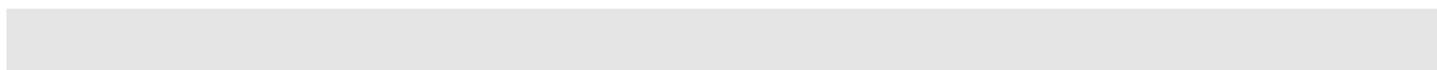


Intellimeter Canada Inc.

PT2000 Data Display (DADI)

Operations Manual



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PT2000 DADI

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1. Specifications

1.1. Absolute Maximums

1.2. Specifications

Maximum number of monitored PT2000s	32
Maximum number of remote displays	32

2. Introduction

It is assumed that the reader of this manual is already familiar with the operation of the PT Industries PT2000 utility monitor. Please refer to the appropriate documentation prior to reading this manual.

The PT Industries Data Display (DADI) is a device that allows monitoring and processing utility usage history accumulated within up to 32 PT Industries PT2000 utility monitors. An Integrated backlit display allows an operator, local to the DADI, to display the utility meter and usage information required for billing purposes. In addition, up to 32 specially configuration DADIs (Remote Displays) can be connected to the PT2000 network that will allow the data held at the DADI to be displayed at any location over the entire RS485 network, up to 4000 feet away from the DADI.

The DADI can connect to a PC's RS232 port. The DADI operates transparently, allowing a PC that would normally connect to network of PT2000 to connect directly to the DADI through its RS232 port, requiring only minimal software changes at the PC.

In the sections that follow, the operation of the PT Industries DADI is described.

3. Operation

This section describes the general operation of the PT Industries DADI. The DADI operates in 1 of 2 distinct modes of operation, "network controller" or "remote display".

For the purposes of this discussion, a network will be defined as an array of up to 32 PT2000s and up to 32 DADIs, operating as "remote displays", connected together over a common RS485 multi-drop connection.

The network is monitored and controlled by a single DADI operating as a "network controller". Each of the "remote displays" operates independently, allowing the data that can be displayed at the "network controller" to be displayed in different ways on each of the "remote displays". By pressing the various buttons at each "remote display" or "network controller", an operator can display information required for proper billing of the monitored utilities at each PT2000 within the network.

3.1. Network Controller or Remote Display?

The mode of operation in which the DADI will operate is determined by how the 2 integrated RS485 ports are used. When power is first applied to the DADI, it will begin operating as a "network controller" over the associated RS485 port. If, at any time, it receives a request over the "remote display" RS485 port, it will immediately change and remain in the "remote display" mode of operation.

3.1.1. Network Controller

The "network controller" has the following responsibilities:

1. Discover the serial numbers of all of the PT2000s attached to the network
2. Read the configuration from each PT2000 that is required to process and display the utility history data.
3. Read and process the utility history data from each PT2000 discovered on the network.
4. Process requests from each of the "remote displays" attached to the network.
5. Allow a host computer to communicate with each PT2000 on the network by operating as a transparent link between the computer and each of the PT2000s connected to the network.
6. Allow a local operator the ability to display metering and processed billing information for all utilities being monitored by the PT2000s on the network.

3.1.2. Remote Display

The “remote display” has the following responsibilities:

1. Allow a local operator the ability to display metering and billing information for all utilities being monitored by the PT2000s on the network

3.2. Front Panel Buttons

The DADI front panel contains 6 buttons that can be used to select the information that is to be displayed on the integrated LCD. During normal operation, the display on the “network controller” or “remote display” is in the “idle” state with the backlight turned off. When any button is pressed, the backlight will illuminate and the display will become “active”. The display will return to the “idle” state when no button is pressed for approximately 2 minutes.

During the “idle” state the mode of operation and the serial number that is unique to each DADI is continuously displayed on the LCD. When “active”, the buttons on the front panel can be used to select various data to display. When in the “active” state, the front panel buttons operate identically whether the DADI is operating in the “network controller” or “remote display” modes of operation.

Following is an example of what kind of data can be displayed on the LCD:

3.2.1. General Front Panel Operation

The general operation of the display is as follows:

When the backlight is off or when the display has been instructed to do so, the serial number of the DADI will be continuously displayed.

Each time a "PT2000" button are pressed, the display will advance to the next appropriate PT2000 (sorted by serial number), displaying its serial number and current programmed date and time. While displaying the time, the DADI will update the display once per second. If all of the PT2000s have been cycled through, the display will return to displaying the serial number of the DADI.

Once a PT2000 has been selected, the "channel" buttons can be used to select one of the 8 channels to display. As the "channel" button is pressed, text information that describes each channel is displayed. If all of the channels have been cycled through, the display will return to displaying the PT2000 serial number and time.

Once a PT2000 channel has been selected, the "period" buttons can be used to select a specific billing period to display. Only the periods or demand that have been programmed for the selected PT2000 will be displayed. If there are no programmed periods or demand information for the specific channel, the current meter reading (the "grand total") will be displayed. When all periods have been cycled through, the display will return to displaying the channel descriptive text.

3.2.2. Example data displayed by the DADI

1111111112
12345678901234567890

LCD column number

DISPLAY:
PT2000 Data Display
S/N: 1234567890

NOTES:
If operating as a network controller

Remote Display
S/N: 1234567890

If operating as a remote display

PT: 1234567890 busy
(33)CCCCCCCCCCC

Displayed while the configuration data from the PT2000 is being read. The number in the parenthesis indicates the number of remaining configuration records to be read from the PT2000.

PT: 1234567890 busy
(1234)HHHHHHHHHHH

Displayed while the required history information from the PT2000 is being read. The number in the parenthesis indicates the maximum number of records remaining to be read and processed.

1999-SEP-29 17:00:00
PT: 1234567890

Time is updated every second until a button is depressed.

CH:1 KWH
P:1 1234.34
the current

The units are displayed right justified. NOTE: if the factor text is count for the period will be multiplied by the factor before being displayed.

determined to be numeric,

The number of significant digits will be at least as many as are in the actual, pre-multiplied, count.

If the factor text is not numeric, the accumulated count will be displayed followed by a times symbol ('x') and the actual factor text (e.g. 12234xABCDE)

CH:1 KWH
P:2 123.00 The count and multiplication factor
 are displayed right justified
 (Overwriting the period if required).

CH:1 KWH
P:3 345.6723

CH:1 KWH
P:4 3433.00

CH:1 KWH This is a display of the first seasonal
S:1 1243.333 period.

CH:1 KWH
S:2 0

CH:1 KWH
S:3 0

CH:1 KWH
S:4 0

CH:2 KVAH
P:1 23233.00

CH:2 KVAH
P:2 25555.55

CH:2 KVAH
P:3 133.00

CH:2 KVAH
P:4 3333.54

CH:2 KWH
S:1 1243.33

CH:2 KWH
S:2 22.0

CH:2 KWH
S:3 44.0

CH:2 KWH
S:4 0

CH:2 SEP-29 16:01:00 The demand mode can be "15FIX",
60F30 1234.25 "30F5", "60F15", "60F30", or "DEM??". The count and multiplication factor are
 displayed right justified (overwriting the demand mode if required).

