

# Release Note

## PD69100 Firmware Version 2.6.3

### 1 General

- **Affected Part Number/s:** PD69100 family.
- **Distinction:** According to chip label
- **Effective Date:** March 15, 2014

### 2 Introduction

The following release note describes the firmware release (2.6.3) which is to be used on Microsemi Enhanced mode controller – the PD69100.

The release note describes the additions from previous release 2.6.0

PD69100 Enhanced mode RELEASE 2.6.3 controller supports:

**2.1 Microsemi™ PoE devices: PD69108 v1r2 and above**

**2.2 Microsemi™ PoE devices: PD69104 v1r2 and above**

Loading a new firmware version into an existing PD69100 is to be done using the UART / I<sup>2</sup>C interface, utilizing the 'Firmware Download' procedure.

### 3 Release Content – New Features

#### 3.1 Power Forwarding Mode

“Power Forwarding” mode added, in this mode when the system reach “Power Management” (no more power to turn the next coming port), it will first disconnect the low priority port and then connect the high priority port. This mode is enabled by new individual mask “PowerForwardingPriority” (0x67).

#### 3.2 Port Status Update

The relation between Enable, Disable and Set Force Power per port commands has changed. From this version the behavior is as follow:

Initial Port Configuration	Changing Port Configuration to:	Actual configuration of the port (in Rel 2.63)
Enable	Force Power	Port is in force power mode
Disable	Force Power	Port is in force power mode
Force Power	Disable	Port is Disabled
Force Power	Enable	Port is Enabled, Force Power cancelled

The port status #48 (Port is forced on, then disabled) will no longer be presented to the customer.

In the previous versions, if a port was disabled and then forced on, the port remains off until the port is enabled. Only after the port was enabled, the port will deliver power. If a port was forced on and then disabled, the PoE system ignores the Disable command and returns an error report.

#### 3.3 ASIC Refresh

Updating ASIC status periodically

#### 3.4 Watchdog Reset Timeout

Watchdog reset timeout is extended to 6.4 seconds instead of 3.2 seconds.

#### 3.5 Enable Capacitor Detection per Channel

Control enable/disable cap detection per channel (earlier versions include per system control).

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The following commands in the communication protocol support this setting:

#### Set Enable/Disable Channels

[1]KEY	[2]ECHO	[3]Subject	[4]Subject 1	[5]Subject 2	[6]DATA	[7]DATA	[8]DATA
<i>Command</i> (0x00)	##	<i>Channel</i> (0x05)	<i>EnDis</i> (0x0C)	<i>CH Num</i>	<i>Cmd</i>	AF Mask	<i>N</i>
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	##	##	

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Sets individual port Enable (power enable) or Disable (power disable).

**CH Num:** The logical port number, as referred to by the Host CPU and usually shown on the PSE front panel. Refer to Section **Error! Reference source not found.**

**Cmd:** This field is used to enable/disable the channel, and to disable/enable cap detection per channel: The Cmd field is divided to 2 nibbles: The 1<sup>st</sup> nibble is the Command nibble (consisted from bits 0:3); the 2<sup>nd</sup> nibble (consisted from bits 4:7) is the Mask nibble

The Mask nibble chooses which feature to disable or enable:

- Set this nibble to 0x00 will configure only the Enable/Disable feature, according to the corresponding value in the Command nibble.
- Set this nibble to 0x01 will configure only the Disable Capacitor Per Port feature, according to the corresponding value in the Command nibble.
- Set this nibble to 0x0F will configure both features, according to the corresponding value in the command nibble.
- All others values are reserved and should not be used by the user.

The Command nibble disable or enable the feature:

- Bit0: This bit enables or disables the channel: '0' - Disable; '1' (default) – Enable.
- Bit1: This bit disables cap support per channel: When this bit is set to '0' (default), the cap detection per the specific channel is according to individual mask 0x01. When Bit1 is set to '1' – the cap detection per the specific channel is disabled.
- Bits 2:3 – These bits are reserved and should be set to '0'.

**Notes per Cmd field:**

Setting this field to 'N' will leave the channel with its current configuration.

For Forced-on and Disable conflict, refer to the note mentioned in the **Set Test Force Power** command (Section **Error! Reference source not found.**).

If a port is disabled, the controller does not perform the detection function.

**AF Mask (PD69000):** 0 - only IEEE802.3af operation; 1 – AT operation. Setting this field to a value that is greater from 1, will leave the channel with the last mode (IEEE802.3af or IEEE802.3at).

