

PFC Accessory, Data Translation System: 810053-01

Introduction

Use this addendum along with PFC Instruction Manual (825064-00) for the proper installation, operation and maintenance of this accessory. The Data Translation System (DTS) allows the user to access status information and temperature and to control certain functions of the PFC through a DeviceNet interface, [Automation Direct T1K-DEVNETS](#).

Specifications

Description	Specification
Input Power	Nominal input voltage 230 to 460VAC, minimum = 170VAC, maximum = 528VAC at 50VA, Internally fused.
User interface	DeviceNet Micro connector, Default baud rate 125K, default address 63, ODVA compliant.
Enclosure	IP54 rated, Panel mounted using ¼ 20 studs.
PFC interface	I/O pigtail to 37 pin connector on PFC Low Voltage Box, Thermocouple pigtail to PFC controller T/C terminal strip.
Data I/O	Control 6 Output lines from DeviceNet. Monitor 8 input lines to DeviceNet. Monitor 10 temperature readings to DeviceNet.

Table 1. Specifications



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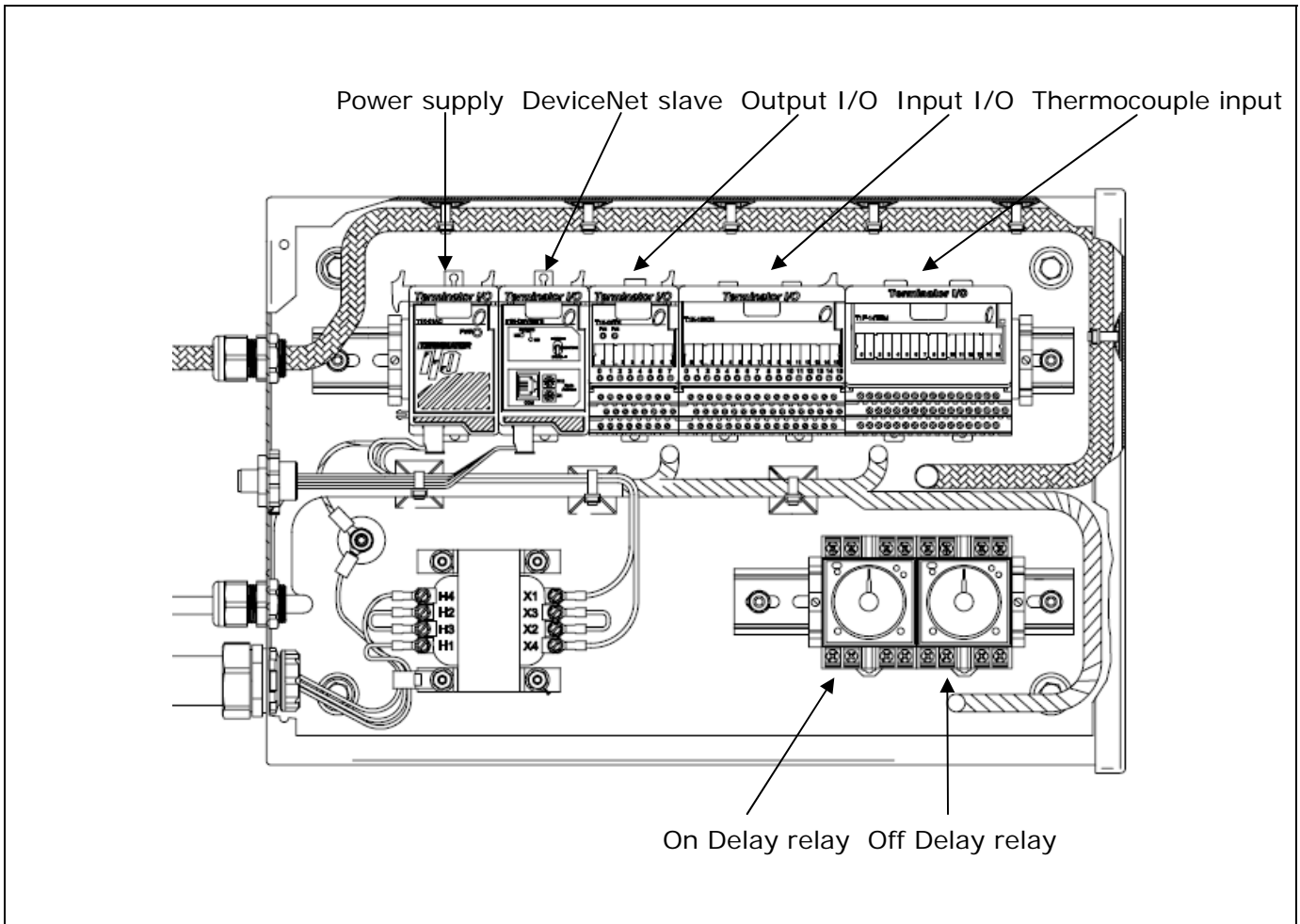


