baud, N81. Most of the functions available through this interface are described in the [VadaTech Power Module Command Line Interface Reference Manual](#). For functions specific to these models, see **Section 4: Command Line Interface**.

The power connectors allow two redundant power sources to be connected to the PM. Note that if only one power source is active, the -48V RET LED will blink. This indicates that the input power is not redundant, and is not a fault condition. Refer to the data sheet for the allowable range of input voltages.

The hot-swap handle operates the same as an AMC hot swap handle. To bring the PM to the operating (M4) state, push the handle in to the closed position. To extract the PM, pull the handle to the open position. Wait for the blue LED to come on solid, then take the PM out of the carrier.

3 Sensors

The UTC010 provides the following sensors:

Name	Type	Description
PM HOT SWAP	AMC.0 Module Hot Swap	Handle and Quiesce state
FET TEMP	Temperature	Temperature of the power FET
BRICK 1 TEMP	Temperature	Temperature of power brick 1
BRICK 2 TEMP	Temperature	Temperature of power brick 2
UTC010 tIN	Temperature	Incoming air temperature
UTC010 tOUT	Temperature	Outgoing air temperature
UTC010 Brick T1	Temperature	Internal temperature of power brick 1
UTC010 Brick T2	Temperature	Internal temperature of power brick 1
UTC010 Brick T3	Temperature	Internal temperature of power brick 2
UTC010 Brick T4	Temperature	Internal temperature of power brick 2
PM STATUS	MicroTCA Power Module Status	Health and Primary / Redundant status
PM NOTIFICATION	MicroTCA Power Channel Notification, event-only	Power Channel Status
IPMB LINK	ATCA IPMB Link Sensor	IPMB-0 Status
UTC010 PWR IN	Redundancy	Input power redundancy
UTC010 12V	Voltage	Level of 12-volt power
UTC010 vOut 1	Voltage	Output voltage of power brick 1
UTC010 vOut 2	Voltage	Output voltage of power brick 2
UTC010 iOut 1	Current	Output current of power brick 1
UTC010 iOut 2	Current	Output current of power brick 2

Table 3: UTC010 Sensors

The UTC011 and UTC012 provide the following sensors:

Name	Type	Description
PM HOT SWAP	AMC.0 Module Hot Swap	Handle and Quiesce state
FET TEMP	Temperature	Temperature of the power FET
BRICK 1 TEMP	Temperature	Temperature of power brick 1
BRICK 2 TEMP	Temperature	Secondary Temperature of power brick 1
UTC01X tIN	Temperature	Incoming air temperature
UTC01X tOUT	Temperature	Outgoing air temperature
PM STATUS	MicroTCA Power Module Status	Health and Primary / Redundant status
PM NOTIFICATION	MicroTCA Power Channel Notification, event-only	Power Channel Status
IPMB LINK	ATCA IPMB Link Sensor	IPMB-0 Status
UTC01X PWR IN	Redundancy	Input power redundancy
UTC01X 12V	Voltage	Level of 12-volt power

Table 4: UTC011 and UTC012 Sensors

4 Command Line Interface

This section describes the user interface screens that are specific to the UTC010, UTC011, and UTC012. For a description of the screens common to all VadaTech Power Modules, refer to the [VadaTech Power Module Command Line Interface Reference Manual](#).

4.1 Fuse & Management Power Status Display

The Fuse & Management Power Source Status display (henceforth known as FMPSD) is selected by the user when they want a more detailed view of the power entry fuse status and the management power status. The display shows the status of the management power that supplies the PM as well as the load modules (MCH, CU and AMC). This display will have the following format (though status values may be different):

```

Fuse & Management Power Status
                                -48V   Return
                                -----
Fuse Status   Good             Good
                                UTC010   To Modules
                                -----
Management
Power Status   Good             Good
'P' - Load Power Status

```

Figure 2: Fuse and management power status display with all good status

Note that the various status indicators on the FMPSD are “ANDed” together to show the overall status of the FMPSD on the main display. If one status is bad, then the overall status will be bad. If all the status indicators are good, then the overall status will be good.

4.2 Fuse Status

There are two power feeds (A and B) into the PM with -48V and return, resulting in 4 power connections. They are combined to provide redundancy. Fuse failures are detected for all 4 lines but logically combine into two – one for the -48V fuse and the other for the return. The FMPSD will indicate when a fuse has blown due to an over current condition by showing a Fuse Status of “Bad”.

The PM could potentially operate normally in a condition where the fuse status shows up as being bad, so the Management Power Status may show up as good even with the two fuses showing a bad status. The PM could operate with two fuses out on either the -48V or the return.

If all of the fuses went out in the ultimate catastrophic case, the Fuse Status and Management Power Status would show up as bad. The PM would be operational if management power were provided by the redundant power module.

Fuse Status -48V	Fuse Status Return	Meaning
Good	Good	Both power feeds are operating properly
Bad	Good	-48V line on either of the power feeds is bad
Good	Bad	Return line on either of the power feeds is bad
Bad	Bad	Both power feeds are bad – power may be supplied by primary or redundant supply

Table 5: Fuse status

4.3 Management Power Status

There are two sources of management power on the PM. One is for the PM itself (internal management power) and the other is management power to the other modules - AMCs, Cooling Units (CUs) and Micro TCA Carrier Hubs (MCH) (external management power). On-board management power can be supplied by the unit in question or it can be supplied by a redundant power module in the event that on-board management power fails.

If Management Power to the PM were provided by the redundant power module due to an internal management power fault and external management power was still available, the Management Power Status to the PM would show up as “Bad” and the Management Power Status to the load modules would appear as “Good”.

If external management power was not available due to a fault and internal management power was available, the Management Power Status to the PM would show up as “Good” and the Management Power Status to the other modules would appear as “Bad”.

Should both the external and internal management power be provided by the redundant power module due to power faults for internal and external management power sources, the display would be bad for the PM and “To Modules” Management Power Status.

The **Table 6: Management power status** provides a quick reference to the various conditions of the FMPS display and the meaning of the display:

PM	To Modules	Meaning
Good	Good	Internal management power is good for this PM and external modules
Bad	Good	Internal management power for this PM is being provided by the redundant power module but external management power is okay
Good	Bad	Internal management power is good for this PM but external management power cannot be supplied by this PM
Bad	Bad	Internal management power for this PM and external management power are being supplied by the redundant power module

Table 6: Management power status