# **User Manual**

# ADS-14171 Honeywell Integrated Pressure Transducer (IPT) Demo Software

Version 1.10

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# 1. Introduction

The Honeywell Integrated Pressure Transducer (IPT) Demo software application is used to retrieve the pressure and temperature readings from the IPT test system. A setup procedure should be completed before the IPT demo software application can be used.

# 2. Setup Procedure

## 2.1 Computer Setup

The Software Setup consists of

- a. Unzipping the file to the C drive.
- b. Install the software from the unzipped files by executing the "IPT Demo Interface Setup.exe".
- c. The location where the software is installed is changeable inside the "InstallShield Wizard".
- d. Then click "Install" to complete the installation

# 2.2 System Setup

The Hardware Setup consists of

- e. Host computer on which the IPT Demo Software will be executed.
- f. IPT Demo Board on which the IPT will be mounted.
- g. RS232 Cable to connect the IPT Demo Board to the COM port of the host computer.

Ensure that all jumpers are configured as shown below **<u>BEFORE</u>** applying power.

The hardware should be connected in the following order:

- a. Connect the RS232 cable from the computer to the IPT Demo Board.
- b. Connect the IPT to the Demo Board.
- c. Connect power to the Demo Board power supply jack.

The demo board will appear like the following image upon completion of the hardware setup.



There is only 1 correct way for the IPT to be mounted to the IPT demo board; there are multiple ways that the IPT should not be connected to the demo board, the following images indicate these instances.

<u>IMPORTANT</u>: Failure to mount the IPT in the proper orientation will result in damage to either the IPT Demo Board or the IPT.

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<u>IMPORTANT</u>: The Demo board should be handled with extra precaution for ESD to make sure the board is not damaged. (ESD class rating has not been determined)

The Demo Board must be powered ON before executing the IPT demo software on the host machine.



## 2.3 Executing IPT Demo Software Application

1) Step 1: Upon executing the IPT Demo Software on the host computer, a disclaimer will be displayed.

Press the "OK" button.

This is a den the features This Program acquisition a For successf a IPT transd to a PC Seria	nonstration : and functio is not design pplication. ul operation ucer mounte al COM Port	software appl nality of the gned to be th of this applic ed on a demo	ication to sho Honeywell IP1 e end-users o cation user mo board and co	owcase r. only data ust have onnected
Honwywell Ir	nc. Copyrigh	t (C) 2008		

2) Step 2: Select the Communication Port to which the Demo Board is connected and click the "Open Port" button.

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Open Communication Port	
C Set Communication Port Properties	
Communication Port COM1	
Baudrate         Par           0 1200         0 14400         0 57600         0           0 2400         0 19200         0 115200         0           0 4800         0 28800         0         0	ity NONE ODD EVEN
Open Port	
OK. Reset E:	sit

 Step 3: Upon opening the port the IPT Demo Software retrieves EEPROM data from IPT for the calculation of pressure values in PSI. (Refer Section 3.2). The retrieved EEPORM data can be viewed in the EEPROM tab of the main window.

COM Port : CO							1
	M1 Bau	d Rate : 11	15200	Parity :	8-NONE-1		Change Port Settings
Command EEPR	ом						Command/Response Monitor
Description	Address	Byte1	Byte2	Byte3	Byte4		
Δ	00	CO	35	5D	C5		
al	04	C4	F7	DO	05		
a2	08	C5	97	BC	AE		
a3	OC	46	1D	C8	3D	=	
a4	10	C6	81	9F	C9		
a5	14	46	76	63	2A		
a6	18	C6	42	FO	36		
Ь1	1C	46	81	A7	BD		
Ь2	20	46	91	2D	09		
Ь3	24	C6	E3	8E	44		
Ь4	28	47	64	19	F2		
Ь5	2C	C7	8F	01	F4		
Ь6	30	47	9E	49	5E		
c1	34	C7	51	61	60		
c2	38	C6	30	D7	FA		
c3	3C	C6	BD	C1	14		
c4	40	C6	B7	86	3F		
c5	44	47	EE	C5	35		
c6	48	C8	54	72	DA		
d1	4C	47	A5	EO	2C		
d2	50	C7	12	ED	8B		
d3	54	48	23	12	50		
d4	58	C8	00	A.A.	EE	V	

# 3. Using IPT Demo Software

#### 3.1 Commands

The IPT Demo Board firmware implements a set of commands to send the pressure and temperature output from the IPT over a RS232 communication line.

In addition to these commands EEPROM read and write commands are supported to read –write EEPROM contents of the IPT.

The Command tab in the main window of the IPT demo software has a list box "Command Inquiry" to select commands to be sent to the IPT Demo Board. Alternatively the commands can also be sent manually by entering the command in the "Manual Command Entry" text box and pressing "Enter" on the keyboard of the host computer. The command from the IPT Demo Software and response from the IPT Demo Board interface are displayed in the "Command/Response Monitor" text box.

Honeywell Integrated Pressure Transducer (IPT) Demo Interface		
File Help		
COM Port : COM1 Baud Rate : 115200 Parity : 8-NONE-1	Change Port Settings	
Command EEPROM	Command/Response Monitor	
Command Inquiru Manual Command		~
C1->Single Raw Temperature		
Calculated Pressure Reading in PSI		
Run		
Time Stamp		
File Path Browse		-
		~

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COM Port : COM1	Baud Rate : 115200	Parity : 8-NONE-1	Change Port Settings	
nmand EEPROM			Command/Response Monitor	
Command Inquiry C1>Single Raw Temp C2>Continuous Raw T C3>Single Raw Press C4>Continuous Raw T IN>Stop Continuous Baw T IN>Stop Continuous D IN>Reset Demo Interfa 13.405035 13.40487 13.405021 13.404946 13.404946 13.404946 13.404946 13.404946 13.404946 13.404946 13.404946 13.404946 13.404904 13.404904	Manual I erature emperature iresssure utput ace	Command          Run         Image: Command transmission of the second se	#01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669 #01TC=44669	

Following commands are supported by the IPT Demo Board firmware:

1. C1 (Single Raw Temperature)

"C1" command displays a single reading of the raw temperature in the Command/Response Monitor.

