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*Revolution Not Evolution*

**7400**

**DIPTRONIC™  
MEASURING SYSTEM  
MK1 & L.I.P.S**

**DipRecall MANUAL**



**Issue D April 2010**



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## 1.0 Introduction

The DipRecall software allows the user to view and modify the settings stored in a DIPTRONIC DIP200 Series CPU and the DIPTRONIC DIP100 Series Pots connected to the CPU's HART communication networks.

## 1.1 Liquip Requirements

**When the user completes a calibration and the system is ready to be deployed, the data should be saved and a copy of the file sent to Liquip NSW. This is important as the data contained in the calibration file will assist in diagnosing any problems that may arise.**

The calibration file can be sent to:

[sales@liquip-nsw.com.au](mailto:sales@liquip-nsw.com.au)

## 1.2 Use of Computers in Hazardous areas

When using a computer to access a Diptronic CPU on a tanker there is a nominal distance of 10 metres required between the computer and CPU for safety reasons.

Alternatively, the computer may be safely used in the cab of the tanker.



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## **2.0 Getting Started**

### **2.1 Hardware Requirements**

PC (preferably Laptop)  
Serial Cable – P6952

System Requirements (recommended):

Windows 98SE or above  
Pentium 2, 400MHz  
128 MB RAM  
800x600-pixel display (1024x768-pixel display recommended).  
RS-232 Compatible Serial Port in the range COM1—COM4 (if the PC does not have a serial port most USB-Serial adaptors are acceptable)

### **2.2 Software Installation**

To install the software, run the “setup.exe” file on the CD-ROM provided. The Windows Installer will copy the required files to your computer.

*DipRecall cannot be installed over an existing installation. If you are upgrading DipRecall to a later version you will have to remove the existing installation as described in 2.3 Software Removal.*

### **2.3 Software Removal**

If you wish to remove the software from your PC, open the “Windows control panel” and choose “Add/Remove Programs”. DipRecall will be listed in the installed programs list, highlight “DipRecall” and click the “Remove” button.



