



Fisher Controls

# Installing Type DM6341 Millivolt Input Card

*Planning Manual*  
*PN4.11:DM6341*  
*Original — August 1986*

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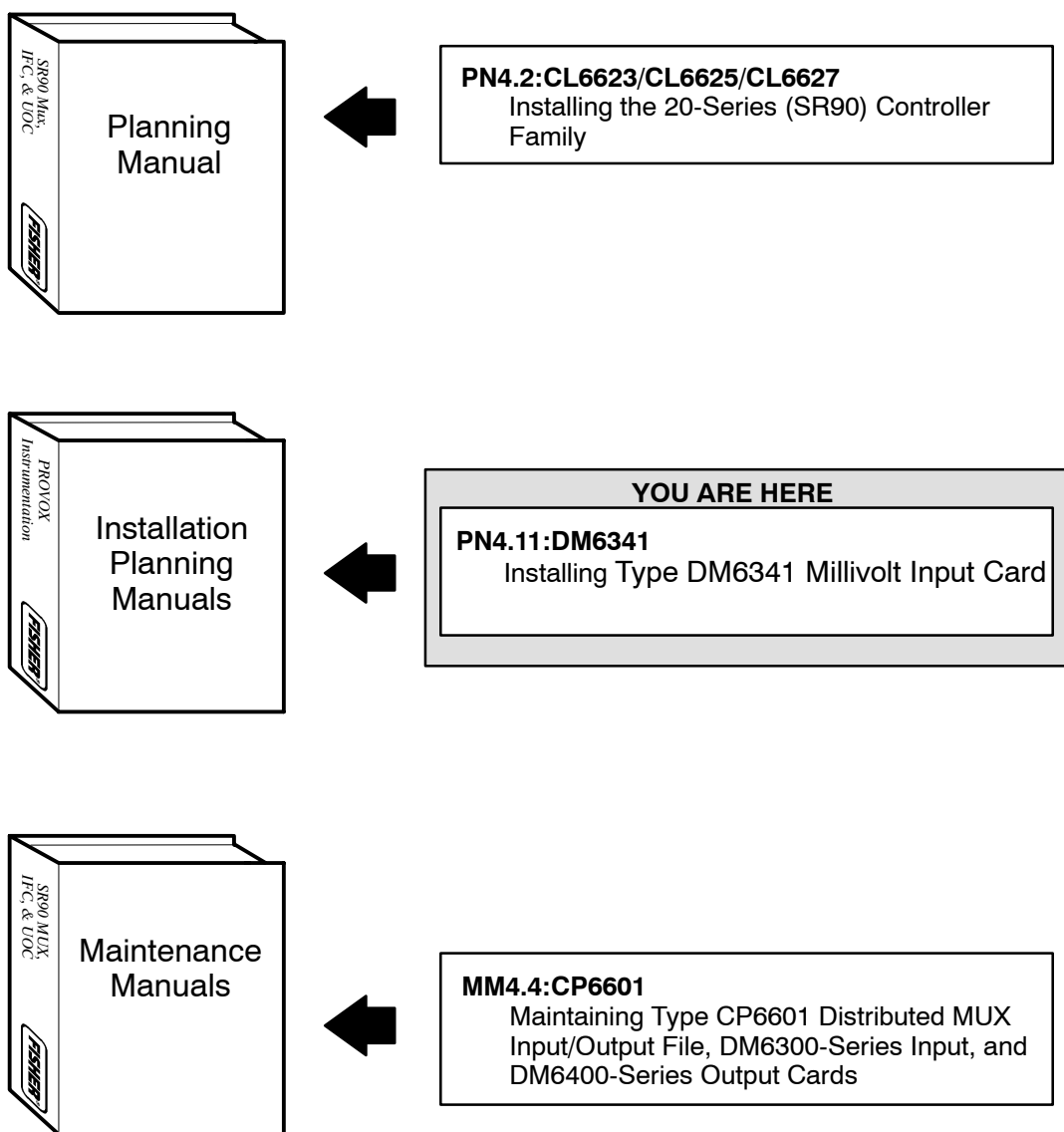
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# Documentation Map

## Installing Type DM6341 Millivolt Input Card

This map shows documents associated with the Type DM6341 Millivolt Input Card. The number, title, and binder location are shown for each document. To help you identify which document contains the information you are looking for, see the descriptions on the back of this map. Other related documents are listed in Section 1 of this manual.