Figure 1. Internal Modules

If internal modules are replaced, they must be placed in these positions to ensure correct relay logic and DeviceNet poll data.



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Installation

Remove packing material from inside the DTS box before applying power.

Use of the DTS requires modification of the PFC and Low Voltage enclosures.

Remove cover from the Low Voltage Box. Punch a 0.804 inch hole in the Low Voltage Box. The figure shows view from outside Low Voltage Box.

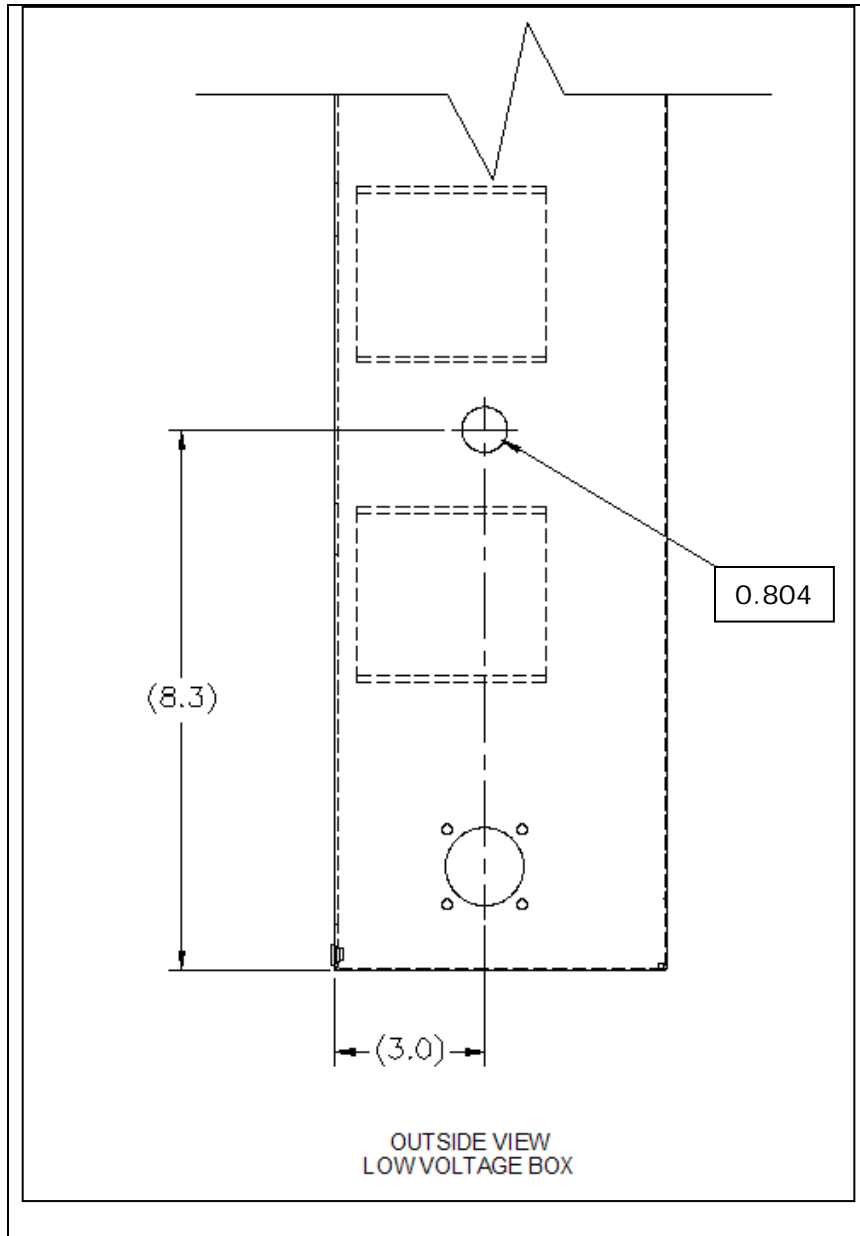


Figure 2.