## 3.0 Using DipRecall

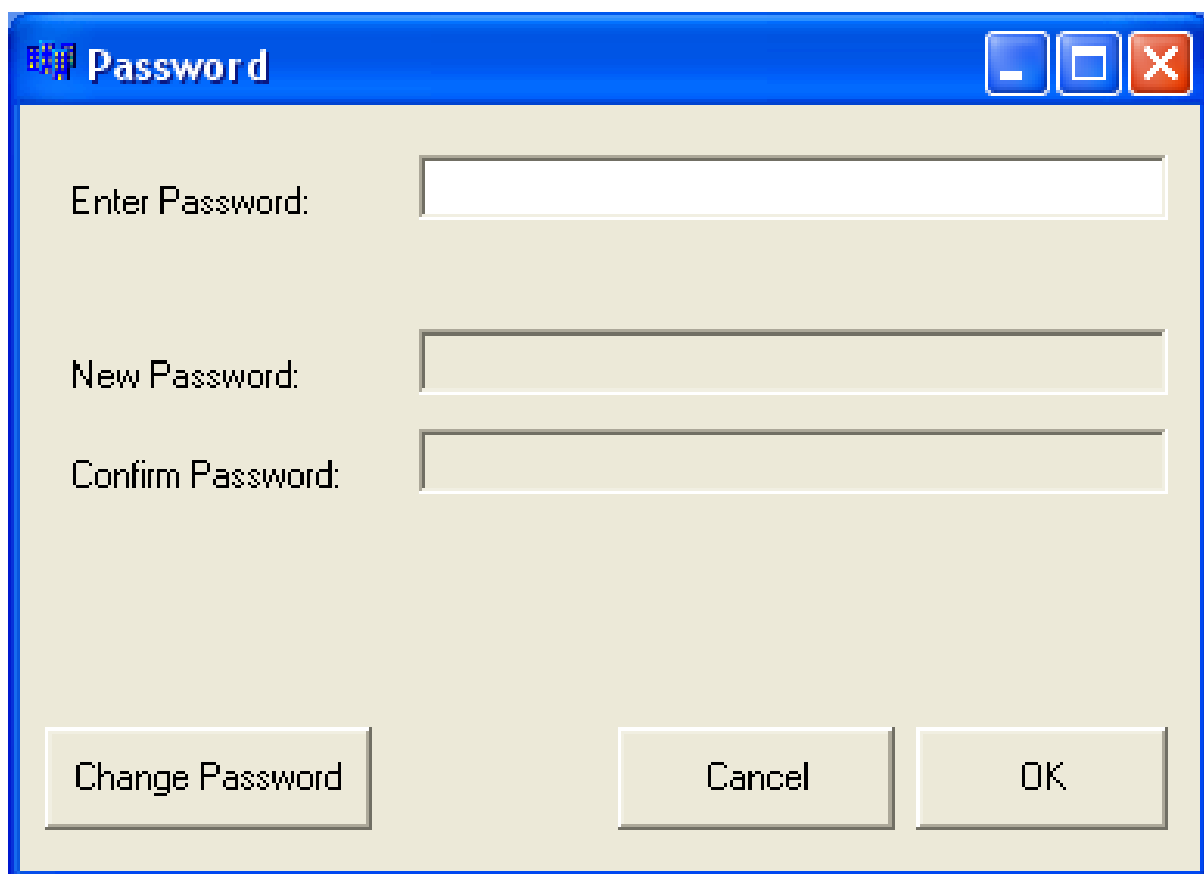
### 3.1 Running the Software

Before running the software connect the PC to the DIP200 with the appropriate serial cable (**see 2.1 Hardware Requirements**). Connect the mil spec end of the cable to the printer port of the CPU (top left hand side mil spec connector).

Note, following closure of the software, disconnect the mil spec end of the serial cable from the CPU and reconnect the printer mil spec harness.

#### 3.1.1 Starting the Software

Start the Software using the “Windows Start Button” or the Desktop Shortcut created by the Windows Installer. The following screen will appear:



