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64 CH Data Logger

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1. Introduction

This user manual has been meticulously crafted to provide you with comprehensive guidance on the installation, operation, and maintenance of your 64-channel data logger. As the name implies, it's a 64 channel, 32 bit data logger with a 800*480 pixels, 7 inch color touch screen .

1.1. Purpose of this Manual

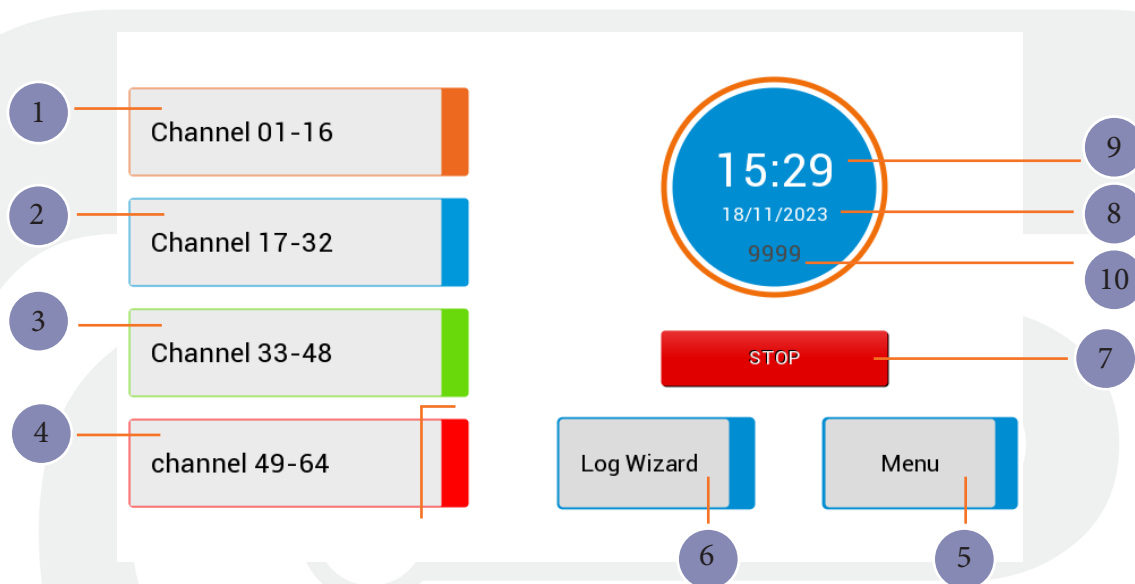
This user manual is your go-to resource for understanding and utilizing the full potential of your 64-channel data logger. Whether you are a seasoned professional or a first-time user, this guide is structured to provide step-by-step instructions, troubleshooting tips, and essential information to make your experience with our product smooth and successful.

2. Display

The device features a touch screen LCD with graphical screen size of 800*480. The brightness and contrast can be adjusted for best visibility.

3. Home Screen

When the 64 CH Data Logger is turned on, you will see the following home



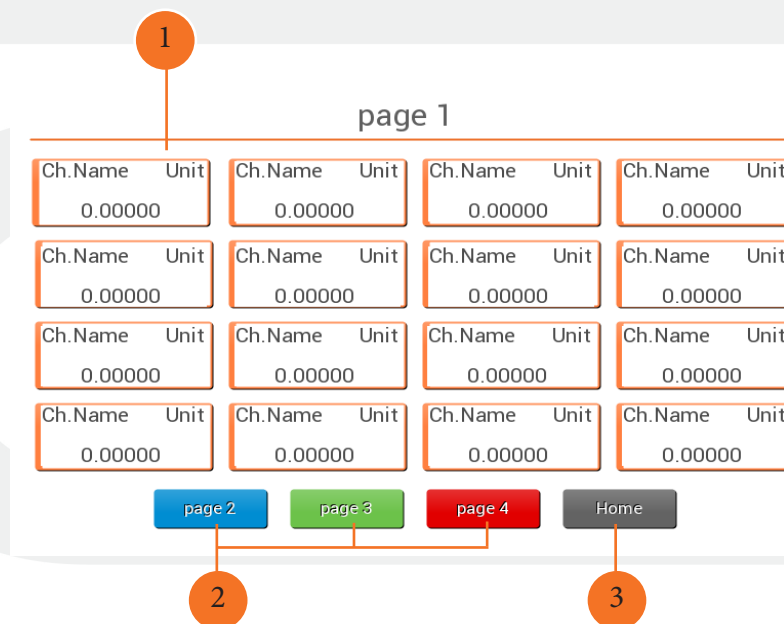
- 1 The input data from channel 1 to channel 16. Look at section 4
- 2 The input data from channel 17 to channel 32. Look at section 4
- 3 The input data from channel 33 to channel 48. Look at section 4
- 4 The input data from channel 49 to channel 64. Look at section 4
- 5 The menu screen will show, by selecting [Menu]. See section 5
- 6 You can start a new log process by choosing Log Wizard.