**AF Mask (PD69100):** 0 - only IEEE802.3af operation; 1 – AT operation, 2 – POH operation. Setting this field to a value that is greater from 2 (POH) will leave the channel with the last mode (IEEE802.3af or IEEE802.3at or POH).

**Note for AF Mask:** When changing the AF Mask of a working port, the port is turned off.

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### Set Port Parameters

[1]KEY	[2]ECHO	[3]Subject	[4]Subject 1	[5]Subject 2	[6]DATA	[7]DATA	[8]DATA
Command (0x00)	##	Channel (0x05)	PortFullInit (0x4A)	CH Num	Cmd	PPL	
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
Priority	N	N	N	N	##	##	

This command can enable/disable, disable capacitor support per channel, set the power limit or set the priority of a single port or of all ports.

There are three separate commands for each parameter. Refer to the **Set Enable/Disable Channels**, **Set Power Limit for Channels** and **Set Port Priority** commands, directly above.

**CH Num:** The logical port number, as referred to by the Host CPU and usually shown on the PSE front panel. Refer to Section **Error! Reference source not found.**

**Cmd:** This field is used to enable/disable the channel, and to disable/enable cap detection per channel: The Cmd field is divided to 2 nibbles: The 1<sup>st</sup> nibble is the Command nibble (consisted from bits 0:3); the 2<sup>nd</sup> nibble (consisted from bits 4:7) is the Mask nibble

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- Set this nibble to 0x01 will configure only the Disable Capacitor Per Port feature, according to the corresponding value in the Command nibble.
- Set this nibble to 0x0F will configure both features, according to the corresponding value in the command nibble.
- All others values are reserved and should not be used by the user.

The Command nibble disable or enable the feature:

- Bit0: This bit enables or disables the channel: '0' - Disable; '1' (default) – Enable.
- Bit1: This bit disables cap support per channel: When this bit is set to '0' (default), the cap detection per the specific channel is according to individual mask 0x01. When Bit1 is set to '1' – the cap detection per the specific channel is disabled.
- Bits 2:3 – These bits are reserved and should be set to '0'.

#### **Notes per Cmd field:**

Setting this field to 'N' will leave the channel with its current configuration.

**PPL (Port Power Limit):** If a port power exceeds PPL level, the PoE system disconnects that port;

Power can be set up to 20,000 milliwatts. The default value is 16,800 milliwatts (0x41A0) for the PD63000 or 36,000 mW (0x8CA0) for the PD69000 & PD69100; See Note 2 on page **Error! Bookmark not defined.**

**Priority:** Critical – 1; high – 2; low – 3 (default).

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### Set 4Pair Port Parameters

Host Request							
[1]KEY	[2]ECHO	[3]Subject	[4]Subject1	[5]Subject2	[6]DATA	[7]DATA	[8]DATA
Command (0x00)	##	Channel (0x05)	PortFullInit 4Pair (0xAF)	CH Num	Cmd	PPL4Pair	
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]Csum	[15]Csum	
Priority	N	N	N	N	##	##	

This command can enable/disable the channel, disable capacitor support per channel, set the power limit or set the priority of a single port or of all ports.

There are three separate commands for each parameter. Refer to the **Set Enable/Disable Channels**, **Set Power Limit for Channels** and **Set Port Priority** commands, directly above.

**CH Num:** The logical port number, as referred to by the Host CPU and usually shown on the PSE front panel. Refer to Section **Error! Reference source not found.**

**Cmd:** This field is used to enable/disable the channel, and to disable/enable cap detection per channel: The Cmd field is divided to 2 nibbles: The 1<sup>st</sup> nibble is the Command nibble (consisted from bits 0:3); the 2<sup>nd</sup> nibble (consisted from bits 4:7) is the Mask nibble

The Mask nibble chooses which feature to disable or enable:

- Set this nibble to 0x00 will configure only the Enable/Disable feature, according to the corresponding value in the Command nibble.
- Set this nibble to 0x01 will configure only the Disable Capacitor Per Port feature, according to the corresponding value in the Command nibble.
- Set this nibble to 0x0F will configure both features, according to the corresponding value in the command nibble.
- All others values are reserved and should not be used by the user.

The Command nibble disable or enable the feature:

- Bit0: This bit enables or disables the channel: '0' - Disable; '1' (default) – Enable.
- Bit1: This bit disables cap support per channel: When this bit is set to '0' (default), the cap detection per the specific channel is according to individual mask 0x01. When Bit1 is set to '1' – the cap detection per the specific channel is disabled.
- Bits 2:3 – These bits are reserved and should be set to '0'.

