

Data recoding module XDL01 AND PW-DL

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1. GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.

1.2 SAFETY PRECAUTIONS

- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Dixell S.p.A." (see address) with a detailed description of the fault.
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION

The XDL01 is a temperature/status recording module connectable to Dixell instruments with serial output, TTL or RS485.

The temperature comes from a Dixell controller with TTL or RS485 output.

The module is composed by 2 controllers:

- XDL01: data recorder. It's supplied with a 1m cable for the connection to the PW-DL power adapter.
- PW-DL: power adapter- controller interface. It's supplied with the CAB/DL2 cable 2m for the connection to TTL output of Dixell controller.

The XDL01 is provided with USB output to download the data. The data are collected into a .txt file to be easily read with a standard spreadsheet program such as Excel®.

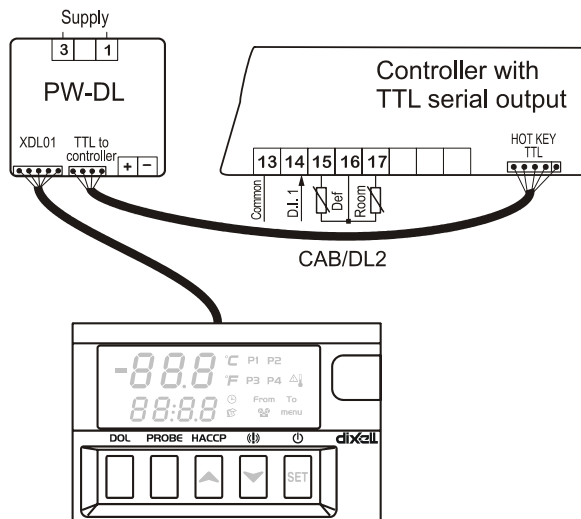
3. LIST COMPATIBLE CONTROLLERS AT 02/11/2008

Family	SW Release	SERIES
16	1.5	XW200L/K XW500L/K
16	2.0	XR100C/D, XR500C/D
16	2.2	XR100C/D, XR500C/D
16	4.5	XLR100 - COOLMATE
20	1.0	XR745C/XR775C XW700L
44	1.0	PRIME CX
44	1.1	WING BASIC K NEW
44	1.7	PRIME CX 3 DIGIT DISPLAY
44	1.8	WING BASIC L/LS NEW, PRIME WITH RTC

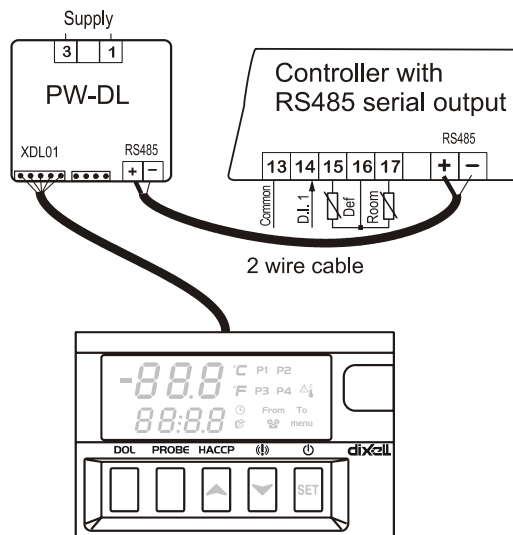
NOTE: If the controller, that has to be connected to the XDL01, is not present in this list, please contact the Service Dixell.

4. WIRING CONNECTION

4.1 CONNECTION TO CONTROLLER WITH TTL OUTPUT



4.2 CONNECTION TO CONTROLLER WITH RS485 OUTPUT



5. FIRST START UP

5.1 HOW TO SET THE RTC - TIME AND DATE

When the instrument is turned on, it's necessary to set the time and date. In this case the controller displays the "rtc" message. Push a key and then the following messages are displayed:

Upper Display	Hur
Lower Display	value (flashing)

1. Push the **UP** or **DOWN** keys to adjust the hour.
2. Push the **SET** to confirm the value.
3. Repeat the same operations for the next parameters:
 - a. **Min** (minutes)
 - b. **yEA** (year)
 - c. **Mon** (month)
 - d. **dAy** (day)

To exit: Push SET+UP keys or wait for 15 secs without pushing any keys.

5.2 HOW TO SEARCH AND RECOGNISED THE CONTROLLER CONNECTED TO THE XDL01

After connecting the XDL01 to a controller, it's necessary to recognise controller connected..

