Compact Portable Data Logger

RDXL120 Series

1 YEAR WARRANTY

- All Channel Adopt Universal Insulated Input
- Easy-to-Read Screen Display
- Data Can Be Saved at Max Speed of 100 ms
- Acquire Large Amounts of Data
- Set Temperature and Voltage Independently for Each Channel
- Easy-to-Read Wide View TFT LCD (Even Outdoors)
- Measures Temperature Changes Reliably
- Employs Compact Flash and SD Cards
- USB Memory Enables Support For a Data Copy Function
- Supports Remote Data Acquisition

RDXL121-D

The channels in the analog input part adopt insulated inputs, which means that temperature (thermocouple/resistance temperature detector) and voltage can be set differently for each channel. Eleven types of thermocouples, Pt100 and JPt100 temperature-measuring resistors, and a voltage up to 50V range are supported.

The analog inputs are wired from the left, while the power and communication lines are wired from the right. This design makes the RDXL120 a suitable option in a narrow space.

Wiring is easy, since the terminal block can be removed easily with a single action. The accessory lithium ion battery enables up to 7 hours of operation (typical). Resistance to impact is improved by the use of a rubber boot, which is removable.

Application Software

Datum-LOGGER software allows you to connect up to ten units to analyze and process data after you perform real-time measurement and acquire data with a PC.

Features:

- Real-time measurement at the maximum speed of 1 second
- Zooming to analyze acquired data in the waveform view
- A variety of data saving functions available (selective and partial saving)

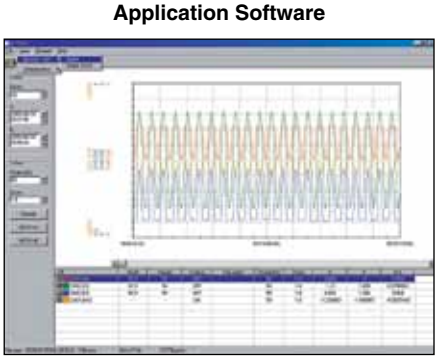
Standard Supplied Software

D-TOOL software allows you to show data in waveforms and perform CSV conversion.

Main Function:

- Waveform display of measured binary data
- Enlarged view of waveforms along X/Y-axes

Application Software



Standard Supplied Software

- Display of respective data taken at two points (measured value, measurement time) and the result of inter-channel calculation (B - A)

- Copy function (clipboard copy)
- Conversion to CSV for storage (skipping, saving of data between cursors)
- File division
- Settings and creation of setting files
- Windows® 2000, Windows 7 (32 bit/64 bit), Vista (32 bit), Windows XP supported environment

Specifications

Real-Time Measurement Data Acquisition Functions:
Communication Interface: Ethernet, USB, RS232, RS485
Max Number of Units That Can Be Connected: 10 units
Data Acquisition Channels (Per Unit): Sixteen analog channels, pulse channel, two logic channels, thirty-two XL unit calculation channels, four calculation channels dedicated to Datum-LOGGER software, thirty-two communication channels

Measurement Acquisition Period: 1, 2, 5, 10, 20, and 30 seconds, 1, 2, 5, 10, 20, 30 minutes, 1 hour (if the communication interface is RS485, the acquisition periods that can be set vary depending on the number of connected units; if the communication interface is ethernet and the communication interface set for the station is LAN/RS232 or LAN/RS485, the settable measurement periods will be 10 seconds or longer irrespective of the setting made to the Datum-LOGGER software.)

Display Functions

Display: Waveform, digital, bar graph, meter display

Cursor Value Display: Display of each measurement values, difference, maximum value, minimum value and average value of cursors A and B

Arbitrary Cursor List Display: Display a list of arbitrary cursors and comments inserted in a waveform graph

Alarm List Display: Display a list of alarms for acquired data

Analysis View Display: Display all specified channels, value differences between cursors A and B in descending or ascending order, and the rate of change in descending or ascending order

Horizontal Scroll: By scrolling a waveform display horizontally, it is possible to display data acquired in the past even during real-time acquisition

Resizing the Horizontal Axis: Display all the acquired data or data between cursors A and B