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System Design	<p><i>Configuration Engineering Manuals</i></p> <p>Configuration data-entry help for a product, including theory of operation for improved product use.</p> <p><i>User Manual for Configuration Products</i></p> <p>Operating methods and procedures for using the configuration software.</p> <p><i>Technical Reference Manuals</i></p> <p>Advanced user information for expanding the capability of the PROVOX system.</p>
System Planning and Installation	<p><i>Installation Planning Notes</i></p> <p>Site preparation, including the environment, power, and grounding. Also, product input/output signal wiring, cable connections, and software installation.</p>
System Startup and Operation	<p><i>User Manuals</i></p> <p>Operating methods and procedures for a product.</p> <p><i>Tutorials</i></p> <p>Structured training for operators.</p>
Maintenance	<p><i>Maintenance Manuals</i></p> <p>Preventative maintenance, calibration, troubleshooting, and repair procedures.</p>

**Ordering Information** — To order additional manuals, contact your local sales representative, specifying the number, title, and quantity of each document required.

# 1 Introduction

1

This planning manual describes the physical and electrical installation requirements of the Type DM6341 Millivolt input card used with PROVOX® instrumentation systems.

## 1.1 Intended Audience

This planning manual is intended for use by trained installation personnel.

## 1.2 How to Use this Planning Manual

Use this planning manual to prepare the Types DM6341 Millivolt card for installation.

## 1.3 Planning Manual Structure

**Section 1** — Introduction: product description and related documentation.

**Section 2** — Installation: presents the information to install the I/O card, cables, and termination panel.

## 1.4 Product Description

The Type DM6341 Millivolt card consists of:

- The I/O card
- Termination panel

## 1.5 Manual Conventions

The following conventions are used in this document.

- **Abbreviations/Acronyms** — Standard abbreviations are used in this document. Acronyms used are explained at their initial usage.
- **Document Control** — The title page and the footer of each page contain the revision or change level and release date of the document.
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## 1.6 Excellence in Documentation

### 1

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## 1.7 Related Documentation

Refer to the following documentation when installing the Type DM6341 Millivolt input card:

- *Planning the Installation* (PN4:002)
- *AC and DC Power & Ground Wiring* (PN4:003)
- *Signal Wiring and Data Highway Guidelines* (PN4:004)
- *Preventing Electrostatic Damage* (PN4:005)
- *Environmental Conditions for Instrumentation Systems* (PN4:006)
- *Installing Type CP6601 Distributed MUX I/O File* (PN4.4:CP6601)
- *Installing the 20-Series (SR90) Controller Family*  
(PN4.2:CL6623/CL6625/CL6627)
- *Maintaining Type CP6601 Distributed MUX Input/Output File, DM6300-Series Input, and DM6400-Series Output Cards*  
(MM4.4:CP6601)
- *Installing Type DM6001 and DM6003 Multiplexer Units*  
(PN4.11:DM6001)
- *Maintaining the Type DM6001 Multiplexer Control Unit*  
(MM4.11:DM6001, Rev. A)
- *Maintaining Type DM6003 Multiplexer I/O File Units, DM6300 Series Input Units, and DM6400 Series Output Units* (MM4.11:DM6003, Rev. A)

## 2 Installation

## 2

### 2.1 Introduction

This section describes the field wiring connections for the Type DM6341 Millivolt Input Card. Figure 2-1 illustrates these connections.

Each millivolt input card consists of:

- Input signal circuit card
- Field termination panel and ribbon cable

The millivolt input card converts dc input signals, in the -10 to +70 millivolt range, into digital data. Each millivolt input card handles the dc signals from up to four field devices. Once digitized, the input signals are suitable for use by a multiplexer control unit or a multiplexer controller (MUX).