#### Notes per Cmd field:

Setting this field to 'N' will leave the channel with its current configuration.

**PPL4Pair (Port Power Limit 4 Pair):** If a port power exceeds PPL4Pair level, the PoE system disconnects that port. Power can be set in steps of 5 mW, to allow settings up to 72 W, at a 4 pair port. Value set of 14400 (0x3840) is equal to 72 W.

**Priority:** Critical – 1; high – 2; low – 3 (default).

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### Get Single Port Status

Host Request							
[1]KEY	[2]ECHO	[3]Subject	[4]Subject1	[5]Subject2	[6]DATA	[7]DATA	[8]DATA
<i>Request (0x02)</i>	##	<i>Channel (0x05)</i>	<i>PortStatus (0x0E)</i>	CH Num	N	N	N
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
N	N	N	N	N	##	##	

Controller Response							
[1]KEY	[2]ECHO	[3]DATA	[4]DATA	[5]DATA	[6]DATA	[7]DATA	[8]DATA
<i>Telemetry (0x03)</i>	##	En/Dis	Port Status	Force PowerEn	Latch	Class	N
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
N	N	AF/AT	4PairEn	N	##	##	

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This telemetry indicates the port status as follows:

- **CH Num:** The logical port number, as referred to by the Host CPU and shown on the PSE front panel. Refer to Section **Error! Reference source not found..**
- **En/Dis:** This field give indication whether the channel is Enabled or Disabled, and whether the cap detection per the specific channel is enabled:
  - Bit 0: Indicates whether the port is enabled (1) or disabled (0).
  - Bit 1: Indicates whether the cap detection per the specific channel is according to Individual mask 0x01 (0) or disabled (1).
- **Port Status:** Indicates the actual port status as defined in **Error! Reference source not found..** For PD63000/G/H or PD69000 & PD69100, status = 8 bit.
- **ForcePowerEn:** Channel's force power configuration: 1 = enabled, 0 = disabled.
- **Latch:** (Port latch) Indicates that certain events have occurred. The latches are of the Clear-On-Read type.
  - *bit0* = 1 indicates an Underload latch condition
  - *bit1* = 1 indicates an Overload latch condition
  - *bit2* = 1 indicates a Force On current condition
  - *bit3, bit4* = indicate Underload (UDL) sticky counter
  - *bit5* = 1 indicates short circuit condition
  - *Bit6, 7* = indicate detection failure sticky counter
- **Class:** Power class of the PD according to 802.3at definitions.

Class Type	Value
Class 0	0
Class 1	1
Class 2	2
Class 3	3
Class 4	4 (AT / POH)
Class Error	5

- Note: When port is not delivering power (Idle, Searching), the class returns to 0, as defined in the IEEE802.3at state diagram
- **AF/AT (for PD69000 & PD69100):** 0 – only IEEE802.3af operation; 1 - IEEE802.3at operation; 2 – POH; For PD63000 the value is always 'N'.
- **4PairEn:** 1 – 4 pair operation is enabled; 0 – 4 pair operation is disabled, the port behaves like a 2 pair port.

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### Get New Port Status

Host Request							
[1]KEY	[2]ECHO	[3]Subject	[4]Subject1	[5]Subject2	[6]DATA	[7]DATA	[8]DATA
<i>Request (0x02)</i>	##	<i>Channel (0x05)</i>	<i>NewPortStatus (0xB0)</i>	CH Num	N	N	N
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
N	N	N	N	N	##	##	

Controller response							
[1]KEY	[2]ECHO	[3]DATA	[4]DATA	[5]DATA	[6]DATA	[7]DATA	[8]DATA
<i>Telemetry (0x03)</i>	##	Defined Port Configuration	Actual Port Configuration	Port Status	Class	UDL cnt	OVL cnt
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
SC cnt	InvalidSigCnt	PowerDeniedCnt	N	N	##	##	

*This command returns essential port params*

- **Defined Port Configuration:**
  - Bit 7:6 – Reserved
  - Bit 5 – Cap per port is Disabled
  - Bit 4 – Port enabled
  - Bit 3 – Port 4pair enable
  - Bit 2 – Port force power enable
  - Bit 0:1 - Port standard configuration (AF/AT/PoH)
- **Actual Port Configuration:**
  - Bit 7:4 - Reserved
  - Bit 3 - Port 4pair behavior
  - Bit 2 - Port force power behavior
  - Bit 0:1 - Port standard behavior (AF/AT/PoH)

*\*Counters are cleared on read – also when using the old "Get Port Status" command.*

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### 3.6 Asic Status Command Fixed

AsicStatus on "Get POE Device Status" command was fixed and now returns the true status of each ASIC.