A Windows-style dialog box titled "Password" with a blue header bar. It contains three text input fields labeled "Enter Password:", "New Password:", and "Confirm Password:". At the bottom, there are three buttons: "Change Password", "Cancel", and "OK".



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This dialogue box asks the user to supply a password to gain access to the software. The default password is an empty string (i.e. blank).

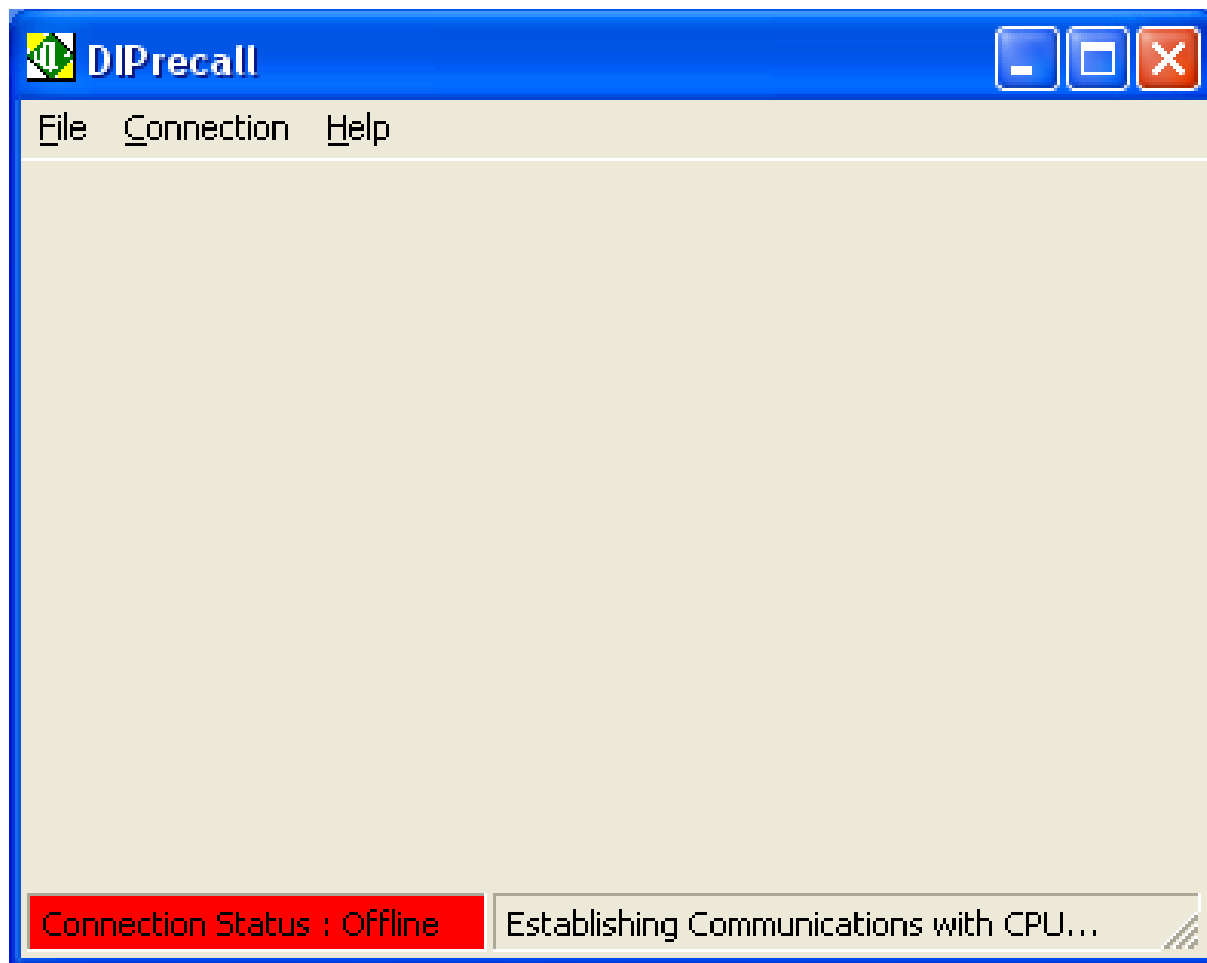
*It is advised that the default password is changed for reasons of security. This procedure is explained in 3.2 Password Protection.*