- 7 Stop the logging.*
- 8 Date.
- 9 Time.
- 10 The number of saved logs before stop.*

*: This options can be seen during a logging flow.

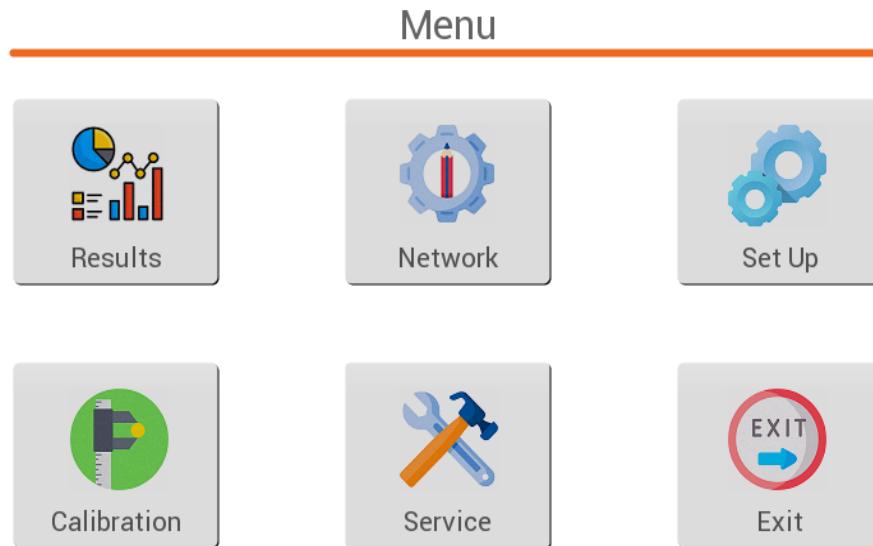
4. Channel menu

By pressing each channel group in home page, the following screen will be shown:



- 1 Each box refers to one channel details such as: Channel name, unit, value. each page contains 16 channel.
- 2 You can move between channel groups with these buttons. The colors show a specific group.
- 3 Back to home page.

5. Menu



- 1 Result: This menu dose not work in this application.
- 2 Network: The network setting.
- 3 set up: To set Date, Time, Brightness and the tone of the system notifications
- 4 calibration: To calibrate each channel of the device.
- 5 service: It is just for support service from the producer company.

5.1. Calibration

By choosing Calibration from **Home page > Menu**, you will see the screen below:

The screenshot shows the 'CH. Calibration' interface. It features a form with the following fields and controls:

- Channel:** A text input field containing '02' (callout 1).
- CH. Name:** A text input field containing 'CH. name' (callout 2).
- Unit:** A text input field containing 'KN' (callout 3).
- Decimal point:** A text input field containing '2' (callout 4).
- Filter:** A text input field containing '5' (callout 5).
- High Limit:** A text input field containing '100' (callout 6).
- Low Limit:** A text input field containing '-50' (callout 6).
- Alarm:** Two radio buttons labeled 'Low' and 'High' (callout 6).
- Gain:** A slider control (callout 7).
- Buttons:** A grid of blue buttons: 'Table', 'Strain Gauge', 'Equation', 'RTD', 'mV/V', 'K Type', '4~20 mA', and 'T Type' (callout 8).
- Bottom Buttons:** 'Save' (orange) and 'Exit' (grey) buttons (callout 9).