Command: \*01C1 Example response: #01TC=46998

2. C2 (Continuous Raw Temperature)

"C2" command displays continuous digital output of raw temperature in the Command/Response Monitor. Continuous output can be stopped by sending the "IN" (Stop Continuous Output) command.

Command: \*01C2 Example responses: #01TC=46998 #01TC=46998 #01TC=46998 #01TC=46998 3. C3 (Single Raw Pressure)

"C3" command displays a single digital output of the raw pressure in the Command/Response Monitor.

Command: \*01C3 Example response: #01PC=1991364

4. C4 (Continuous Raw Pressure)

"C4" command displays continuous digital output of raw pressure in the Command/Response Monitor. Continuous digital output can be stopped by sending the "IN" (Stop Continuous Output) command.

Command: \*01C4 Example responses: #01PC=1991364 #01PC=1991340 #01PC=1991221 #01PC=1991372 #01PC=1991265

5. IN (Stop Continuous Output) "IN" command is used to stop continuous pressure and temperature digital output from the IPT.

Command: \*01IN

Response: None

 IN=RESET (Reset Demo Interface)
 "IN=RESET" command is used to reset the demo interface Command:
 \*01IN=RESET

Response:None

7. RD (Read EEPROM)

The "RD" command can be manually entered to read contents from the IPT EEPROM.

Command:	
*01RDdd	// where <i>dd</i> is an EEPROM location of 0x00-0xFF

Response:

•	#01RDddccc	// where <i>dd</i> is an EEPROM location of 0x00-0xFF
		// and ccc is a value 0-255

#### 8. WT (Write EEPROM)

The "WT" command can be manually entered to write to IPT EEPROM locations 0xB6 - 0xFF

Command:

\*01WTddccc

// where *dd* is an EEPROM location 0xB6-0xFF // *and ccc* is a value 0-255

Response: None

# 4. Digital pressure output in PSI

The digital pressure output can also be viewed in PSI (pounds per square inch). The digital pressure output in PSI is calculated from the raw temperature and pressure outputs using coefficients loaded from EEPROM of the IPT. (Refer Section 3.2 and 3.3 of IPT User's Guide). Press the "Run" button in the "Command" Tab to display digital pressure output in PSI units in the "Calculated Pressure Reading in PSI" Text Box.



## 4.1 Data Logging

Honeywell Integrated Pressure Transducer (IPT) Demo Interface	
File Help	
COM Port : COM1 Baud Rate : 115200 Parity : 8-NONE-1	Change Port Settings
Command EEPROM	Command/Response Monitor
Command Inquiry Manual Command	
Calculated Pressure Reading in PSI         13.404112         13.404298         13.404298         13.404218         13.404218         13.404218         13.404232         13.404438         13.4044591         13.404591         13.404591         13.404591         13.404591         13.404581         13.404591         13.404591         13.404591         13.404591         13.404591         13.404591         13.404591         13.404591	
13.404387       File Path       D:\IPT_Log.txt   Browse	~

The pressure reading displayed in the "Calculated Pressure Reading in PSI" text box can also be logged to a text file by selecting the "Log Pressure" checkbox. The file path can be set by clicking on the "Browse" button. To log the time stamp along with the pressure output, select the "Time Stamp" checkbox.

# 5. **Menu**

## 5.1 *File*

File menu has one sub menu as "Exit"

Honeywell Integrated Pressure Transducer (IPT) Demo Interface	
File Help	
Exit COM Port : COM1 Baud Rate : 115200 Parity : 8-NONE-1	Change Port Settings
Command EEPROM	Command/Response Monitor
Commentaria Neural Comment	
C1->Single Raw Temperature	
Calculated Pressure Reading in PSI	
Bun	
Log Pressure	
Time Stamp	
File Path Browse	

# 5.1.1 **Exit**

Click on **Exit** to close the application.

### 5.2 **Help**

#### Help Menu has following contents Honeywell Integrated Pressure Transducer (IPT) Demo Interface File Help Contents Rate : 115200 Change Port Settings Parity : 8-NONE-1 Honeywell on the Web Application Limitations About IPT Demo Interface Command/Response Monitor Commano | EEPRUM | Command Inquiry Manual Command C1-->Single Raw Temperature -Calculated Pressure Reading in PSI Run 🗐 Log Pressure Time Stamp File Path Browse

#### 5.2.1 **Contents**

Upon Clicking "Contents" Help window is displayed.

#### 5.2.2 Honeywell on the Web

Upon Clicking "Honeywell on the Web" link to Honeywell website is opened inside the default browser.

### 5.2.3 Application Limitations

Upon Clicking "Application Limitations" limitations of Demo Software are displayed.

### 5.2.4 About IPT Demo Interface

Upon Clicking "About IPT Demo Interface" About Box is displayed showing version information of the Demo Software.

# 6. Limitations

1. Communication with the IPT Demo Board Interface is 115200 baud (N-8-1) only.

2. Manual WT commands to EEPROM locations 0x00 to 0xB6 will be ignored.

3. Calculated Pressure Readings in PSI are displayed at a rate of ~150/sec.

4. While a C4 continuous command is executing, single commands may not be visible in the Command/Response Monitor.

5. EEPROM Tab contents are updated at the start of the application. Any user-changes to the EEPROM will not be visible until the application is restarted.

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