Jump Function: Re-display a waveform centering on a data selected in the cursor value display, arbitrary cursor list display, alarm list display or analysis view display

Dedicated Calculation Functions (Available for Real-Time Measurement): Formula of maximum 16-stack consisting of measurement data, functions and operators of the same RDXL120 (station) can be set for up to four channels

Data Load Functions: RDXL120 main unit measurement files, Datum-LOGGER measurement files on PC

File Processing Functions:
Partial Storage: Save data between cursors A and B
Divided Storage: Save by specifying date/time intervals or store by dividing into specified number of files

Analog Input

Input	Range	Measuring Range	Measurement Accuracy	Max Resolution
VDC	100 mV	-100.00 to 100.00 mV	±0.1 % of FS	10 µV
	500 mV	-500.0 to 500.0 mV		100 µV
	1V	-1.0000 to 1.0000V		100 µV
	5V	-5.000 to 5.000V		1 mV
	10V	-10.000 to 10.000V		1 mV
	50V	-50.00 to 50.00V		10 mV
	1 to 5V/FS	1.000 to 5.000V		1 mV
T/C	R[1]	0 to 1768°C (32 to 3214°F)	±0.05% of FS ±2°C[5] (4°F)	1°C (1°F)
	S[1]	0 to 1768°C (32 to 3214°F)		
	B[1]	600 to 1800°C (1112 to 3272°F)		
	K[1]	-200 to 1372°C (-328 to 2501°F)	±0.05% of FS ±1°C[5] (2°F)	0.1°C (0.1°F)
	E[1]	-200 to 1000°C (-328 to 1832°F)		
	J[1]	-200 to 1200°C (-328 to 2192°F)		
	T[1]	-200 to 400°C (-328 to 752°F)		
	N[1]	-200 to 1300°C (-328 to 2372°F)		
	W[2]	0 to 2315°C (32 to 4199°F)	±0.05% of FS ±2°C[5] (4°F)	1°C (1°F)
	L[3]	-200 to 900°C (-328 to 1652°F)	±0.05% of FS ±1°C[5] (2°F)	0.1°C (0.1°F)
	U[3]	-200 to 400°C (-328 to 752°F)		
RTD[6]	Pt100[4]	-200 to 850°C (-328 to 1562°F)	±0.05% of FS ±0.5°C[5] (1°F)	0.1°C (0.1°F)
	JPt100[4]	-200 to 500°C (-328 to 932°F)		

1 *R, S, B, K, E, J, T, N: IEC584-1 (1995), DIN IEC584, JIS C 1602-1995*
2 *W: W-5% Rd/W-26% Rd (Hoskins Mfg. Co.), ASTM E988*
3 *L: Fe-CuNi, DIN43710, U: Cu-CuNi, DIN43710*
4 *Pt100: JIS C 1604-1997, IEC 751-1995, DIN IEC751-1996, JPt100: JIS C 1604-1989, JIS C 1606-1989*
5 *FS for TC and RTD means the full scale of the measuring range*
6 *Excitation current: 2 mA*

File Division: RDXL120 measurement data files and Datum-LOGGER software measurement data files stored on PC can be divided at the specified number of data interval or specified date/time interval
Combined Storage: Combine and save divided sub files of Datum-LOGGER software measurement data files
Skipped Storage: Skip data using specified time intervals
Storage Format: Binary format (dedicated for Datum-LOGGER software)

Report Format Storage: Save maximum, minimum and average of hourly reports, daily reports, weekly reports and monthly reports in CSV format; measurement data can be added to CSV data to be stored

Main Unit Setting Functions: Send/receive setting details, load setting files and save setting files via communication

Clipboard Copy Functions: Copy a displayed waveform image to the clipboard

Printing Functions: Print a displayed waveform image

Analog Input Section

Input Method: Floating unbalanced input, insulated between channels (terminal "b" is shared by resistance temperature detector inputs)

Number of Inputs:
XL121: 8 channels
XL122, XL124: 16 channels

Input Type: Thermocouple, RTD (for screw type only), DCV

Range and Measurement Range:
Reference Operating Conditions: Temperature (23 ±2°C), humidity (55 ±10% RH), power supply voltage (100 to 240 Vac), power supply frequency (50/60 Hz ±1% or less), warm-up (30 minutes or longer), without vibration, etc. that do not affect the operation of the instrument