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Remove cover from the High Voltage Box. Remove plug from 1 inch hole in the bottom of the High Voltage Box. The figure shows view from outside High Voltage Box. Inside the HV box, remove wires "A" and "B" and replace with the BLACK wires from the DTS conduit. Attach the YEL/GRN wire from the DTS to the grounding block.

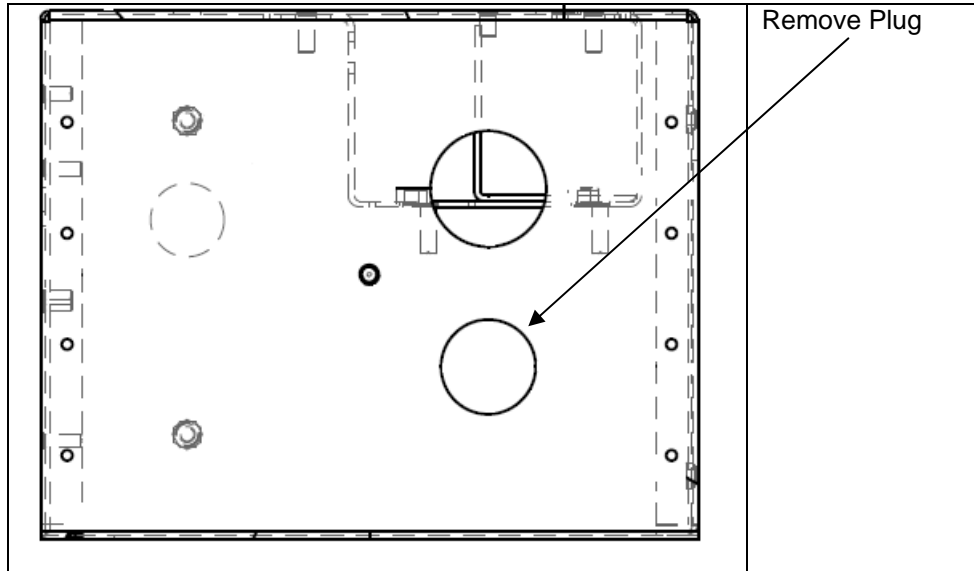


Figure 3 Hole in HV box for Conduit.



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Remove the side panel from the PFC. Drill 4 holes in PFC side panel. Mount the DTS to the panel using 4 washers, lock washers and nuts. Pigtails will be coming out the bottom.

