USER MANUAL

MULTI COLOR

TOUCH SCREEN PAPERLESS RECORDER

DQDL-96Series

DIGIQUAL SYSTEMS

No:144, Easwaran Koil Street, Ramakrishna Avenue, Madipakkam,Chennai – 91.
Contact: 044-22582122/2314. Mobile : 9677299582
Email : digiqual@rediffmail.com / karthik@digiqualsystems.com.
Website: www.digiqualsystems.com

- Digiqual -

WHEN YOU RECEIVE THIS INSTRUMENT...

Thank you for purchasing the **DIGIQUAL SYSTEMS, DQDL-96 MULTI COLOR TOUCH SCREEN PAPERLESS RECORDER.** Please read the instruction manual carefully and use the instrument correctly.

DIGIQUAL SYSTEMS assumes no liability to any party for any loss or damage, direct or indirect, caused by the use or any unpredictable defect of the product.
Cleaning of the front panel should be limited to wiping lightly with a dry cloth.

Check that all of the following items are present.

- Paperless Recorder Range
- Input Type
- Output indication
- Communication interface
- A pair of mounting bracket
- Operating Voltage
- Serial link cable between Recorder& PC Output.
- PEN DRIVE use after antivirus scanning

INSTALLATION

Installation Location

Install the control panel in a location that meets the following criteria.

(1) Little or no mechanical vibration.
(2) No corrosive gases.
(3) Minimal temperature fluctuations and near normal temperature.
(4) Not directly subject to radiant heat.
(5) Not subject to strong electromagnetic field.
(6) No direct exposure to water.

WIRING

Wiring precautions

While wiring take the following precautions.

(1) Field wiring to the instrument, should be placed so as to avoid blocking the air flow, yet Provide a suitable service loop to allow easy removal of unit with wiring attached.
(2) Wires should be tied to maintain an order in the event they must be disconnected for Any reason.
(3) For connecting the wire to the terminals, we recommend use of crimp terminal lugs with Insulated sleeves.
(4) Route the input circuit wiring away as possible from the power and ground circuits to avoid Noise pickup.
(5) Use proper-shielded wire to avoid electromagnetic interference.

SPECIFICATION OF TOUCH SCREEN PROCESS DATA LOGGER :

General

Input Resolution: 0.1% of full scale.
Input Channels: 8 or 16 channel direct universal input.
Measurement Rate: 4 channels per second on all direct input channels
Internal Temperature Reference : 0 to 60 °C

Analog Inputs

DC Voltage: 0-5 VDC with accuracy 0.1%.
DC Current: 4-20mA, 0-20mA ,Accuracy: +/-0.1% with built in shunt.

Thermocouple

Resolution: 1° C or optional 0.1 °C
Reference junction compensation: Yes

Type	Range (°C)	Accuracy (°C)
J	-200 to -100°C	+/-2.5 °C
	-100 to 1200 °C	+/- 1.5 °C
K	-270 to -100 °C	+/- 2.5 °C
	-100 to 1372 °C	+/- 1.5 °C
T	-270 to -100 °C	+/- 2.5 °C
	-100 to 400 °C	+/- 1.5 °C
E	-270 to -100 °C	+/- 2.5 °C
	-100 to 1000 °C	+/- 1.5 °C
N	-270 to -100 °C	+/- 2.5 °C
	-100 to 1300 °C	+/- 1.5 °C
S	-50 to 1768 °C	+/- 3 °C
B	0 to 1820 °C	+/- 4 °C

RTD

Base Accuracy : 0.5 °C (1 °F).Resolution: 0.1 °C 2 or 3 wire connection. Cable compensation to +50 ohm. Open and short circuit detection.