Reference Junction Compensation: Internal reference junction compensation is used

Reference Junction Compensation Accuracy: ±1°C

Maximum Input Voltage:
Voltage Range of 1 Vdc or Below and TC: ±10 Vdc
Voltage Range of 5 Vdc or Above: ±60 Vdc

Input Resistance: Approx 1 MΩ

Maximum Common Mode Voltage: 30 Vac RMS (50/60 Hz) or ±60 Vdc

Common Mode Rejection Ratio:
100 dB or Above (50/60 Hz): Digital filter OFF
140 dB or Above (50/60 Hz): Digital filter ON

Measurement Interval: 5 seconds (8-channel terminal block)/10 seconds (16-channel terminal block)

Normal Mode Rejection Ratio 50 dB or Above (50/60 Hz): Digital filter ON

Measurement Interval: 5 seconds (8-channel terminal block)/10 seconds (16-channel terminal block)

Thermocouple Burnout Detection: Detection is turned ON constantly during thermocouple measurement (burnout upscale only) (display: "+*****")

Digital Input Section

Number of Inputs:
Pulse Input: 1 channel
Logic Input: 2 channels

Input Specification:
Lo: Below 0.9V or terminal short-circuited
Hi: 2.1V or higher or terminal open

Maximum Input Voltage: 10 Vdc

Display Section

Display Unit: 3.5" TFT color LCD (320 x 240 pixels)

Display Color:
Trend/Bar Graphs: Selectable from 16 colors (red, green, blue, bluish purple, brown, orange, yellowish green, light blue, reddish purple, gray, lime, blue green, dark blue, yellow, olive, purple)
Background Color: Selectable from white and black (waveform display area)

Update Interval: Max approx 1 sec (measurement interval)

Storage Functions

Measurement Interval: 100 ms (only when the 8-channel terminal block is used), 200 and 500 ms, 1, 2, 5, 10, 20, and 30 sec, 1, 2, 5, 10, 20, and 30 min, 1 hr

** The sampling interval during pulse input is greater than or equal to 1 s*

** If the communication is set to LAN/RS232 or LAN/RS485, the sampling interval is set greater than or equal to 10 s*

Internal Memory: 16 MB

External Storage Medium: Compact flash memory card (Type II), SD card, USB memory (only the copy function is supported by USB memory; only those USB memories that have been verified by OMEGA are recommended)

Save Mode:
File Division: Select NO DIVISION or DIVISION (specify DIVISION to save the data by dividing the data at constant time intervals from the start of the logging operation)

Memory Full Operation: Select STOP, REPEAT, or DELETE

Digital Input

Input	Range	Measuring Range	Maximum Resolution
Pulse	None	50k/measurement interval (instantaneous value) 0 to 50000°C	1°C
Pulse (Integral Value)	50k °C/FS	50k/measurement interval	1°C
	500k °C/FS		10°C
	5M °C/FS		100°C
	50M °C/FS		1k °C
	500M °C/FS		10k °C
Pulse (Number of Revolutions)	500 RPM/FS	50k/sec (the number of pulses per second is counted and converted to the number of revolutions	—
	5k RPM/FS		
	50k RPM/FS		
	500k RPM/FS		

Alarm Functions (Alarm Output):
Alarm Type: Hi (high limit), lo (low limit), window-in (within specified upper/lower range), window-out (outside specified upper/lower range) (only hi and lo are available for logic inputs)
Alarm Delay Time Number of Measurements: 0 to 36,000
Display: Alarm status is displayed in the status display area and measured values are displayed in red when an alarm occurs (selectable from non-hold and hold-type)
Hysteresis: ON/OFF switchable (0.5% of span fixed, common to all channels) 4 channels (not insulated)
Buzzer: ON/OFF switchable when being output
Recording: Up to 120 sets of latest information can be recorded
Output Format: Open collector, 5V pull-up resistor (100 kΩ)
Contact Capacity: 5 to 40V, 100 mA