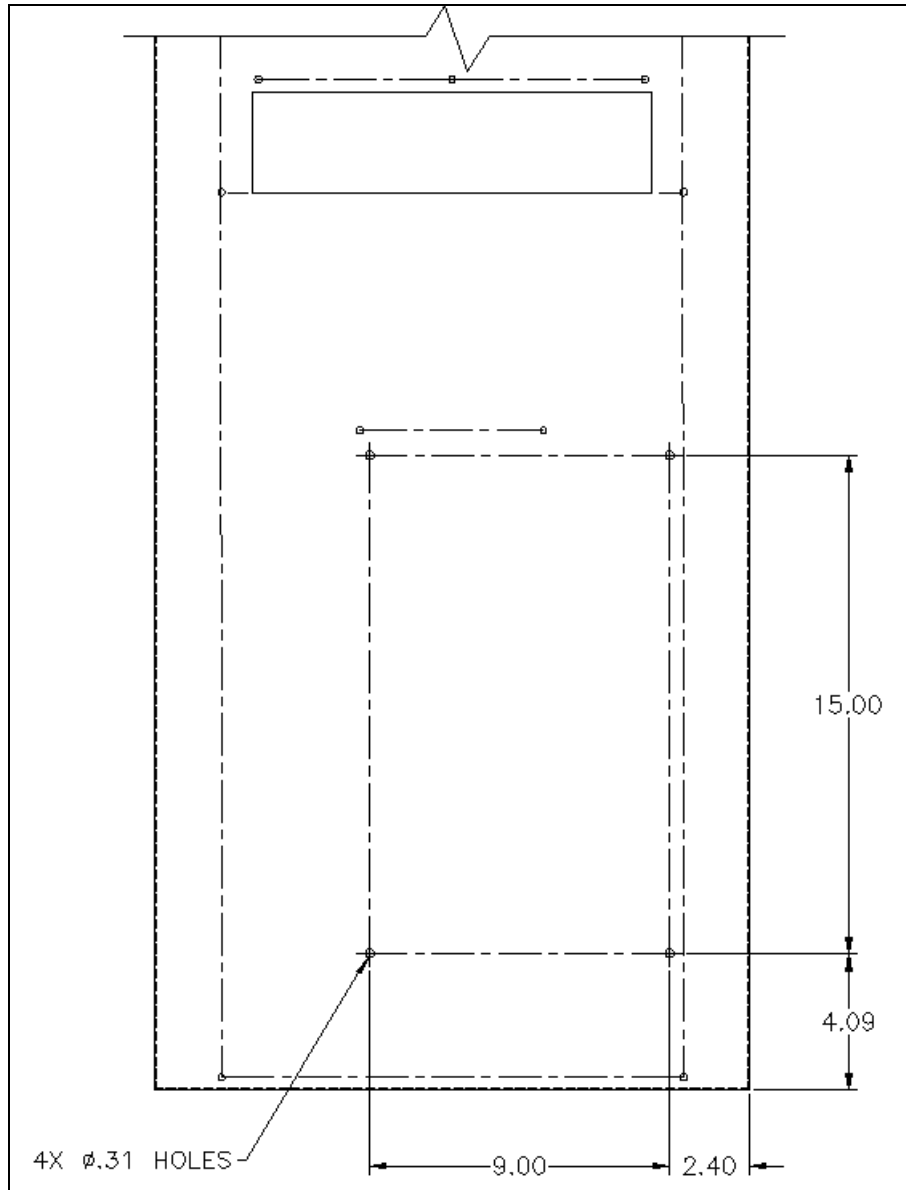


Figure 4 Holes in PFC for mounting DTS.



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Connect cable internal to the LV box by connecting Reset Button Red wire to the 37 pin connector, pin 37 and connect Reset Button Black wire to the 37 pin connector, pin 36 using included wire kit. Connect Reset switch wiring inside the LV box.

Terminal	Wire to
Reset button Black	RMT connector pin 36
Reset button Red	RMT connector pin 37

Table 2. Wiring for Reset interconnect, Low Voltage box (controller).

Connect I/O pigtail to 37 pin connector on the controller.

Route T/C cable through the hole in the controller. Secure the cable using the attached cable gland. Remove the T/C wires from the terminal strip. Pair wires matching marking and color. Twist cable wires to T/C wires and re-insert into the terminal strip. If a thermocouple does not exist, twist ends of cable each wire pair together and connect to unused terminal strip position.

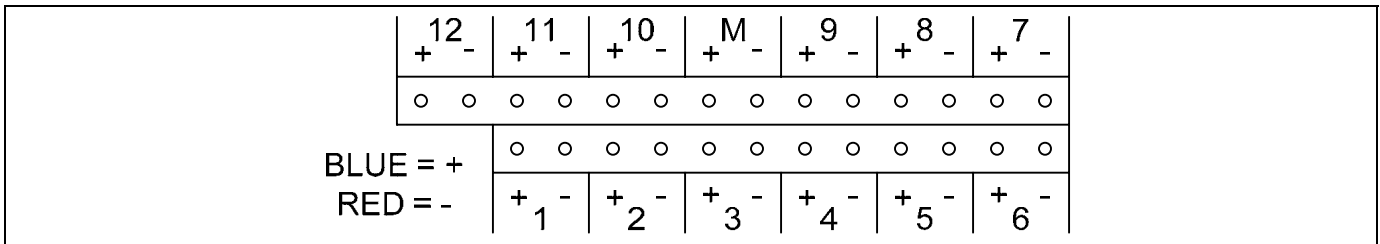


Figure 5 LV box Thermocouple terminal strip.