To do this, act the following procedure:

1. Hold pushed the **SET + UP** keys for about 3s till the display shows the "Src" flashing message.
2. The XDL01 starts searching the controller connected to, at the end the following message is displayed:

Upper display	End
Bottom display	Value of the ADr parameter of the controller

3. Push a key: the first probe of the controller connected to is displayed.

NOTE1: If the "dLL" flashing message is displayed, the libraries of the controller connected, are not present in the XDL01. Please contact the Dixell Service Support to get them.

NOT"2: The "Adr" flashing message is displayed when the XDL01 is not able to communicate with the controller connected to.

In this case:

- Verify the connection, as described in par. 4, "WIRING CONNECTION", and the cable CAB/DL2 if used.
- Start a new search as described above.

If the message "Adr" is displayed again, the serial output of the controller or the XDL01 could be damaged. In this case contact the Dixell Service Support.

5.3 HOW TO DO THE MAIN SETTINGS: RECORDING INTERVAL, MEASUREMENT UNIT, RESOLUTION

When the controller connected to the XDL01 is recognised, the XDL01 shows the temperature detected by the controller. If the temperature displayed by XDL01 is different from temperature of the controller please look at the following table:

Kind of difference	What to do
The measurement unit of the XDL01 is different from the measurement unit set on the controller	Enter the programming mode of XDL01, select the CF parameter, set it according to the measurement unit used: °C = Celsius °F = Fahrenheit
The temperature is divided by 10	Enter the programming mode of XDL01 and set rES = in
The temperature is multiplied by 10	Enter the programming mode of XDL01 and set rES = dE

6. FRONT PANEL COMMANDS



- SET** - In programming mode it selects a parameter or confirm an operation. To start and stop recording, if the parameter rdb = y..
- (UP): To see the **data** recorded. In programming mode it browses the parameter codes or increases the displayed value.
- (DOWN) To see the **alarms** recorded. In programming mode it browses the parameter codes or decreases the displayed value.

DOL To download the data to the USB pen drive.

PROBE To select the probe to see the data

KEY COMBINATIONS

- SET** + To enter in programming mode.
- SET** + To return to the room temperature display
To start the recognition of the controller connected to the XDL01

6.1 USE OF LEDS

LED	FUNCTION
P1	Probe 1
P2	Probe 2
P3	Probe 3
P4	Probe 4
	Clock symbol
	Data symbol
	XDL01 is recording
Menu	To signal the access to the "Function Menu"
From	Start date
To	End date
	An alarm is happening

LED	FUNCTION
°C	Celsius
°F	Fahrenheit

7. MAIN FUNCTIONS

7.1 HOW TO START/STOP REGISTRATION

XDL01 is supplied with the logging operating.

To enabled the manual Start/Stop of the registration:

- Enter the programming mode.
- Set the parameter "rcb = y": manual start of registration enabled
- Exit from programming.

To start/stop the registration hold the SET key pushed for 3s.

When the XDL01 is recording the icon is lighted..

7.2 TO SET TIME AND DATE DURING THE NORMAL OPERATING

- Enter the programming menu
- Select the parameters related to time and date and set them.

8. PROGRAMMING MENU

8.1 TO ENTER IN PARAMETERS LIST "PR1"

To enter the parameter list "Pr1" (user accessible parameters) operate as follows:

- Enter the Programming mode by pressing the SET + for few seconds. (°C or °F start flashing)
- The instrument will show the first parameter present in "Pr1" and its value

8.2 TO ENTER IN PARAMETERS LIST "PR2"

To access parameters in "Pr2":

- Enter the "Pr1" level.
- Browse the menu till "Pr2" parameter is shown on the upper display, while the lower display shows "- - -" and press the "SET" key.
- Shortly the message "0 - -" with a flashing zero is displayed.
- Use or to input the security code in the flashing digit; confirm the figure by pressing "SET".

The security code is "321".

- If the security code is correct the access to "Pr2" is enabled by pressing "SET" on the last digit.

EXIT: Push the SET+UP keys or wait 15s.

NOTE: each parameter in "Pr2" can be removed or put into "Pr1" (user level) by pressing SET + . When a parameter is present in "Pr1" the decimal point of the upper display is on.

8.3 TO CHANGE PARAMETER VALUES

- Enter the Programming mode.
- Select the required parameter with or .
- Press the "SET" key to change its value
- Use or to change its value.
- Press "SET" to store the new value and move to the following parameter.

To exit: Press SET + UP or wait 15s without pressing a key.

NOTE: the new programming is stored even when the procedure is exited by waiting the time-out to expire.