A millivolt input card consists of an input and a field termination panel, connected by a 20-wire ribbon cable. Millivolt input cards have isolated input channel circuits; this maintains accuracy despite the possible presence of high common-mode voltages.

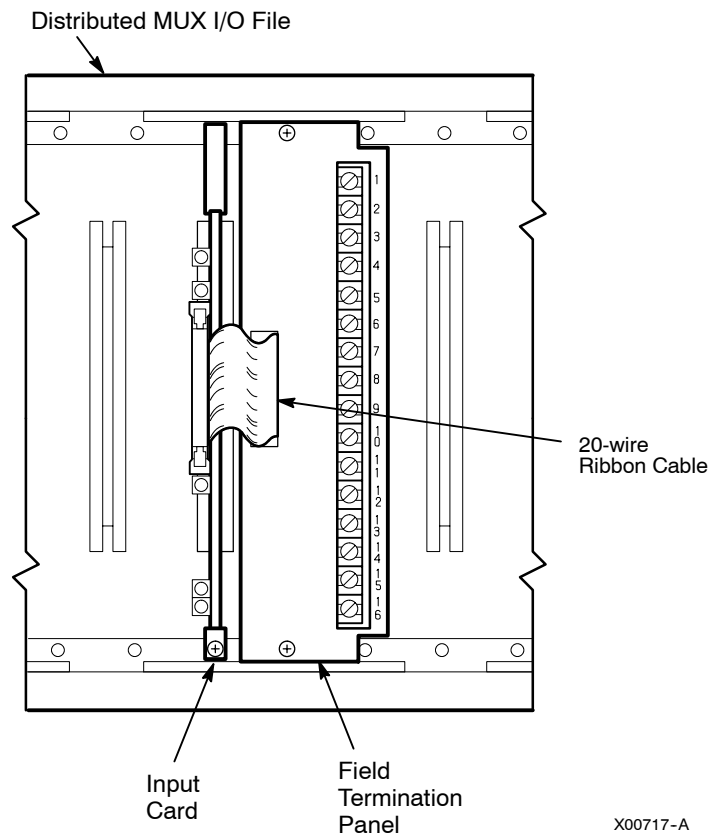


Figure 2-1. Typical Millivolt Input Card in I/O File

## 2.2 Physical Installation

Install the millivolt input card to the I/O file at the card slot location according to the initial layout planning. The millivolt input card fits in any open card slot of a multiplexer input/output (I/O) file mounted in a system cabinet. To minimize the possibility of electromagnetic interference, do not use millivolt input cards in I/O files that contain high-voltage or high-current cards.

To install a millivolt input card in its I/O file card slot follow these steps:

- Step 1:** Insert the input signal circuit card into the friction-mount connector on the I/O file backplane.
- Step 2:** Secure the field termination panel in the I/O file using two self-tapping screws.
- Step 3:** Connect the field termination panel ribbon cable to the receptacle on the input signal circuit card.

Install replacements for existing millivolt input cards into the same slots as the cards being replaced. Insert additional millivolt input cards into any open I/O file card slot.





## Caution

Removal of the input signal circuit card from the file while it is attached to the field termination panel can cause damage to the input circuits if the energized field devices are attached to the field termination panel. When removing the millivolt input card, disconnect the field termination panel ribbon cable from the input circuit card to protect the input circuits on the millivolt input card from possible damage caused by a live field device.