#### Get PoE Device Status

Host Request							
[1]KEY	[2]ECHO	[3]Subject	[4]Subject1	[5]Subject2	[6]DATA	[7]DATA	[8]DATA
Request (0x02)	##	Global (0x07)	Device Params (0x87)	CS Num	(0x00)	(0x00)	(0x00)
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
(0x00)	(0x00)	(0x00)	(0x00)	(0x00)	##	##	

Controller Response							
[1]KEY	[2]ECHO	[3]DATA	[4]DATA	[5]DATA	[6]DATA	[7]DATA	[8]DATA
Telemetry (0x03)	##	CS Num	PoE Device – Version		ASIC status	IC-Exp	IC-HW
[9]DATA	[10]DATA	[11]DATA	[12]DATA	[13]DATA	[14]CSum H	[15]CSum L	
IC - ports	Temperature	TSH	MIP/AT data	Comm status	##	##	

The Auto PoE device detection procedure' is executed during the system initialization stage, when the PoE Controller is reset or powered-up. It is also executed after ASIC changes from 'disabled' to 'enabled' (see **Error! Reference source not found.**). The purpose of this procedure is to assign port numbers per PoE device without any interference from the Host side. It is essential to maintain port numbering even if one or more PoE devices do not operate or do not communicate. Three main parameters are included in this procedure:

- **IC-HW:** Number of ports verified by the internal communication. Whenever the PoE Controller is initialized (reset or powered-up), it communicates with all PoE devices so as to detect their types:
  - **0** = Invalid/non-existing PoE device
  - **4** = 4-port PoE device, for example PD64004/A
  - **8** = 8-port PoE device, for example PD69008
  - **12** = 12-port PoE device, for example PD64012/G, PD69012
- **IC-Exp:** Expected number of PoE device ports. The Host CPU can update the PoE Controller with the expected PoE devices types in the system. It is not necessary in most systems.
- **IC-Ports:** Allocated number of PoE device ports. When the PoE Controller detects all PoE device types at the initialization stage, it compares it to the expected PoE device type to finally allocate a number of ports (0, 4, 8, or 12) per PoE device.

**Detailed explanation of the PoE device Auto detection (for PD63000 & PD69000 only):** IC-Ports are the final decision of number of ports allocated to a PoE Device. The decision is based on IC-HW and IC-Exp. The

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table below shows all options upon start-up.

Line#	IC-Exp	IC-HW	IC-Ports	ASIC Status	Status Description
1	0	0	0	0x00	None – no PoE device
2	0	4/8/12	4/8/12	0x03	Unexpected PoE detection (1)
3	4/8/12	4/8/12	4/8/12	0x01	OK – expected PoE device detection
4	4/8/12	0	4/8/12	0x04	Fail/Missing PoE device
5	4/8/12	12/4/8	12/4/8	0x05	Different PoE device was detected
6	4/8/12	12/4/8	12/4/8	0x06	Different PoE device was detected (1)
7	0	4/8/12	4/8/12	0x02	Unexpected PoE detection

(1) Because of *Auto Save Mask* flag (**AsicAutoDetectSaveParams** bit), IC-Exp changes to IC-HW; the next time reset occurs, the status will be 'OK'.

▪ **ASIC Status:**

- **For PD63000 & PD69000:** The value is determined only at start-up. It summarizes the relations between IC-Exp, IC-HW and IC-Ports. It determines the on-going ASIC failures. Refer to **Get System Status** command (Section **Error! Reference source not found.**).
- **For PD69100:** The value is determined according to the following table:

ASIC Status	Status Description
0x00	None – no PoE device
0x01	OK – expected PoE device detection
0x02	ASIC is refreshed
0x04	ASIC error