Type	Range °C	Accuracy (°C)
100 ohm Pt. 385	-200 to 400 °C	+/- 0.5 °C
1000 ohms	0 to 50 °C	+/- 0.2 °C (optional Fixed Input only)

Recording

Recording Rates: User programmable from 1 sample per second to 1 sample every 10 hours

Data Format: .Txt file; can be easily open able by variety of softwares. Data Storage Capacity:512 kb internal memory and this data can be Easily moved to memory stick connected to USB Port.

Data Scaling and statistics : By PC Software

Communication Specification

Communication Output : RS 232 (or) RS 485 (or) USB (or) Ethernet (TCP/IP) Optional

Advanced communication function provides high accuracy and stable multi-channel analog data sampling function to host computer. Also provides direct communication port to dot matrix printer and USB 2.0 pen drive option in the front panel of the Paperless Recorder.

GPRS with SMS and Mail : Optional

SMS : 5 Mobile Numbers with Low & High Alarm SMS After 30 minutes
Email : 3 mail ID with Manual/ Auto mail Every day 12 AM Time Duration 1 hour per data

Power

Requirements: 100 to 240 VAC, 50/60Hz. 20 VA max. Optional 24 VDC

Power Fail Protection

Programmed parameters stored in non-volatile memory. Clock battery backed. Clock battery to be replaced once in 5Years, one 3V Lithium cell easily replaceable.
Transmitter Power supply Output: Optional isolated 24Vdc@120mA output

Input / Output

Relay Output : 2 relay outputs, (normally open, Close & pole contacts) rated at 30 VDC @ 0.5A or 230Vac @ 5Amp Max.Additional relay outputs (optional) : 12 Relay card; separate DIN rail Mounting Card interfaced with RS-232 or RS-485 interface with this unit

Memory specification

Internal memory: 20,000 Reading per channel.

The data logger consists of internal memory storage capacity of above specified range provides a wide range of application in data storage for all channels individually

Recording data on storage media

Using the Setup menu, the user can log the data in internal memory. If this memory is full the logged data can be transferred to external storage media connected on USB Port.

Record rate	8 channel	16 channel
1 Sec	9 Hrs	4.5 Hrs
10 Sec	90Hrs	45 Hrs
1 min	540 Hrs	270 Hrs
10 min	5400 Hrs	2700 Hrs

The above table shows the number of maximum readings can be stored internal memory by changing record time After the above prescribed time the data must be transferred to USB storage media so as internal memory get free to store the new readings .

Display

Type: Color Active Matrix TFT Liquid Crystal Display
Size: 3.5 inch diagonal, Resolution: 320 (W) x 240 (H) pixels Interface: Resistive analog touch screen control
Display Modes: Graphic trending (horizontal), Bar Graphs(Vertical) Digital Readout (Single or multi-channel), Alarms and event log settable. Historical trends: In PC Software.
Display Windows: Time/Date, Graphics (bars, large digital, graph) Disk Status, System Status, Menu Button Bar, Alarms/ events

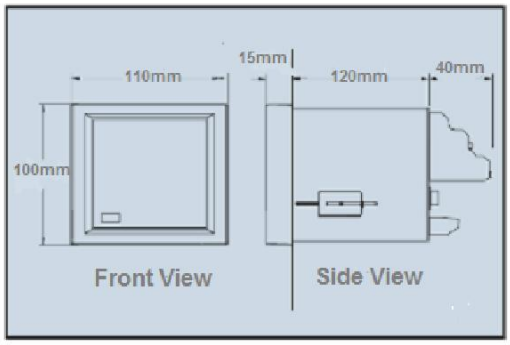
PC Based Software

External PC software the user is able to manipulate the graph to make it easy to see interaction between recorded channels, or change the Color schemes, expand, compress, zoom and print. The same analysis tool used for multi-channel graph and used to scroll through data