Type the password in the field labelled “Enter Password” and click “OK”. If the password is correct this will be acknowledged as follows:

The screenshot shows a Windows-style dialog box titled "Password". It has a blue title bar with standard minimize, maximize, and close buttons. The main area is light beige. It contains three input fields: "Enter Password:" (filled with "xxxxxxx"), "New Password:", and "Confirm Password:". Below these fields, the text "Password Correct" is displayed in a large, bold, green font. At the bottom, there are three buttons: "Change Password", "Cancel", and "OK" (which is highlighted with a dashed border).

For more information about password protection refer to 3.2 Password Protection.

Once the correct password as been accepted the following screen will appear:



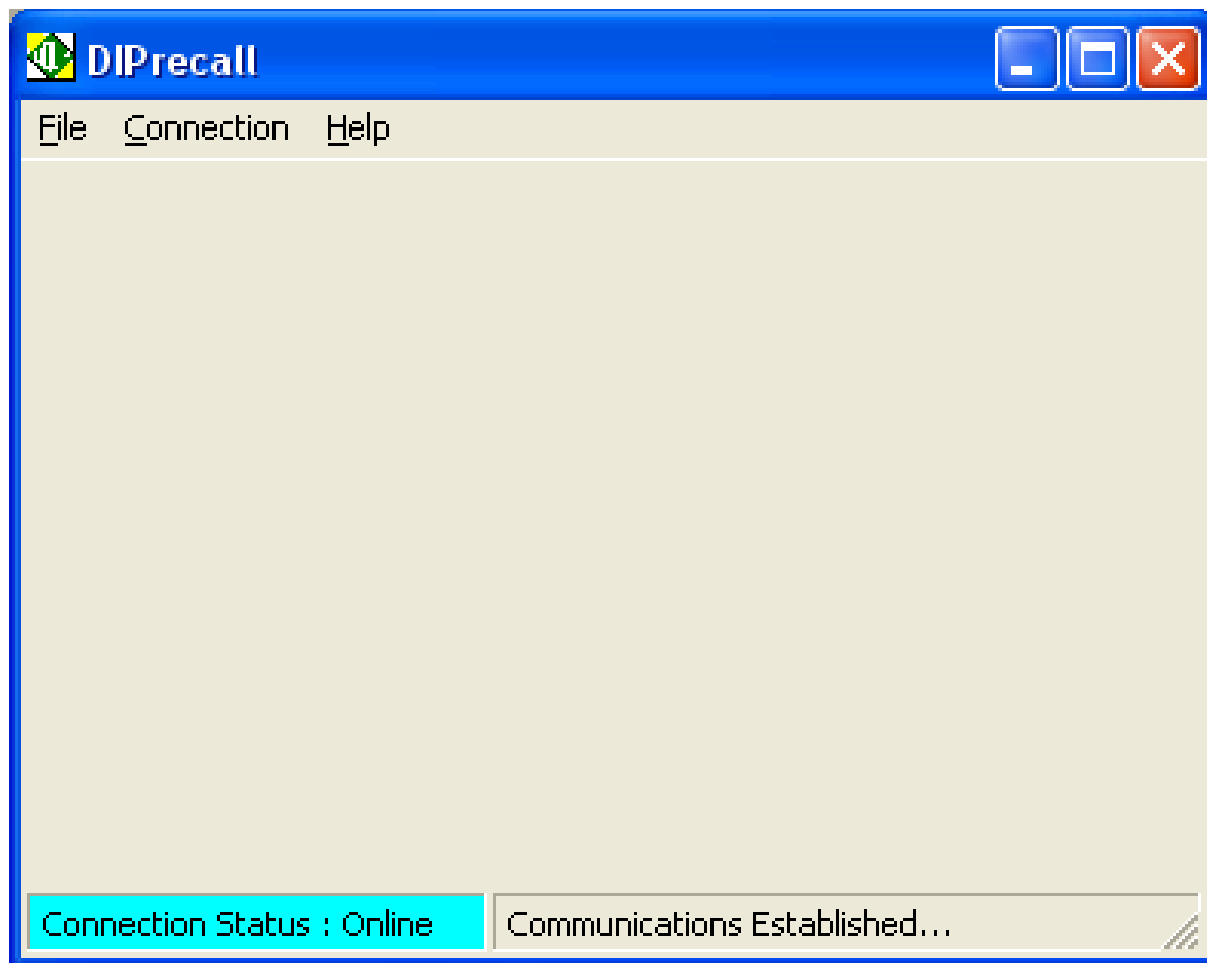
The “Connection Status” panel at the bottom left corner of the window is red and showing “Offline” when there is no DIP200 detected and Blue when a DIP200 is available on the selected port.

Once the software is running it looks for a DIP200 on the active serial port (if the software is being run for the first time the active serial port is COM1). If the DIP200 is not connected to the active serial port the correct serial port can be selected as follows:

*Select from the menu: Connection → Connection Settings → COM1, COM2, COM3 or COM4 as appropriate.*

Once the correct serial port has been selected this port will be the active serial port each time the software is run until the serial port setting are changed again.

If a DIP200 CPU is detected on the active serial port the Connection Status panel will change to blue and show “Online” (as shown following).



### 3.1.2 Connection Errors

The software will inform the user of any communication errors that have occurred when trying to detect the DIP200 CPU. If the active serial port selected is in use or does not exist or a DIP200 CPU is not detected on the active serial port, a communications error will occur. To overcome any of these errors, check the communications cable and the serial port settings on your PC.

### 3.1.3 Closing the Software

When ending the current session allow the software to close the connection with the CPU so that The CPU can be switched from “Calibration Mode” to normal operation.





## 3.2 Password Protection

DipRecall has password protection to prevent unauthorised access of the program.

The default password is an empty string (blank) and it is advised that this be changed immediately.

### 3.2.1 Entering the Password

When the program is started a password must be entered to gain access to the software. Enter the password in the “Enter Password” field and click “OK”. If the password is correct the following screen will appear for about a second and then full access is granted to the user.

The screenshot shows a Windows-style dialog box titled "Password". It has a blue title bar with standard minimize, maximize, and close buttons. The main area is light beige and contains three input fields with labels: "Enter Password:", "New Password:", and "Confirm Password:". Below these fields, the text "Password Correct" is displayed in a large, bold, green font. At the bottom of the dialog, there are three buttons: "Change Password", "Cancel", and "OK". The "OK" button is highlighted with a dashed border.