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**2**

## 2.3

## Electrical Installation

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## Warning

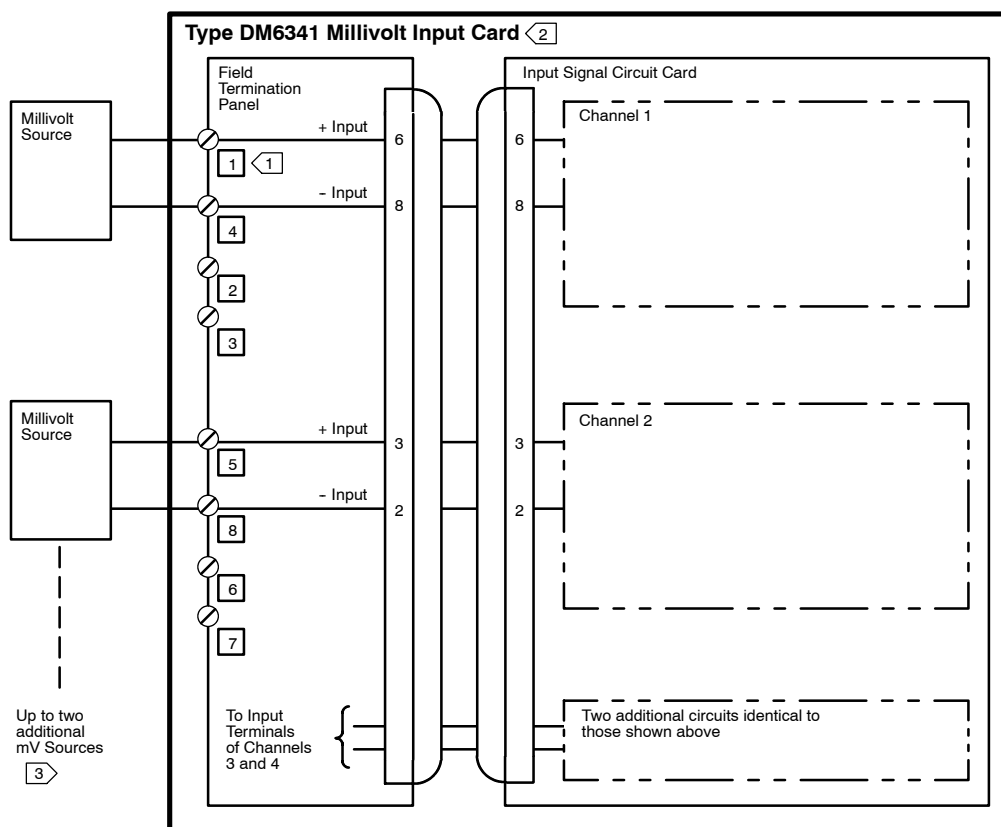
Inadequate field wiring insulation can break down, leading to equipment damage or electrical shock to personnel. Use field wiring with insulation that is capable of withstanding at least 300 volts ac and 167°F (75°C).

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Connect up to four, -10 to +70 millivolt dc inputs to the millivolt input card. Figure 2-2 identifies the field termination panel screw terminals and shows the typical wiring connections. Figure 2-3 shows the typical millivolt input and grounding for direct connection between low-level field devices and multiplexer I/O file.

Actual wiring and grounding procedures for millivolt input cards depend upon the plant layout (Figure 2-2 shows typical wiring connections). Bring all millivolt signals to the multiplexer I/O file through direct runs of individually insulated, shielded, twisted pairs with a separate drain wire and outer polyvinyl chloride (PVC) jacket, as shown in Figure 2-3. Use metal conduits, as required, for additional electromagnetic interference protection. Ground both wire shields and metal conduits only at the signal source. Provide shielding as close as possible up to the field termination panel of the particular input card, but be careful to prevent accidental grounding at the I/O file. For additional grounding information, see the Signal Wiring and Data Highway Guidelines installation planning note.

Make field wiring connections at the screw terminals of the field termination panel, as described in the Signal Wiring and Data Highway Guidelines installation planning note. Route the wire into the horizontal and vertical cable trays to the field termination panel, using lacing as required by local electrical codes or plant standards. Neat runs, brought directly from the horizontal cable trays, simplify wiring modifications and multiplexer additions or changes.



**Notes:**

- ① Numbered terminals on Field Termination Panel
- ② All wiring within Input card is factory wired
- ③ All field devices connected to mV input card must provide -10 to +70 mV.