- **CS-Num:** PoE device number can be '0' – '7', according to the hardware connection between PoE Controller chip select pins and PoE devices.
- **PoE Device Version – for PD63000:** Bits 0 - 9 define the hardware version, Bits 10 -15 are the port numbers.
- For example: 0x3005 is a 12-port PoE device, hardware version 5.
- For PD69000 & PD69100: bits 0-6 define the SW version; bits 7-9: RTL version; bits 10-11: analog version; bits 12-15: family prefix
- **Temperature:** Temperature telemetry measured by the PoE device. If PoE device doesn't exist, the response is 0xFF. Units are in Celsius.
- **TSH - Temperature Switch High** is the upper temperature limit per PoE device. Whenever the PoE device temperature exceeds the TSH limit, an interrupt is indicated in the user defined temperature event (bit9 of the Event Register). The highest temperature for the PD64012/G, PD64004A, PD69012 and PD69008 is 150° C and 120° C for the PD64004.
- **MIP/AT Data - Device Mid-power operation or AT:**
  - Bits 0-1 indicates the MiP requests that were set by the "Set PoE Device Parameters" command or by the default values:  
MiP operation/AT - 0x01; Regular AF operation - 0x00.
  - Bits 2-3 indicate the ASIC hardware compatibility
    - MidPower support: 0x01
    - Only AF support: 0x00
    - Always: 0x01 for PD69000 & PD69100

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- Bits 4-5 indicate the ASIC MiP/AT actual status after the decision:
  - MiP operation/AT - 0x1
  - Regular AF operation - 0x0
- **Comm Status** - Bits 0-3 define ASIC Communication error:
  - 0 = No error.
  - 1 = ASIC error.
  - 2 = All ASIC reset.
  - 3 = ASIC reset.
  - 4 = Bus error.
  - 5 = ASIC verification after configuration failed. '5' value can appear upon system startup or after ASIC soft reset.

This status is "clear on read".

To set parameters values, refer to **Set PoE Device Parameters** command (Section **Error! Reference source not found.**).

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## 4 Release Content – Bug fixes:

### 4.1 StatusFixes

Notification on a new connected PD (fixed) when the system identifies remote powering (from other switch).

If a port is in UDL on startup status, and the user sends disable command ("set enable/disable channel") - the status of the port goes to Disabled only after wait condition ended. This was fixed.

Force Power: Short Circuit on powered ports, the status was 52 instead on 56. This was fixed.

When starting up 4pair port, sometimes there is external status of 0x01 and only then it changes to 0x02. This was fixed.

When generating OVL on startup event - the port status is UDL. This was fixed.

### 4.2 Interrupt event issues

Interrupt register did not hold the report for "port turned ON", this was fixed.

When OVL was generated on startup event no interrupt event was generated, this was fixed.

No Interrupt was generated on "detection failed" error when working on ALT B. this was fixed.

### 4.3 Power Management behaviour

Port in critical priority didn't recover from PM status when "IgnoreHighPriorityMask" is 0, this issue is fixed.

### 4.4 ASIC Status

Asic status is "OK" Although no Asic is connected. This was fixed.

### 4.5 TPPL Value

When PM2 set to class limit, and mask 0x38 is set to AT, TPPL for class 0 is 15.4. this was fixed to 30W.

### 4.6 High 24 ports have an issue powering ON

When legacy is enabled and the first 24 ports are in error/short status, last 24 ports are stay off. This was fixed

### 4.7 Class report on not connected port

When port isn't connected to a load, the class of the port is reported as 6. This was fixed.

### 4.8 Guard Band Setting

Guard Band value of 0xFF is not ignored by the software. This was fixed.

### 4.9 Counters fixes

Invalid signature counter was not increasing when cap was enabled and port Pos and Neg are shorted. Fixed.

OVL counter was not increasing when OVL on startup event occurred. Fixed.

PowerDenied Counter was not increasing when port is presented with a PM event on startup. Fixed.

### 4.10 Port ON Timing

When port moved from disable to enable it took long time till port was on. This was fixed.

### 4.11 AF-Mask issue

When setting the AF-Mask of a port in the "Set Enable/Disable Channels" to value 3, the port was behaving in an unexpected way. This was fixed.

### 4.12 Get Single Port Status Command Issue

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Get Single Port Status command - when sending request to get the status of a channel number greater than 47, the response is string on 'N's. This was fixed.

**4.13 ExpandIgnoreHigPriority Command**

Expand\_ignore\_higher\_priority flag was not working correctly. This was fixed.

**4.14 Restore Factory Default Command**

Restore factory default command doesn't perform reset after loading new configuration to UserParam. This was fixed.

**4.15 4 pair issues**

Wrong calculated power value on 4 Pair. This was fixed.  
Adding back off when setting the system to 4 pairs.