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If the password is incorrect the following screen will appear:

A screenshot of a Windows-style dialog box titled "Password". The dialog has a blue title bar with standard minimize, maximize, and close buttons. The main area is light beige. It contains three input fields: "Enter Password:" (with "xx" visible), "New Password:", and "Confirm Password:". Below these fields, a red error message reads "The password entered is incorrect". At the bottom, there are three buttons: "Change Password", "Cancel", and "OK" (which has a dashed border).

Note, if the user enters an incorrect password it may be entered again.



### 3.2.2 Changing the Password

To change the password, enter the existing password in the field labelled “Enter Password” then click “Change Password”. The fields “New Password” and “Confirm Password” are now available to enter the new password. Enter the new password in the “New Password” and “Confirm Password” fields then click “OK”. If the data in “New Password” and “Confirm Password” is identical the software will acknowledge this with the following screen:

The screenshot shows a Windows-style dialog box titled "Password". It has three input fields: "Enter Password:", "New Password:", and "Confirm Password:". Each field contains a single asterisk (\*). Below the fields, the text "The password has been changed" is displayed in a large, blue, bold font. At the bottom of the dialog, there are three buttons: "Change Password" (disabled), "Cancel", and "OK" (highlighted with a dashed border).

Following this screen, full access to the software is granted to the user.

If the password “New Password” and “Confirm Password” are not identical the following screen will appear:



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The image shows a Windows-style dialog box titled "Password". It has a blue title bar with standard minimize, maximize, and close buttons. The main area is light beige. It contains three input fields: "Enter Password:" (with a single asterisk visible), "New Password:", and "Confirm Password:". Below these fields, a bold black message reads: "The New Password entered is different form the Confirmed Password. Please try again". At the bottom, there are three buttons: "Change Password", "Cancel", and "OK". The "OK" button is highlighted with a dashed border.

Carefully re-enter the new password in “New Password” and “Confirm Password” and click “OK”.



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### 3.3 Retrieving CPU Data

To view and modify the CPU settings the data must be up-loaded from the CPU so all the data can be displayed in a meaningful format. To up-load the data:

*Select from the menu: Connection → Connect.*

This will request all the data from the CPU. Once all the data has been up-loaded it is displayed as “system data” and “compartment data”.

*The software must acknowledge the presence of the DIP200 CPU as indicated by the connection status showing “Online” before the data can be up-loaded.*

#### 3.3.1 System Data

The “system data” is the data that is not specifically related to an individual compartment but rather describes the system settings. This data is displayed as shown below:

The screenshot shows the DIPrecall software window with the 'System Data' tab selected. The interface includes a menu bar (File, Connection, Help) and a tabbed view with 'System Data', 'Compartment 1', and 'Compartment 2'. The 'System Data' tab contains several sections: 'CPU Information' (CPU Software Version: 01.00.11, Power Interrupts: 001, Reset Register: 40), 'Printer Settings' (Printer Type: TM-295, Printer Baud: 9600, Printer Acknowledge: NO), 'Vehicle Information' (Company Name: LIQUIP SALES PL, Vehicle ID: 000000, Units of Measurement: Litres [L], Number of Compartments: 2), 'Date and Time' (Host Time: 15:51:54, Host Date: 17/02/04, Diptronic Time: 15:52:12, Diptronic Date: 17/02/04), and 'Wetleg Status' (Wetleg Status: unchecked, Compartments 1-8: /, Gantry Status: /). At the bottom, there is a 'Connection Status' bar showing 'Online' and a status line with 'Company : LIQUIP SALES PL Truck No. : 000000 Compartments : 2'. Buttons for 'Cancel' and 'Apply' are located at the bottom right.



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### 3.3.2 Compartment Data

The “compartment data” is the data that is specific to a particular compartment and is displayed separately for each compartment in the system. The System displayed below has two compartments as shown by the number of compartment pages.