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Open the DTS and Setup the DeviceNet Node Address and enable output I/O.

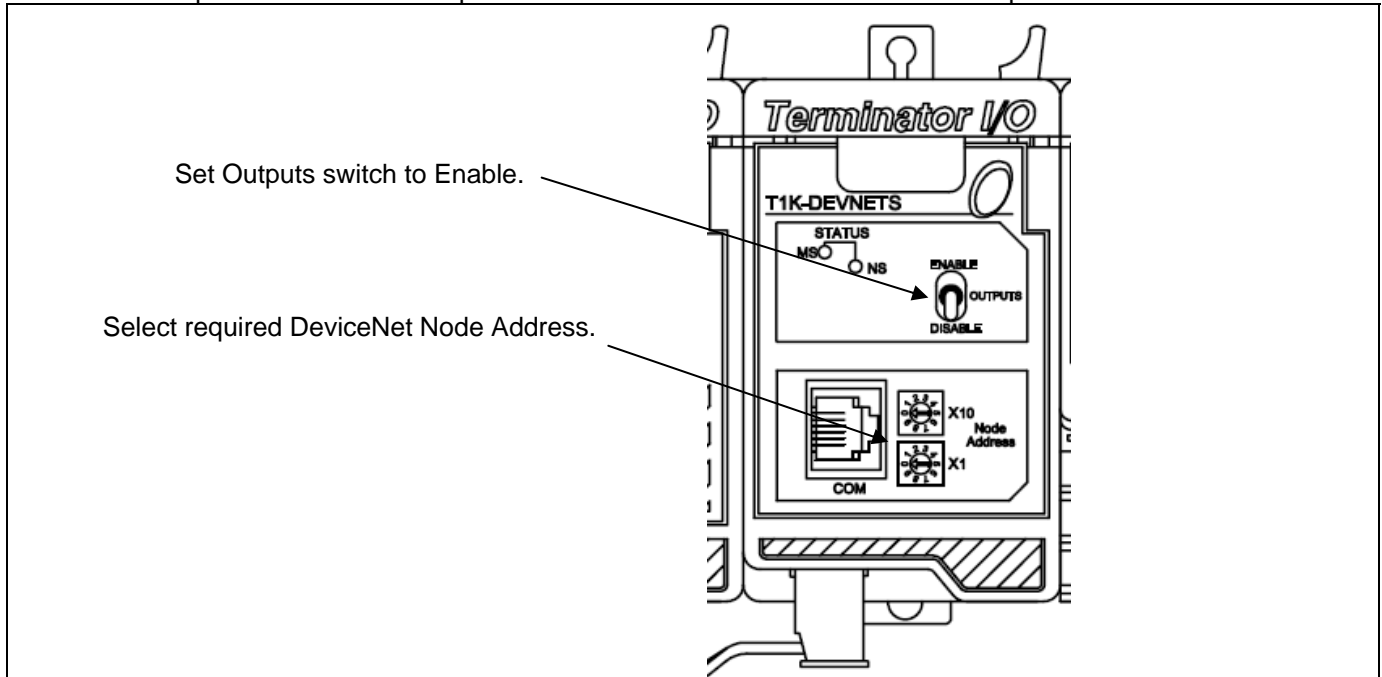


Figure 6 Set DeviceNet Node Address.

Connect the DTS to a DeviceNet network.



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Operation

The PFC Local/Remote switches must be in the Remote position for the DTS to take control of the PFC. The DTS device uses Output polling for control of the PFC and Input polling for status measurement.

The Output poll data is an assembly of diagnostic and I/O bit level commands.

- Addresses +0 and +1 affect the DTS Output module, [Automation Direct T1K-DEVNETS](#).
- Address +2 contains PFC commands. Bits 0 – 5 are defined. Bits 6 and 7 are reserved.
- Three Output bytes total.
- Typically, only address byte +2 will have bits set. Send 00 for addresses +0 and +1.
- PFC Reset will be allowed at an interval of no less than 10 minutes. Bit 0 must be sent with a '1' momentarily to cause a Reset. Keep this bit at '0' all other times.