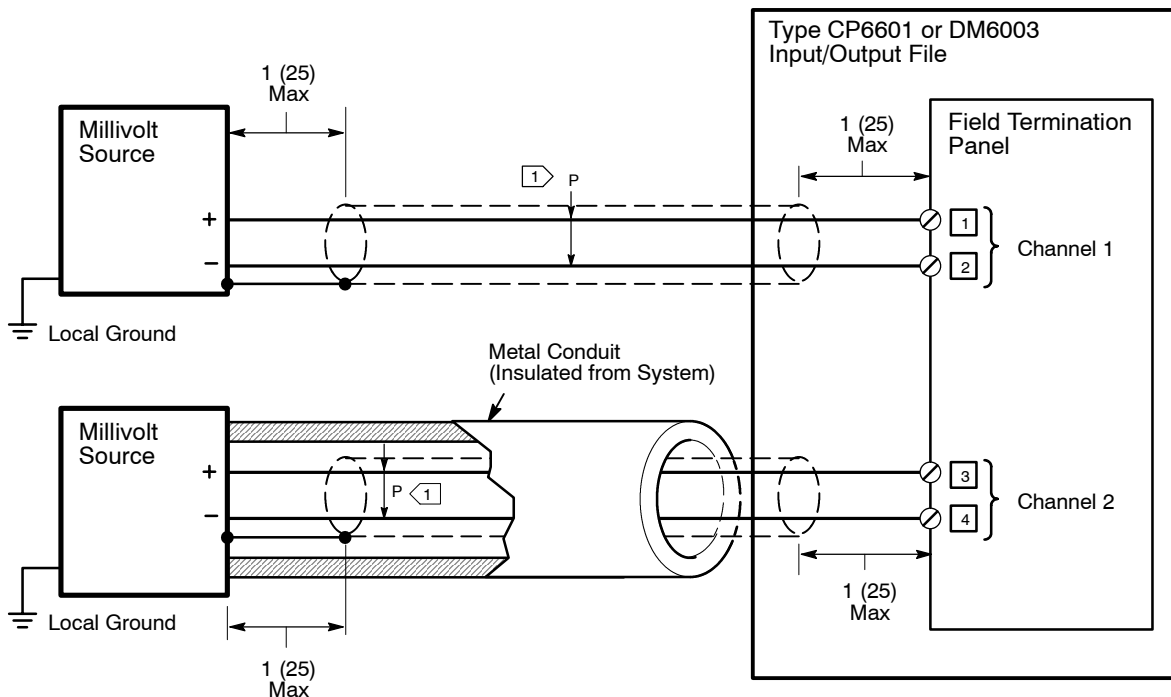
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**Figure 2-2.** Typical Field Wiring Connections for Type DM6341 Millivolt Input Card

The following table lists the field wiring connections for the Type DM6341.

Pin No.	Signature	Type	Channel	Pin No.	Signature	Type	Channel
1	mVI1+	mV Input 1+	Channel 1	9	mVI3+	mV Input 3+	Channel 3
2	---	No connection		10	---	No connection	
3	---	No connection		11	---	No connection	
4	mVI1-	mV Input 1-		12	mVI3-	mV Input 3-	
5	mVI2+	mV Input 2+	Channel 2	13	mVI4+	mV Input 4+	Channel 4
6	---	No connection		14	---	No connection	
7	---	No connection		15	---	No connection	
8	mVI2-	mV Input 2-		16	mVI4-	mV Input 4-	

**2**



**Notes:**

- ① Cable is No. 14 to 18 AWG (1.628 to 1.024 mm diameter) stranded, individually insulated, copper, twisted pairs with overall shield, drain wire and outer PVC jacket.

INCH  
(mm)

X00739-A

Figure 2-3. Typical Direct Connection Between Low-level Field Device and I/O File

**2**

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## Notes

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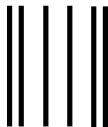
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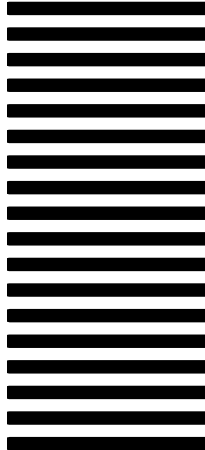
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