



Application Note

Troubleshooting the PCD for Invalid Module Mix Problems

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Introduction

The PCD incorporates an automatic shelf check feature to validate the correct installation and proper mix of the installed functional modules. The shelf check module feature essentially checks for the following:

- Correct module-to-slot installation
- Correct module mix for programmed Style or Catalog number
- Module presence or operation

If the PCD detects that any one of these conditions is invalid, it will indicate this condition via the front panel LCD display by displaying one of two different messages listed below and by illuminating the **SELF CHECK** indicator on the PCD Front Panel as **RED**. The primary warning messages that will be displayed are as follows:

**Modules have Changed
Push key to update**

or

**Invalid Module Mix
→ Call Factory ←**

1. Module Change Messages:

This message will appear when the previously installed module or “**Type**” mix has now changed. This may be the result of:

- Adding or removing the **DIO Type 1** card from **Slot C**
- Adding or removing the **PT/CT** card from **Slot F**
- Changing the “**Type**” version of any card from the previously installed card profile except for the **COMM** cards in **Slot E**.

(**NOTE:** changing the “**Type**” version of a card by definition will change the Catalog Number).

**Modules have Changed
Push key to update**

In order to correct this problem the user should then push any key on the front panel to allow the PCD to update its internal Catalog number to now agree with the installed new

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“Module” mix. When the user presses any front panel key the following message will then appear:

Update Catalog # ?
< NO >

At this point the user may either allow the PCD to automatically update the Catalog # by selecting **<YES>** using the **LEFT** or **RIGHT ARROW** keys and pressing **ENTER**. Or by selecting **<NO>** via the **ENTER** key.

If the user selects **<NO>**, then the following message will appear and the PCD is rendered inactive. In order to resuscitate the PCD, the user may either remove power to force a “Power-up Reset” or initiate a “System Reset” via the CPU card’s **RESET** button on the rear panel. At this point the PCD will repeat the same message sequence until the module conflict with the Catalog # is resolved or changed by the user.

Catalog not updated
System will shut down

If the user selects **<YES>**, the following message sequence appears:

Old Catalog Number:
8R171041013111

NOTE: *The Old Catalog Number is displayed first*

Pressing the **DOWN ARROW** key will then display:

New Catalog Number:
8R171031513111

Pressing **DOWN ARROW** key again will then display:

Confirm Update?
< NO >

If the user then selects **<NO>** by pressing **ENTER**, the PCD will then be rendered inactive since the “Module Mix” does not correlate with the programmed “**Catalog Number**”.

If the user selects **<YES>** by using the **LEFT** or **RIGHT ARROW** keys and pressing **ENTER**, the following message now appears:

Enter Password: * * * *
CHAR <- -> POS

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The user must now enter the correct password and press **ENTER**. If the password was correctly entered, the PCD display will now show the following:

**Catalog Num. Updated
Reboot the PCD...**

At this point the PCD Catalog has been successfully updated. The PCD must now be rebooted by either:

- Removing and re-applying power or
- Reset by depressing the CPU card's RESET button on the rear panel

Note, the user has approximately 3 minutes to enter the correct password at this point. If the user does not enter the correct password then the PCD will stop and display the following message:

**Catalog not updated
System will shut down**

2. Invalid Module Mix Messages:

When this message sequence appears, it usually is an indicator that:

- A module has failed or is missing from **Slot B**
- A module has been installed in the wrong "Slot"
- The installed modules are not compatible
- The installed PCD firmware version does not support one of the module "Types"

**Invalid Module Mix
→ Call Factory ←**

Displayed for 10 Second upon "Power-up" or "System Reset"

This message is displayed for 10 seconds, after which time the next message appears and flashes:

**=UNIT INFORMATION=
CAT 8R000000010000**

The user may then press the "**DOWN ARROW**" key to access the module information. The Module information provides important details related to each module's operation, version and **Slot ID** status. This information is important for troubleshooting potential

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problems with individual modules. Typical module information that may appear in shown the following sequence by continuously pressing the **DOWN ARROW** key:

```
SERIAL # :35
CPU ROM : V2.9
FP ROM : V1.00
COMM ROM : V0.00
CT/PT CAL : V1.20
MthrBd ID : 210 NS
Slot a ID : 65 NS
Slot b ID : No Card
Slot c ID : 161 NS
Slot d ID : 193 NS
Slot e ID : 240 NS
Slot f ID : 32 NS
```

NOTE: The Slot or board ID numbers indicate the HW Version and Type level for each board listed. Consult factory for additional details

NOTE: In the above example that “**Slot b ID**” shows a “**No Card**”. This would be an indication that either the DIO Type 1 or DIO Type 2 card is not installed or is defective.

The user must then use this information to correct the problem before the PCD can be re-activated. Once the module problem has been corrected the PCD can be rebooted by:

- Removing and re-applying power or
- Reset by depressing the CPU card’s RESET button on the rear panel

For additional details related to the various PCD modules please reference the PCD Instruction Book’s chapter on **Modules**. For more details on how to troubleshoot module problems with the PCD, please consult the factory the number listed below.



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PCD Rear Module View

The following figure shows the rear module view of the PCD. The PCD uses a six-slot card case with the **Slots** defined as follows:

- Slot A: **PS** or **UPS Type 1,2,3 or 4** (Power supply card)
- Slot B: **DIO Type 2** or **DIO Type 1** (Magnetic Actuator FET card or Binary Input/Output card)
- Slot C: **DIO Type 1** – (Binary Input/Output card *if installed*)
- Slot D: **CPU Type 1 or 2** (Central Processing Unit card)
- Slot E: **COM Type 2, 3, 4 or Type 5** (Communication card *if installed*)
- Slot F: **PT/CT Type 5, 6, 7, 8, 9 or A**(Analog voltage and current card)

As can be seen in the photo, the modules are lettered **Slot A** (far left - UPS) through **Slot F** (far right – PT/CT). The **Slot** designator is located on the bottom of the module silkscreen panels. It is important to note that the module types are fixed to specific **Slot** positions. You can **NOT** mix modules and slots.



Figure 1 PCD Rear Module View

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