**4.16 xDisable\_Ports pin voltage**

# 149: xDisable\_Ports pin Voltage isn't 3.3V. This was fixed.

**4.17 I2C Issues**

When sending a read request to the MCU through the I2C - if the HOST won't read a byte with no ACK to generate stop condition the I2C bus will stuck and won't recover.

**4.18 System OK LED Issue**

Changing the "Blink register" at the "Set System OK LED Mask Registers" influence the behavior of the interrupt pin. This was fixed.

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## **5 Release Content – Known Limitations:**

### **5.1 Restore Factory Default Command Timing**

Restore factory default command is generating an internal MCU reset. It takes the system 100 milliseconds to wake up without sending a system status telemetry. The private label field is kept with its last value during the internal MCU reset.

After sending this command, the host must not access the MCU controller using I2C or UART for at least 100ms. After the system wakes up, the 15 bytes response from the POE MCU will be ready for host reading. If I2C is being used, the host must initiate a read access after the 100mSec wait. When UART is being used the reply will be transmitted automatically after system wake up.

### **5.2 I2C Communication After Reset**

When using I2C communication, after sending Reset command, the host must read all 15 bytes respond from the POE MCU, before the MCU executes the command.

### **5.3 Does not operate with PD69108 and PD69104 v1r1**

See the PD69108 and PD69104 Errata for limitations related to PD69108 and PD69104 v1r1.

### **5.4 Hot Swap control signal is not supported**

### **5.5 User Data feature not implemented**

The feature of saving 9 bytes of user data is not implemented. The relevant commands “Save Non-volatile Memory” and “Get Non-Volatile Memory” are not implemented.

### **5.6 Mask 0x1B (I2C watch-dog) does not work**

When mask 0x1B is set to “1”, and the I2C is not active for 10sec, the I2C module is not reset

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## 6 Label Change:

Firmware version changed to 2.6.3. See Figure 1.

### 6.1 Communication Protocol User Guide:

All features and commands are described in the PD69100 Communication Protocol user guide.

### 6.2 EVB's

- PD-IM-7548E – for PD69108 evaluation (48 ports)
- PD-IM-7524E – for PD69108 evaluation (24 ports)

### 6.3 Applicable Documents

- PD69100 Serial Communication Protocol
- PD69100 CPU Data-Sheet
- PD69108 Data-Sheet
- PD69104 Data-Sheet
- User Guide for the PD-IM-7548E EVB
- User Guide for the PD-IM-7524E EVB
- AN 160 - Designing an IEEE802.3at PD interface
- AN 185 - Designing a PD69108/PD69104 48-port PoE System (802.3af/802.3at Compliant)
- AN 186 - Layout Design Guidelines for PD69108 PoE Systems

## 7 Ordering Options

To order PD69100 with Rel 2.6.3 firmware, please mark "**PD69100x-0263ff**" in the purchase order. Where,

**x** stands for the default parameters setting as following:

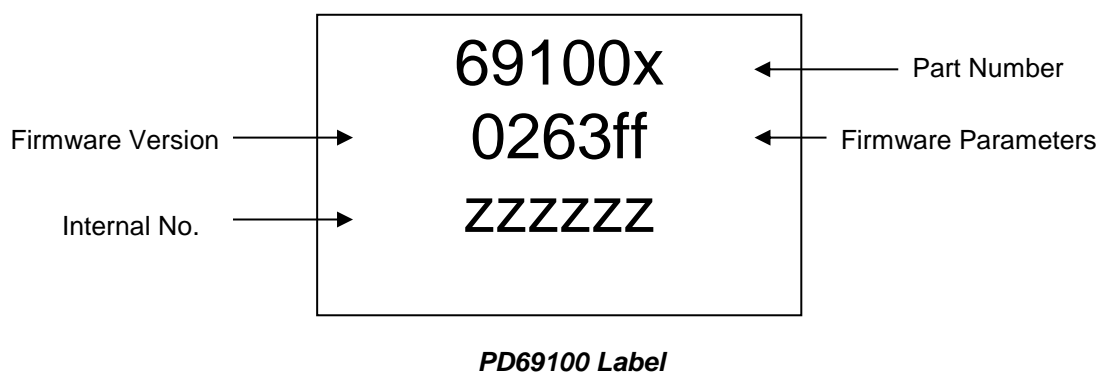
- **C**: Detection Method = IEEE802.3at & Pre-standard
- **R**: Detection Method = IEEE802.3at

**ff** stands for firmware parameters option which is different than the default parameters

01 for C version

03 for R version

## 8 Label Information



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