- 1 Choose the channel number you want to calibrate.
- 2 set the channel name.
- 3 The unit of the input channel can be set here.
- 4 Decimal point value should be entered here.
- 5 To reduce the fluctuation of data, you can apply filter to the readings. Higher value for filter causes less fluctuation but slower response, which is a good choice for unstable readings with slow changes and lower value for filter causes faster response.
- 6 Define the maximum and the minimum value for your sensor so the device displays visual alarm, when maximum or minimum values reached.

- 7 set a gain to amplify the input signal. Note that by changing the gain value, user has to recalibrate the input channel.
- 8 choose the calibration method.
- 9 save changes with save button and go for other channels.

5.1.1. Equ.

For nonlinear sensor or for better accuracy, user can calculate the calibration polynomial formula (up to power 3) manually and enter the coefficient of equation here.

Equation

a(0) :	<input type="text" value="+0.000000"/>	<input type="text" value="245.78 mV"/>
a(1) :	<input type="text" value="+0.000000"/>	
a(2) :	<input type="text" value="+0.000000"/>	<input type="text" value="27.524 C"/>
a(3) :	<input type="text" value="+0.000000"/>	

$f(x)=a(0)+a(1)x+a(2)x^2+a(3)x^3$

5.1.2. mV/V.

In this case you should have sensor's sensitivity in mV/V, which can be found in sensor datasheet. Enter the excitation voltage, sensor's maximum range and sensitivity in mV/V to calculate the coefficients.

mV/V

Sensitivity	<input type="text" value="+0.000000"/>	mV/V	
Capacity	<input type="text" value="+0.000000"/>	KN	
Excitation	<input type="text" value="+0.000000"/>	V	
Coefficient	<input type="text" value="+0.000000"/>		

Excitation voltage depends on sensor type and socket wiring, typically 10 V for load cells.

5.1.3. 4~20 mA

For sensors with 4...20 mA output you can use this option. Enter the input resistor (10Ω is default value if you use the internal resistor) and the sensor's maximum and minimum range to calculate the coefficient and offset automatically.

4 ~20 mA

Full Scale:	<input type="text" value="+100.00"/>	Bar	
Zero Scale:	<input type="text" value="+0.000000"/>	Bar	245.78 mV
Resistor:	<input type="text" value="+10.000000"/>	Ohm	27.524 C
Offset:	<input type="text" value="+0.000000"/>		
Coefficient:	<input type="text" value="+1.000000"/>		

5.1.4. Strain Gauge

If you mount the strain gauge in full bridge mode, it will connect to the data logger directly, but if you mount in half bridge or quarter bridge mode, you should use an external bridge box.

Strain Gauge

V(ex)	<input type="text" value="+0.000000"/>		245.78 mV
GF	<input type="text" value="+0.000000"/>		
Bridge type :			27.524 C
Full : 1			
Half : 1/2			
Quarter : 1/4			
<input style="background-color: #0070C0; color: white; padding: 5px 15px; border: none;" type="button" value="Save"/>		<input style="background-color: #666; color: white; padding: 5px 15px; border: none;" type="button" value="Back"/>	

V(ex): Input voltage

Gauge factor (typicaly = 2)