Address	Bytes	Data	Comment
+0	1	00	No request
		5Ah	Select I/O configuration
		C3h	Select Output Enable
		3Ch	Select Output Disable
+1	1	Reserved	Not used
+2	1	PFC command	Bit 0: PFC Reset
			Bit 1: Unit on/off
			Bit 2: Cool #1 On/Off
			Bit 3: DFR #1 On/Off
			Bit 4: Cool #2 On/Off
			Bit 5: DFR #2 On/Off
			Bits 6, 7: Not used

Table 3. Output Poll Data



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The Input poll data is an assembly of diagnostic, I/O bit level status information and 16 bit temperature information.

- Addresses 0 and 1 are DTS module status bits, [Automation Direct T1K-DEVNETS](#).
- Address 2 is PFC status information.
- Addresses 3 to 22 are PFC Temperature information.
- 68 Input bytes total.

Temperature information is direct reading in Celsius with 1/10 degree implied resolution.

Address	Bytes	Data	Comment
+0	1	I/O status	Bit 0: Missing module error ON: Error / OFF: Normal Bit 1: New module present error ON: Error / OFF: Normal Bit 2: I/O diagnostic error ON: Error / OFF: Normal Bit 3: Node error (the node number has changed) ON: Error / OFF: Normal Bit 4: Idle (Output is idle) ON: Idle / OFF: Normal Bit 5: Multiple error (Two or more errors occurred) ON: Multiple / OFF: Normal Bit 7: Output status ON: Enable / OFF: Disable
+1	1	Error slot	01h: Slot 1 02h: Slot 2 . . 1Fh: Slot 31 21h: Slot 1 22h: Slot 2 . . 3Fh: Slot 31 Module Missing error or New Module Error 24V Error or Fuse Error The slot number in which the error has occurred. When the same error occurs by multiple slots, priority is given to low slot number. Priority is given to 24V Error or Fuse Error when multiple errors occur at the same time.
+2	2	PFC Status	Bit 0: Circuit # 1 Remote Active Bit 1: Circuit # 1 Defrost Complete Bit 2: Circuit # 1 Defrost Active Bit 3: Circuit # 2 Remote Active Bit 4: Circuit # 2 Defrost Complete Bit 5: Circuit # 2 Defrost Active Bit 6: Circuit # 1 Cool Active Bit 7: Circuit # 2 Cool Active Bit 8: Circuit # 2 Unit OK Bit 9: Circuit # 2 Unit has Power Bits 10 – 15 not used
+3	2 INT	PFC Temp	Comp. Discharge Temperature



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Address	Bytes	Data	Comment
+4	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Comp. Discharge Temperature Bits 9 – 15: not used
+5	2 INT	PFC Temp	Cooling Water Temperature
+6	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Cooling Water Temperature Bits 9 – 15: not used
+7	2 INT	PFC Temp	Cold Element #1 In Temperature
+8	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Cold Element #1 In Temperature Bits 9 – 15: not used
+9	2 INT	PFC Temp	Cold Element #1 Out Temperature
+10	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Cold Element #1 Out Temperature Bits 9 – 15: not used
+11	2 INT	PFC Temp	Cold Element #2 In Temperature
+12	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Cold Element #2 In Temperature Bits 9 – 15: not used
+13	2 INT	PFC Temp	Cold Element #2 Out Temperature
+14	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Cold Element #2 Out Temperature Bits 9 – 15: not used
+15	2 INT	PFC Temp	Feed #1 Temperature
+16	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Feed #1 Temperature Bits 9 – 15: not used
+17	2 INT	PFC Temp	Return #1 Temperature
+18	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Return #1 Temperature Bits 9 – 15: not used
+19	2 INT	PFC Temp	Coldest Liquid Temperature
+20	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Coldest Liquid Temperature Bits 9 – 15: not used
+21	2 INT	PFC Temp	Return #2 Temperature
+22	2	Status	Bits 0 – 7: not used Bit 8: T/C Channel burn out, Return #2 Temperature Bits 9 – 15: not used
+23	16	Not used	16 bytes not used
+24	4	Not used	4 bytes not used
+25	4	DTC Temp	Module Compensation Temperature

Table 4. Input Poll Data



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