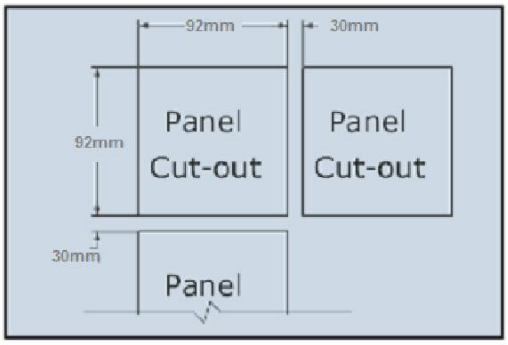
Optional : FDA Title 21 CFR Part 11 Compliant Software & Web Server Based Software

Safety and Environmental

Operating Range: 0 °C to 60 °C, 10% to 90% RH non-condensing
Dimension: Bezel dimension -110(W) x 100(H) x 15mm above panel.
Unit dimension : 110 x 100 x 150 mm depth.
Panel Cut out : 92 x 92 mm
Protection : IP65 for front bezel when mounted in panel.
Safety : Meets the requirements of EN61010-1 when installed in accordance with the instructions in the Manual.
UL and c UL : Pending
EMC : Meets the requirements of EN61326 and CE directive 89/336/EEC & EN12830
Weight : Approximately 1.5 kg



Recorder Dimensions



Panel Cut out

OPERATING PARAMETER SETTING

Switch **ON** the device, the following display will show the channel readings. It will take a few seconds.

CONFIGURATION SETTING

Click **CONFIG** in the display, Enter the password to progress into the Setting Screen.

After entering the password, the setting screen will be displayed as shown below

TIME & DATE SETTINGS

In Setting -> SET Real Time Clock, Set the real time & date details. Click **OK** to save the settings.

LOG TIME SETTINGS

In Setting -> SET Log Time, Set the Log Time Of The Logger. Click Ok to save the settings.

CHANNEL PARAMETER SETTINGS

In Setting -> SET Channel Parameters, Select the Alarm Range, Offset, Decimal, Sensor and Channels.

ALARM :

Set the alarm range from the specified values.
Low : -999
High : 9999

RANGE :

Set the range with respect to the Sensor type specification.(REF PAGE NO:3)

OFFSET :

Set the offset range from -999 to 999, Default set “0”

DECIMAL :

Set the decimal point from 0 to 3 for Linear Inputs only

ALARM INDICATION STATUS

Once the alarm is “ON” the acknowledgement (ACK) shows in SCAN Key

Alarm Status	Display Color
Normal	: BLACK
High	: RED
Low	: BLUE

PASSWORD SETTINGS

In Setting -> Click SET Password, this feature is used to change password of the user.

COPY MEMORY :

Insert an USB 2.0 drive in the front panel of the Logger.

In Setting -> Click COPY Memory, this feature is used to copy the Logger memory in to the Pen Drive.

If USB 2.0 drive is not inserted in the drive, an error screen, PEN DRIVE PROBLEM!!! Will be displayed.

ERASE :

To clear the entire data from the Logger memory permanently,

In Setting -> ERASE ALL!!

PRINT MEMORY :

Insert an Ink jet printer through the PRINTER PORT provided in the back panel of Logger. In Setting -> Click PRINT Memory, the entire memory will be printed.

SCAN :

