

Hioki Chart Recorders



**MR8880-20
+ MR9000**

- 4 analog channels + 8 logic inputs
- Sample rate up to 1M/sec
- Directly record a 480V power line
- Isolated inputs to measure 3 phase circuits
- Stores data on CF card or USB memory stick
- Optional portable printer attaches easily
- Wide operating temperature range

Use the MR8880 to measure:

- Instantaneous waveform at startup or a suddenly generated abnormal waveform.
- RMS value fluctuations for a power line over extended time period.
- Fluctuations in low voltage signals or sensor outputs.

SPECIFICATIONS			
Input Channels	4 analog (isolated ch-ch & ch-earth) + 8 logic (common GND)	Ext. Storage	2GB flash card or USB stick
Analog Ranges	10mV - 100V/div (10 div FS), switchable RMS or instantaneous.	Data Backup	40 minutes for internal data
RMS Value	30Hz - 10kHz, crest factor 2	Printing	Optional thermal printer, recording speed 10mm/sec, 4.4" wide paper
Resolution	1/640 of range	PC Interface	USB 2.0 mini-B
Bandwidth	DC-100kHz (-3dB)	Battery	8xAA or optional rechargeable pack
Max. Voltage	600VAC Hi-Lo	Battery Life	AA: 45 min, Pack: 3 hours
Measure Modes	High speed or real time	AC Adapter	100-240VAC, also charges battery
Time Axis	Hi speed: 100µs-100ms/div	DC Power	10-28VDC, 11VA (40VA w/printer)
Record Interval	Real time: 100µs-1min (19 steps)	Isolation	600V AC/DC CAT III, (input to earth) 300V AC/DC CAT IV
A/D Resolution	14 bits	Temperature	-10 to 50°C operating, <80% RH
Max Sample Rate	1MS/s	Input Connectors	Isolated BNC for analog channels
Display	5.7" TFT color LCD, 640x480 (VGA)	Dimensions	8.1 x 7.8 x 2.7" (205x199x67mm) with Printer 12.0 x 7.8 x 2.7" (303x199x67mm)
Memory	14 bits x 1M words/ch		

ORDERING INFORMATION		ACCESSORIES	
HK/MR8880-20	Memory HiCorder*	HK/9197	Input Leads 600V
HK/MR9000	Printer Unit	HK/9661	AC Clamp-on Probe 500A
		HK/9320-01	4ch Logic Probe
		HK/Z1000	Rechargeable Battery Pack
		HK/9830	2GB Memory Card
		HK/C1003	Carrying Case

*Includes ac adapter, alkaline battery box, strap, USB cable, waveform software.

- Compact and easy to carry
- 2 analog channels + 4 logic inputs
- Fast 1MS/sec performance
- Large 480x272 color LCD
- Simple USB interface
- Store up to 2GB data on flash card



8870-20

- 10 isolated analog inputs
- 10ms sampling and recording across all channels
- Record to USB flash drive for easy computer transfer
- Replace storage media during real-time recording
- Thermocouple & Pulse inputs

NEW



LR8431-20

SPECIFICATIONS	
Input Channels	2 analog (isolated ch-ch & ch-earth) + 4 logic (common GND)
Analog Ranges	10mV - 50V/div (10 div FS), 12 ranges
Resolution	1/100 of range
Max Input	DC 400V
Bandwidth	DC to 50kHz (-3db)
Time Axis	100µs-5min/div, 20 ranges plus 2x-10x and 0.5-0.001x
Memory	12 bits x 2M word/ch
Ext. Storage	2GB flash card (optional)
Display	4.3" WQVGA TFT color LCD (480x272)
Measurement	Instantaneous or RMS value display (DC & 50/60Hz).
Functions	Numerical calculations, cursor readout, scaling, screen copy, waveform data & settings backup, start condition retention, auto-save
PC Interface	USB 2.0 mini-B for data export
Power Supply	100-240VAC adapter & charger; optional rechargeable battery pack (2hr run time); DC supply: 10-16V @10VA
Dimensions	7.0 x 4.0 x 1.6" (176 x 101 x 41mm)

ORDERING INFO	ACCESSORIES
HK/8870-20 Memory HiCorder	HK/9197 Input Leads 600V
Supplied with AC adapter, strap, USB cable & application disk.	HK/9661 AC Clamp-on Probe 500A
Order test leads, battery pack, logic probe and memory card separately.	HK/9320-01 4ch Logic Probe
	HK/9780 Rechargeable Battery Pack
	HK/9830 2GB Memory Card
	HK/9782 Carrying Case

SPECIFICATIONS	
Inputs	10 analog (isolated scanning method) + 4 pulse (common GND)
Measurements	Voltage: ±100mV to ±60V, 1-5V, 6 ranges, max resolution 5mV Thermocouple: K, J, E, T, N, R, S, B; -200 to 2000°C (varies by type) Pulse: 0 to 1000M, voltage or open collector input
Max Input	DC 60V (Analog inputs), DC -5 to +10V (Pulse inputs)
Isolation	30VAC, 60VDC input to chassis or input to input
Record Interval	10ms to 1 hour, 19 selections
Digital Filters	50Hz, 60Hz or OFF (selectable)
Memory	Internal: 3.5Mwords (7MB of 2 byte data or 4 byte pulse meas.) External: 2GB flash memory card
Display	4.3" WQVGA TFT color LCD (480x272)
Functions	Save data to memory card in real time. Numerical calculations, external trigger input, trigger out alarm out, scaling
Connections	Analog in: M3 screw terminals; Pulse in: BNC
PC Interface	USB 2.0 mini-B for control & data export from memory card
Power Supply	100-240VAC adapter & charger; optional rechargeable battery pack (2.5hr run time); DC supply: 10-16V
Dimensions	7.0 x 4.0 x 1.6" (176 x 101 x 41mm)