The screenshot shows the DIPrecall software interface with the following sections:

- System Data:** Includes tabs for System Data, Compartment 1, and Compartment 2.
- Dynamic Data:** Includes fields for Level (2307), Fiducial Ticks (328), No. of Ticks (1310), Raw Level (1387.6), and Sensor Temp. (25.2).
- Offset:** Includes fields for Offset (mm) and Offset (L), both set to 0.
- Digital Data:** Includes fields for Conversion Factor (1985), Window (120), Threshold (CFD), Scale Offset (66), Range (131), and Gain (50).
- Compartment Height Data:** Includes fields for Compartment Height (1615), S/L Max (1732), Datum Offset (0), and Dielectric Constant (1.4-1.7).
- Volume Adjustment:** Includes fields for Enable Volume Adjustment (NO) and Volume Adjustment (0.000000).
- Warning Levels:** Includes fields for L2 (MAX+), L3, SFL, L4, L5, and L6 (MIN-), all set to 1.
- Thermal Drift Array / Level Volume Array:** A table showing Temperature (°C) and Offset (mm) for 12 compartments.

	Temperature (°C)	Offset (mm)
1	-7.2	-5.4
2	1.0	0.0
3	7.8	5.0
4	14.9	8.4
5	23.0	11.8
6	27.0	13.2
7	30.2	13.7
8	35.9	13.8
9	38.1	13.6
10	46.2	12.3
11	56.7	9.2
12	59.8	8.0

Buttons: Expand >>, Reset Data, Apply, Cancel, Apply.

Connection Status : Online Company : LIQUIP SALES PL Truck No. : 000000 Compartments : 2

### 3.3.3 Limitations of Data Access

Some data is only accessible or valid with specific versions of software. If a specific data field is not accessible it means that the DIP200 CPU Software does not allow access to that data either in the current configuration or at all.



### 3.4 Setting CPU Data

After down-loading the CPU data any changes to data that are required can be performed.

#### 3.4.1 Changing Data (Excluding Table Data)

Use the appropriate interface to change the data, type or select the desired value in any available data field. The change will not be written to the CPU until the “Apply” button is “clicked”. If the field values are different to that currently stored in the CPU, the field will be highlighted red. When the user clicks the “Apply” button, all changes on that page are written to the CPU.

In the window below the following values have been changed but not applied: “Compartment Height”, “Threshold”, and “L2 (MAX+)”. When the “Apply” button is pressed these changes will be written to the CPU.

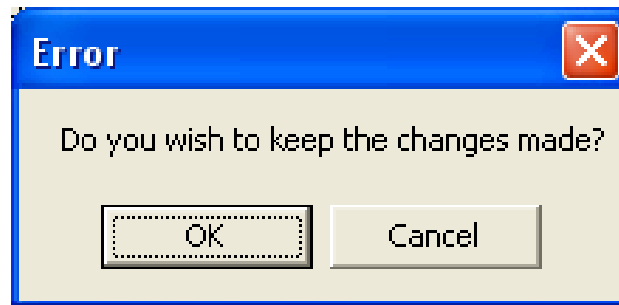
The screenshot shows the DIPrecall software interface with the following sections:

- System Data:** Includes tabs for System Data, Compartment 1, and Compartment 2.
- Dynamic Data:** Fields for Level (2634), Fiducial Ticks (331), No. of Ticks (1328), Raw Level (1361.6), and Sensor Temp. (25.4).
- Compartment Height Data:** Fields for Compartment Height (1700), S/L Max (1732), Datum Offset (0), and Dielectric Constant (1.4-1.7).
- Volume Adjustment:** Fields for Enable Volume Adjustment (NO) and Volume Adjustment (0.000000).
- Offset:** Fields for Offset (mm) and Offset (L).
- Digital Data:** Fields for Conversion Factor (1985), Window (120), Threshold (FD), Scale Offset (66), Range (131), and Gain (50).
- Warning Levels:** Fields for L2 (MAX+) (7500), L3 (1), SFL (1), L4 (1), L5 (1), and L6 (MIN-) (1).
- Thermal Drift Array:** A table with Temperature (°C) and Offset (mm) columns.
- Level Volume Array:** A table with Temperature (°C) and Offset (mm) columns.
- Buttons:** Reset Data, Apply, Cancel, and Apply.

	Temperature (°C)	Offset (mm)
1	-7.2	-5.4
2	1.0	0.0
3	7.8	5.0
4	14.9	8.4
5	23.0	11.8
6	27.0	13.2
7	30.2	13.7
8	35.9	13.8
9	38.1	13.6
10	46.2	12.3
11	56.7	9.2
12	59.8	8.0

Connection Status : Online Company : LIQUIP SALES PL Truck No. : 000000 Compartments : 2

If another data page is selected (selecting the tabs below the menu bar) and the current page has fields that are highlighted, the user is asked whether to keep the changes made.