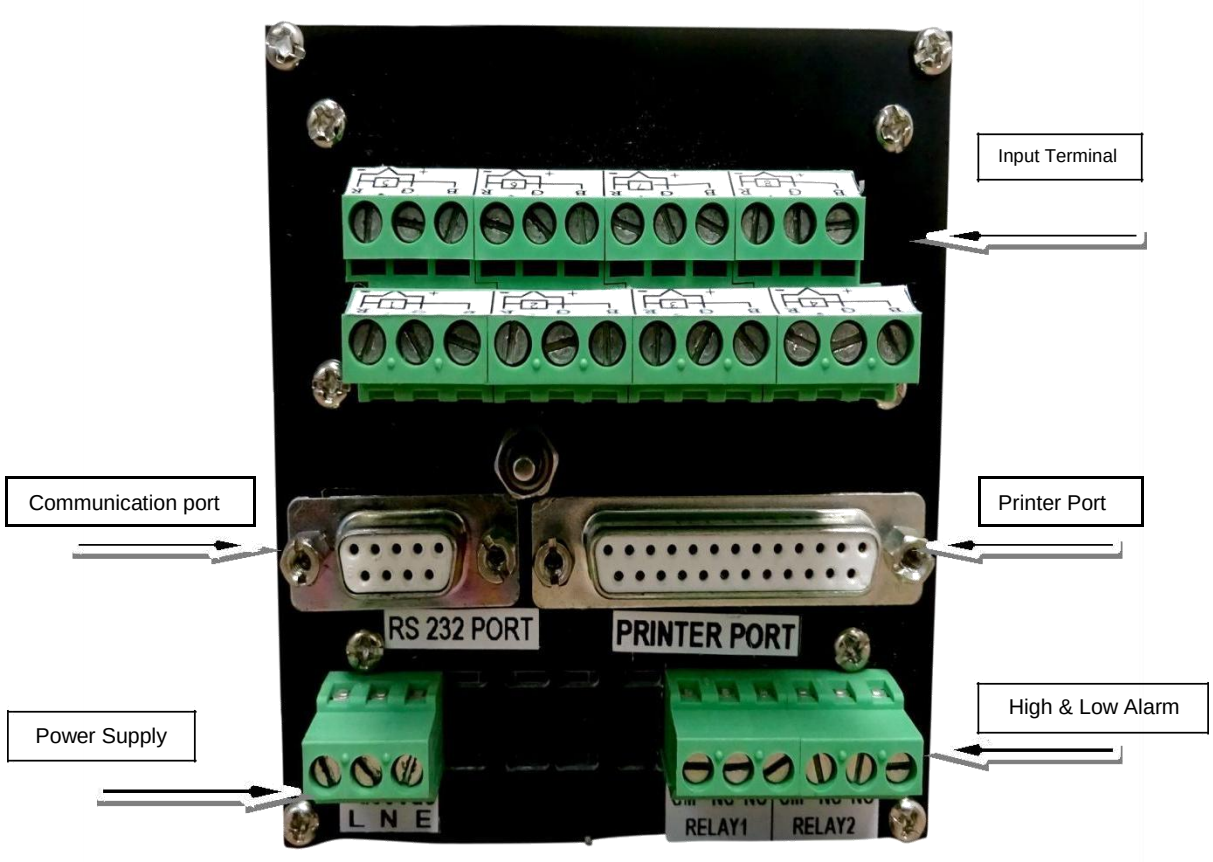
After completing all the Settings, Click HOME icon in the Setting screen.

Click SCAN icon, to display the channel readings individually.

ID NUMBER :

In Setting -> ID NUMBER SETTING for Multi Logger Software

TERMINAL DETAILS:



DATA LOGGING OFF

Logging Off The Data Logger, Click HOME icon in the Setting screen
In Setting ->DATA LOGGING OFF

MAINTENANCE

Basic troubleshooting procedure

The following questions should be asked & appropriate action is to be taken to the negative answers. All major corrective action can be accomplished by replacing the basic unit. No special tools are Required except screwdriver & multi meter.

1) When you switching ON the unit check whether the display is showing anything? If yes then go For step 2. If no check for the power input connections, check whether the unit is getting proper supply at proper terminals. Connecting the supply to the wrong terminals may damage the unit permanently.

2) Check the display whether it shows the actual value properly. If yes follow step 3,if no check the sensor Input; check whether the sensor or input is connected at proper terminals in proper way (+ve & -ve polarity). If sensor is open or not connected then “999.9" will appear on display.

3) After connecting the sensor if the actual value shown is not proper then check the calibration is Correct according to the calibration constant table.

In case if fault developed other than the above mentioned,

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