9. PARAMETERS

- Adr** Serial address (0÷247): it has to be set with the same value of the Adr parameter of the controller.
- itP** Recording interval (1÷255min)
- rC1** First probe recording enable
y = recording enabled; n = recording disabled
- rC2** Second probe recording enable
y = recording enabled; n = recording disabled
- rC3** Third probe recording enable
y = recording enabled; n = recording disabled
- rC4** Fourth probe recording enable
y = recording enabled; n = recording disabled
- rCb** Start recording SET key enabling
y = by the SET key is possible to start/stop recording.
n = recording is always enabled
- Hur** Hour (1÷24h)
- Min** Minutes (0÷60min)
- dAy** Day (1÷31)
- Mon** Month (1÷12)
- yEA** Year (0÷99)
- EU** Date format
EU = European: dd/mm/yyyy
US = USA: mm/dd/yyyy
- Lod** Upper display visualization
P1 = probe 1
P2 = probe 2
P3 = probe 3

- rEd** P4 =probe 4
Lower display default visualization
P1 = probe 1
P2 = probe 2
P3 = probe 3
P4 =probe 4
tiM = hour: minute
- rSd** Data erase (no+y)
- rSA** Alarms erase (no+y)
- rEL** SW Release redeable only
- Ptb** Parameter map code redeable only

10. DATA

10.1 HOW TO SELECT WHICH THE HAS TO BE SHOWN ON THE DISPLAY

Push in succession the "PROBE" button to choose which probe has to be displayed: P1 → P2 → P3→ P4→ P1.

10.2 DATA VISUALISATION

1. Push and release the **UP** key (**HACCP**)
2. The P1 or P2 or P3 or P4 is lighted (it depends on which probe has been selected previously);

Upper Display	The last temperature recorded
Lower Display	hh:mm of the last temp. recorded
Icons	CLOCK

3. Push the **DOWN** key

Upper Display	The last temperature recorded
Lower Display	mm.dd of the last temp. recorded
Icons	CALENDAR

4. To browse the recorded temperatures use the **DOWN** key, the format is hh:mm and mm.dd. The temperatures are displayed from the newest to the oldest.
5. To see another probe, push the "Probe" key.


Exit:
Don't push any keys for 30s or push the **SET+UP** key.

10.3 TO ERASE THE DATA RECORDED

1. Enter Programming mode.
2. Select the "rSd" parameter
3. Set it to "y"
4. Confirm by the **SET** key to erase the recorded data.

11. ALARMS

11.1 TO SEE THE ALARMS RECORDED

1. Push **DOWN**  key.
2. On the **upper display** the last alarm happened with its number is shown.
3. On the **lower display** the kind of alarm s shown with the following codes:
 - **HA1**: high temperature alarm probe 1
 - **LA1**: low temperature alarm probe 1
 - **HA2**: high temperature alarm probe 2
 - **LA2**: low temperature alarm probe 2
 - **HA3**: high temperature alarm probe 3
 - **LA3**: low temperature alarm probe 3
 - **HA4**: high temperature alarm probe 4
 - **LA4**: low temperature alarm probe 4
 - **EA1**: external alarm digital input 1
 - **EA2**: external alarm digital input 2
 - **EA3**: external alarm digital input 3
 - **EA4**: external alarm digital input 4
 - **noL**: no link.
4. By pushing again the **UP** key the other alarm codes are displayed from the newest to the oldest.
5. To see an alarm happened and its duration push the **SET** key.
6. The starting time e date of the alarm are showed alternatively, and the **Clock** and **Date** icons are turned on, together with the "from" message.
7. Pushing again the **▲** key: the end time and date of the alarm are showed together with the "to" message.
8. To come back to the alarm list push the **UP** key..

To exit:
Don't push any keys for 30s or push the **SET+UP** key.

11.2 TO ERASE THE ALARM RECORDED

1. Enter Programming mode.
2. Select the "rSA" parameter
3. Set it to "y"
4. Confirm by the **SET** key to erase the alarms recorded .