Click OK to keep the changes, Cancel to discard them. If the changes are discarded the data fields that were changed will revert to their previous, original value.

Certain data fields have limitations on values they can have. When invalid data is written to the field the user is notified as follows:



In this case the invalid data is discarded and the previous valid data replaces it.





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### **3.4.2 Changing Table Data**

Each compartment has two tables of data: “Thermal Drift” data and “Level Volume” data. The tables are shown on the right hand side of each compartment page. The tables can be navigated with the cursor keys, tab key and return/enter key. When a table value is changed it is not immediately written to the CPU but is highlighted. The “Apply” button directly below the array table writes the whole array to the CPU, sorts the data and then refreshes the data in the table.

### **3.4.3 Reset Array**

The “Reset Data” button resets the table data that results in a table with a single entry. This is only used to manually enter all data (not recommended).



## 3.5 Creating and Retrieving Backups

The software can be used to create backups of calibration data so that in the event of accidental loss of data the calibration information can be retrieved.

### 3.5.1 Saving Data

The software allows the user to save the CPU data to a file for future reference and as a backup. Data can be saved once the CPU data has been down-loaded.

*Select from the menu: File → Save Data.*

A “Save As” dialog box will be displayed. Save the data as a new or existing file as desired.

**When the user completes a calibration and the system is ready to be deployed, the data should be saved and a copy of the file sent to Liquip NSW. This is important as the data contained in the calibration file will assist in diagnosing any problems that may arise.**

The calibration file can be sent to:

[sales@liquip-nsw.com.au](mailto:sales@liquip-nsw.com.au)

### 3.5.2 Loading Data

The software allows the user to load saved data from a file into the CPU. Data can be loaded into the CPU once the software acknowledges the presence of a CPU on the active serial port.

*It is a good idea to confirm the existing contents of the CPU by down-loading the data to ensure you will not over-write important data.*

*Select from the menu: File → Load Data.*

An “Open” dialog box will be displayed. Select the file that contains the data that is to be loaded into the CPU.

Loading data in this way will replace system data as well as ALL compartment data. It cannot replace data for a single compartment - this must be done manually.



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## 4.0 System Messages / Diagnostics

SYMPTOM	CAUSE	CORRECTIVE ACTION
"Maximum level exceeded" message	Product overflow	Drain product
"Above measured limit" message	Product above sensor range	Drain product to a level within sensor range
"Safe fill level exceeded" message	Product above safe fill level	Drain product to a level within safe fill
"Communication error" message (sensor)	CPU unable to communicate with sensor	<ul style="list-style-type: none"> <li>* Check wiring to sensors for open/short circuits</li> <li>* Check wiring under sensor housing for short circuits</li> </ul>
"Communication error" message (printer)	CPU unable to communicate with printer	<ul style="list-style-type: none"> <li>* Switch on printer</li> <li>* Check wiring to printer for open/short circuits</li> <li>* Check voltage to printer between 22 and 30V DC</li> </ul>
CPU doesn't power up	No power from truck battery	<ul style="list-style-type: none"> <li>* Check isolation switch is on</li> <li>* Check wiring between CPU and isolation switch</li> <li>* Check fuses</li> </ul>
"NO PAPER" message on CPU	<ul style="list-style-type: none"> <li>* No paper in printer</li> <li>* Paper inserted incorrectly</li> </ul>	<ul style="list-style-type: none"> <li>* Insert paper</li> <li>* Check paper is straight</li> </ul>
Printer doesn't power up	<ul style="list-style-type: none"> <li>* Printer not turned on</li> <li>* Voltage to printer too low</li> <li>* No power to printer</li> </ul>	<ul style="list-style-type: none"> <li>* Switch on printer</li> <li>* Voltage should be between 22V and 30V DC</li> <li>* Check wiring to printer for open/short circuits</li> </ul>
CPU displays MIN-even when full	<ul style="list-style-type: none"> <li>* Water in compartment</li> <li>* Calibration or setup error</li> </ul>	<ul style="list-style-type: none"> <li>* Drain water from compartment</li> <li>* Contact Liquip</li> </ul>