5.1.5. RTD

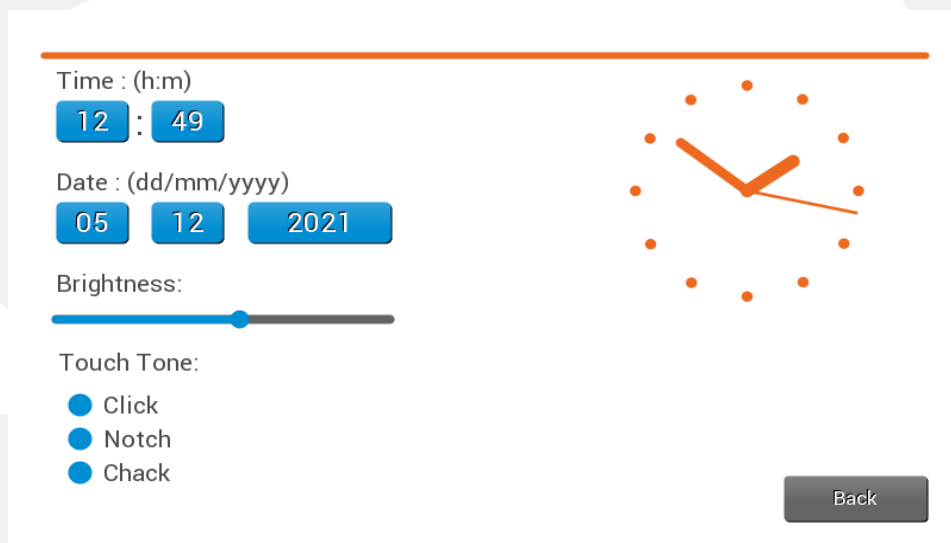
RTD Temperature Sensor

PT Type:	<input type="text" value="+0.000000"/>	(100,1000)	245.78 mV
Sensitivity:	<input type="text" value="+0.000000"/>	Ohm/Deg	
R(Series):	<input type="text" value="+0.000000"/>	Ohm	27.524 C
<input style="background-color: #0070C0; color: white; padding: 5px 15px; border: none;" type="button" value="Save"/>		<input style="background-color: #666; color: white; padding: 5px 15px; border: none;" type="button" value="Back"/>	

In this calibration method, the typical value of PT, Sensitivity, and R (Series), in order, are 100, 0.384 ohm/deg and 1000 ohm.

5.2. Set up

To set the time, date, brightness and the touch tone you can go through **Homepage > Menu > Set up.**



5.3. Network Setting

Network Settings

1	IP address :	192	168	88	49
	Subnet mask :	255	255	255	0
	Getway address :	192	168	88	1
2	Unicast	<input type="checkbox"/> off			
	Client IP :	192	168	88	10
3	Port :	4001			
		Save		Exit	
				4	

- 1 The device IP adres, subnet mask and the getway adres of the device.
- 2 By enableing the unicast mode, user has to enter the client IP and the data logger will be able to communicate with that spesific client pc. However when unicast mode is disabled (broadcast mode enable), all the client pcs on the local network will be able to communicate with DL64 at the same time.
- 3 The port number
- 4 Save changes.

4.3. Log Wizard

To start a new logging process, you should click on this button and the following screen will be shown:

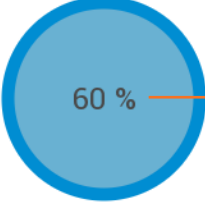
Log Wizard

1 File Name

2 Interval (s)

3 Total sample

4 Sampling mode
 Normal Fast

5 

Total Space: 15.461 MB
Free Space: 15.253 MB

6

- 1 Enter a file name to save the logged data. (The time will be set as file name if you dont change it.)
- 2 Interval time can be set here.
- 3 Total samples to be logged. Logging process will stop if the logged samples reach this number. Logging process continue until manually stop, if user enters 0 in total sample filed.
- 4 Sampling mode:
 - Normal:** in this mode, the maximum sample rate will be 50 Hz, so minimum value for interval time is 0.2 second.
 - Fast:** in fast mode, the interval value will be ignored and the sampling rate will be 100 samples per second. (0.1 second)
- 5 free disk space indicator.
- 6 click on start button to start the logging process.

Note: As data will be logged on external flash memory, the start button will be disabled if no flash memory is connected. Also, the flash memory should be FAT 32, maximum 32GB and should not contain any file names with any character except standard English alphabet