Filter Functions (Analog Input): Selectable from among OFF, 50 and 60 Hz

Average Functions (Analog Input): Moving average calculation ON/OFF, selectable from 1, 2, 5, 10 and 20 times

Automatic Measurement Functions: The setting file (AUTORUN.SET) saved in the CF card, SD card or USB memory is loaded automatically, and recording starts according to the contents of the file

Communications Functions: 2 simultaneous communications are possible such as LAN and RS485, LAN and RS232, ethernet (10BASE-T/100BASE-TX), USB running Windows® 2000 or XP on personal computer with USB port, RS232, RS485, serial communication MODBUS® protocol, standard protocol—transmission medium: LAN, USB, RS232 and RS485

Power Supply Section

Operating Voltage Range: 90 to 132, 180 to 264 Vac

Rated Supply Frequency: 50/60 Hz

Battery: Dedicated lithium ion battery (2400 mAh, 7.4V)

Battery Operation: Can be charged on the main unit only; the instrument runs on the AC adaptor when both battery and AC adaptor are used

Charging Function: The battery can be charged while the instrument is in use; charging takes approximately 8 hours

Standard Accessories:
Terminal Block: 8 channels (95052) or 16 channels (95053, 95055)
AC Adaptor: 100 to 240 Vac
Rubber Boot: Impact-protection (93036)
Screwdriver: For push-lock screws on the terminal block
CD-ROM: Standard software, USB driver, instruction manual, communication function manual, quick manual

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

General Specifications

Location for Use: Indoor, at an altitude of 2000 m (6561.6') or less

Operating Temperature/Humidity Range: 0 to 50°C (32 to 122°F) [0 to 40°C (32 to 104°F) if battery is used], 5 to 85% RH (no condensation)

Storage Temperature/Humidity Range: -20 to 60°C (-4 to 140°F), 90% RH or less (no condensation)

Insulation Resistance:
Between Each Input Terminal and Frame: 20 MΩ or higher (500 Vdc)
Between Input Terminals (Except for Terminal b): 20 MΩ or higher (100 Vdc)
Between Each Input Terminal and Digital Input/Output: 20 MΩ or higher (100 Vdc)

Withstanding Voltage:
Between Each Input Terminal and Frame: 350 Vp-p (50/60 Hz), 1 min
Between Input Terminals (Except for Terminal b): 350 Vp-p (50/60 Hz), 1 min
Between Each Input Terminal and Digital Input/Output: 350 Vp-p (50/60 Hz), 1 min

Dimensions: Approx 155 W x 155 H x 55 mm D (6 x 6 x 2.2"), without projecting parts and rubber boot

Weight: Approx 800 g (1.8 lb), without battery and rubber boot

Complying Standard:
Safety Standards: EN61010-1; measurement category I (circuit voltage used ±60 Vdc); pollution degree 2; rated transient over voltage 350 Vp-p
Emission: EN61326 Class A, EN55011 Class A Group 1
EN61000-3-2, EN61000-3-3: This product class A for use in an industrial environment and may cause radio interference if used for domestic use; therefore, appropriate measures must be taken when using it for domestic use
Immunity: EN61326 Annex an immunity test requirement for equipment used in commercial environment; performance criterion under immunity test environments: B (self-returnable performance deterioration)

To Order

Model No.	Description
RDXL121-D	8-channel plug in terminals
RDXL122-D	16-channel plug in terminals

Accessories

Model No.	Description
RDXL900	Data logging software (Windows 7/Vista)
RDXL-91011	3 m (10') RS232 cable
RDXL-94009	Lithium ion battery 2400 mAh
RDXL-91029	3 m (10') digital I/O cable
RCC-1000	Rugged carrying case
OM-3000-SC	Soft carrying case
RDXL-93039	Stand
RDXL-93936	Replacement rubber boot
RDXL-95052	Terminal block (8-channel plug in)
RDXL-95053	Terminal block (16-channel plug in)

Comes complete with operator's manual, rubber boot, AC adaptor and CD-ROM standard software.

***Ordering Examples: Ordering Examples: RDXL121-D,** 8-channel data logger, **RDXL900,** data logging software.*

***OCW-3,** OMEGACARE℠ extends standard 1-year warranty to a total of 4 years.*

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