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## APPENDIX 1 - DIPTRONIC REFERENCE BOOKLETS

PART #	DOCUMENT	FILENAME
7310	DIPTRONIC MEASURING SYSTEM MK1 DRIVERS MANUAL	DIP200_INST_DIPTRONIC_MEASURING_DRIVER_INSTRUCTIONS_P7310.pub
7326	DIPTRONIC MEASURING SYSTEM MK1 & L.I.P.S. (WITH GPS) CALIBRATION MANUAL	DIP200_INST_DIPTRONIC_CALIBRATION_P7326.pub
7327	DIPTRONIC MEASURING SYSTEM MK1 & LIPS AUTOMATIC CALIBRATION RIG MANUAL	DIP200_INST_DIPTRONIC_CALIBRATION_RIG_P7327.pub
7328	DIPTRONIC L.I.P.S DRIVERS MANUAL	DIP200_INST_DIPTRONIC_LIPS_DRIVER_INSTRUCTIONS_P7328.pub
7329	DIPTRONIC MEASURING SYSTEM MK1 INSTALLATION MANUAL	DIP200_INST_DIPTRONIC_MEASURING_INSTALLATION_INSTRUCTIONS_P7329.pub
7330	DIPTRONIC L.I.P.S. & GPS INSTALLATION MANUAL	DIP200_INST_DIPTRONIC_LIPS_INSTALLATION_INSTRUCTIONS_P7330.pub
7331	DIPTRONIC GENERAL INFORMATION	DIP200_INST_DIPTRONIC_GENERAL_INFORMATION_P7331.pub
7333	DIPTRONIC CPU (DIP200 & DIP240) SOFTWARE UPGRADE INSTRUCTIONS	DIP200_INST_DIPTRONIC_SOFTWARE_UPGRADE_INSTRUCTIONS_P7333.pub
7334	DIPTRONIC MEASURING SYSTEM MK1 & L.I.P.S. CPU REPLACEMENT INSTRUCTIONS	DIP200_INST_DIPTRONIC_CPU_REPLACEMENT_INSTRUCTIONS_P7334.pub
7335	DIPTRONIC MEASURING SYSTEM MK1 & L.I.P.S. SENSOR (AERIAL & POT) REPLACEMENT INSTRUCTIONS	DIP200_INST_DIPTRONIC_SENSOR_REPLACEMENT_INSTRUCTIONS_P7335.pub
7400	DIPTRONIC MEASURING SYSTEM MK1 & L.I.P.S. DipRecall MANUAL	DIP200_INST_DIPTRONIC_DIPRECALL_INSTRUCTIONS_P7400.pub



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## **NOTICE FOR USE IN CEN**

### **Instructions specific to hazardous area installations (reference European ATEX Directive 94/9/EC, Annex<sup>22</sup>, 1.0.6.)**

The following instructions apply to equipment covered by certificate numbers Sira 02ATEX3323X (DIP200) and Sira 02ATEX2322X (DIP100):

1. The equipment may be used in a hazardous area with flammable gases and vapours with apparatus group IIA and with temperature classes T1, T2, T3, and T4.
2. The apparatus is only certified for use in ambient temperatures in the range -20°C to +60°C and should not be used outside this range.
3. The certified numbers have an 'X' suffix that indicates that special conditions of certification apply. These conditions are; The DIP100 has an aluminium cover and precautions must be taken to reduce the risk of a frictional spark occurring. The DIP200 power must be supplied via a fuse that has a breaking capacity capable of clearing the maximum short circuit current of the truck battery.
4. Installation shall be carried out in accordance with the applicable code of practice by suitably trained personnel.
5. Repair of this equipment shall be carried out in accordance with the applicable code of practice.
6. Certification marking as detailed in DIP100 series drawing number P7278 & DIP200 series drawing number P7284.
7. If it is likely the equipment will come in contact with aggressive substances, then it is the responsibility of the user to take suitable precautions to prevent the equipment being adversely effected, ensuring the type of protection is not compromised.

Aggressive Substances: e.g. acidic liquids or gases that may attack metals or solvents that may effect polymeric materials. inspections or establishing from the materials data sheet that it is resistant to specific chemicals.



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