12. HOW TO DOWNLOAD THE DATA TO AN USB PEN DRIVE

1. Insert the USB pen drive.
2. Push the "doL" key
3. The controller starts sending data to the pen drive, while the "doL" message is displayed on the upper display, while the bottom display shows the percentage of the download, from 0 to 100%.
IMPORTANT: during the download don't remove the USB pen drive: this action could damage the data files and USB pen drive itself.
4. The "End" flashing message is displayed if the download has been successful. This visualization lasts for 15s or till a key is pushed..
5. Take away the key.
6. The "Err" message is displayed if the download has failed. This visualization lasts for 15s or till a key is pushed

12.1 DATA STRUCTURE

DATE	PB1 C	PB2 C	PB3 C	PB4 C	STATE
19/05/2008 11.34	25.4	25.8	---	---	ON/C
19/05/2008 11.35	25.4	25.8	---	---	ON/C
19/05/2008 11.36	25.4	25.8	---	---	ON/C

Where
DATE: recording date and time
PB1C, PB2 C, PB3 C, PB4 C = Value of probe 1, 2, 3, 4 if present and operating. With probe failure or absence: " - - - " symbol is displayed
STATE: status of the controller
 - **ON**: operating;
 - **OFF**: in stand by mode,
 - **NOL**: communication problems between XDL01 module and controller;
 - **D** = defrost running
 - **C**: compressor working

12.2 ALARM FILE STRUCTURE

DESCRIPTION	LABEL	PB	START	STOP
High temperature	HA1	ST1	19/05/08 16.34	19/05/08 16.44
No link	NoI	---	19/05/08 16.53	19/05/08 16.57
No link	NoI	---	19/05/08 15.52	19/05/08 15.59
High temperature	HA1	ST1	19/05/08 16.22	19/05/08 16.27
High temperature	HA1	ST1	19/05/08 16.31	19/05/08 16.33

13. ELECTRICAL CONNECTIONS

The XDL01 is provided with a 1m cable for the connection to the PWDL. The PWDL is provided with screw terminal block to connect cables with a cross section up to 2,5 mm². Before connecting cables make sure the power supply complies with the instrument's requirements. Separate the signal cables from the power supply cables, from the outputs and the power connections

14. ALARM SIGNALLING

Mess.	Cause
"P1"	Probe 1 failure
"P2"	Probe 2 failure
"P3"	Probe 3 failure
"P4"	Probe 4 failure
"HA1"	Allarme di alta temper. probe 1
"LA1"	Allarme bassa temper. probe 1
"HA2"	Allarme di alta temper. probe 2
"LA2"	Allarme bassa temper. probe 2
"HA3"	Allarme di alta temper. probe 3
"LA3"	Allarme bassa temper. probe 3
"HA4"	Allarme di alta temper. probe 4
"LA4"	Allarme bassa temper. probe 4
"EA1"	External alarm from digital input 1
"EA2"	External alarm from digital input 2
"EA3"	External alarm from digital input 3
"EA4"	External alarm from digital input 4
Adr	The controller and the XDL01 are not able to communicate
noL	Communication interruption with the controller connected to the XDL01
dLL	Library not available on the XDL01
End	Data files created
Err	Problem during the file download to the USB pen drive

15. TECHNICAL DATA

15.1 XDL01

Housing: 70x45mm
Dual display with 17 icons
TTL port for data recording
Input for supply
USB port for data download
Internal real time clock with rechargeable battery
Clock battery back up: 48h

Pollution grade: 2

Data storing: on the non-volatile memory (EEPROM).

Operating temperature: 0÷60 °C.

Storage temperature: -25÷60 °C.

Relative humidity: 20÷85% (no condensing)

15.2 PW-DL

Power supply: 230Vac (opt.110Vac), ±10%

4 Pins terminal blocks: for TTL connection

2 vie screw terminal blocks: for RS485 connection

Built inTTL/485 converter

TTL output for XDL01

16. PARAMETERS

Nome	Description	Range	Value	Level
Adr	Serial address	0÷247	1	Pr1
itP	Recording interval	10÷255min	16min	Pr2
rC1	First probe recording enable	y÷n	y	Pr2
rC2	Second probe recording enable	y÷n	y	Pr2
rC3	Third probe recording enable	y÷n	n	Pr2
rC4	Fourth probe recording enable	y÷n	n	Pr2
rCb	Start recording key enabling	y÷n	n	Pr2
Hur	Hour	1÷24h	-	Pr1
Min	Minutes	0÷60min	-	Pr1
dAy	Day	1÷31	-	Pr1
Mon	Month	1÷12	-	Pr1
yEA	Year	0÷99	-	Pr1
EU	Date format (European or USA)	EU, US	EU	Pr2
Lod	Upper display visualization	P1 = probe 1; P2 = probe 2; P3 = probe 3; P4 =probe 4	P1	Pr2
rEd	Lower display visualization	P1 = probe 1; P2 = probe 2; P3 = probe 3; P4 =probe 4; tiM = hour: minute	tiM	Pr1
rSd	Data erase	no÷y	no	Pr2
rSA	Alarms erase	no÷y	no	Pr1
rEL	Software release	-	-	Pr2
Ptb	Map code	-	-	Pr2