ORDERING INFO	ACCESSORIES
HK/LR8431-20 Memory HiLogger	HK/9641 Pulse Input Leads
Supplied with AC adapter, USB cable & measurement guide. Order test leads, battery pack and memory card separately.	HK/9780 Rechargeable Battery Pack
	HK/9830 2GB Memory Card
	HK/9812 Soft Case
	HK/9782 Carrying Case

Fluke Power Logger



▲ 1735

Includes soft carrying case, 4 flexible current probes (15/150/3000A), voltage leads & clips, RS-232 PC interface cable, Power Log software, AC adapter, manual

ORDERING INFORMATION

Fluke 1735 Power Logger

Accessories

FL/MBX 1A/5A	Clamp for secondary CT applications
FL/MBX 5A/50A	Clamp for general applications
FL/C534	Water-tight hard carry case with rollers

- Monitor demand at 15 minute or user-defined averaging periods
- Verify efficiency improvements with energy consumption tests
- Measure harmonic distortion caused by electronic loads
- Capture voltage dips and swells from load switching
- Easily confirm instrument setup with color display of waveforms and trends
- Measure all three phases and neutral with included 4 flexible current probes
- View graphs and generate reports with included Power Log software
- Compact, rugged design with IP65 case, 600 V CAT III and 2-year warranty

The Fluke 1735 Power Logger is ideal for conducting 30-day load studies according to National Electric Code 220.65. The 1735 also logs most electrical parameters and harmonics as well as capturing voltage events. Sets up in seconds with the included flexible current probes and color display.

SPECIFICATIONS

V-rms Wye Ranges	57/66/110/120/127/220/230/240/260/277/347/380/400/417/480 V ac
V-rms Delta Ranges	100/115/190/208/220/380/400/415/450/480/600/660/690/720/830 V ac
Resolution	0.1 V
A-rms Ranges	15/150/3000 A rms (at sine) with supplied flex clamps
Resolution	0.01 A
PF (Power factor)	Range 0-1, Resolution 0.001
Frequency	46-54 Hz and 56-64 Hz, Resolution 0.01 Hz
Power Measurements	P (active), S (apparent), Q (reactive), D (distorting)
Energy Measurements	kWh, kVAh, kVARh
Display	¼ VGA Graphic Color, 320x240 pixel, with background lighting
Battery Life	Typical >12 hours with backlight low and >6 hours with backlight high
Working Temperature	-10 °C to +50 °C (+14 °F to +122 °F)
Dimensions	240 mm x 180 mm x 110 mm (6.1 in x 4.6 in x 2.8 in)

Yokogawa Portable Data Logger



▲ XL122 CE

SP1 Kit includes mating screw terminal block, US power cord, rechargeable battery, protective rubber boot, carrying case, utility software & manual.

Utility software for Windows XP displays data & waveforms, copies data, converts to CSV, saves settings & files.

Accessories

YE/90060	Type K thermocouple, 48" length with mini-plug
YE/93037	Carrying case
YE/94009	Lithium ion battery, 2.4Ah, 7V
YE/91029	Digital I/O cable, 3m
YE/91011	RS232 cable to PC (9 pin)
YE/93039	Stand for tilted desktop, wall or DIN rail mounting
YE/XL900	Datum-LOGGER PC data analysis software (WinXP)

- 8 or 16 isolated analog input channels
- Supports direct TC, RTD and DCV inputs
- 16MB internal memory + flash card capability
- Wide viewing angle 3.5" color LCD
- Trigger and alarm functions
- 1 pulse and 2 digital logic inputs
- 100msec to 1 hour sample interval
- Ethernet, USB, RS232 & RS485
- Web server, FTP client and email functions

SPECIFICATIONS

Input	Type	Accuracy	Resolution
	DCV: ±100/500mV, ±1/5/10/50V, 1-5V F.S.	±0.1% F.S.	10µV
	TC: K,E,J,T,L,U,N	±0.05% F.S. ±1°C	0.1°C
	TC: W,R,S,B	±0.05% F.S. ±2°C	1°C
	3-wire RTD: Pt100, JPt100	±0.05% F.S. ±0.5°C	0.1°C
	Pulse: Instantaneous value, integration, revolution		
	Logic: Voltage, contact		
Maximum Input	±50V		
Measurement Interval	100/200/500ms, 1/2/5/10/20/30s, 1/2/5/10/20/30/60min (8 ch max for 100ms)		
Data Storage	16MB internal memory, External storage: Compact flash memory card (Type II), SD card, USB memory (copy function only)		
Functions	Alarm output (4ch), Trigger function (pre-trigger/triggerdelay), Calculation (inter-channel calculation, linear scaling, statistical operation), Average, Automatic Measurement		
Display Screens	Waveform, digital, bargraph, waveform + digital, alarm summary, log		
Communication	10Base-T/100-BaseTX Ethernet (SMTP, HTTP, FTP, TCP/IP, SNMP protocols)		
	USB 1.1 (Windows XP)		
	RS-232 @2.4-38.4kbps, RS-485 @2.4-115.2kbps half-duplex (ASCII or Modbus RTU protocols)		
Operating Temperature	0 to 50°C, 5 to 85%RH (non-condensing)		
Storage Temperature	-20 to 60°C, <90%RH (non-condensing)		
Size	6.1" x 6.1" x 2.2" (155x155x55mm), without projecting parts or rubber boot		
Weight	1.8 lbs (800g), without battery or rubber boot		
Safety	EN61010-1: Measurement Category I, Pollution degree 2, Rated transient 350Vp-p		

ORDERING INFORMATION

YE/XL121-D/SP1	8 channel Portable Data Station Kit. Plug-in screw terminal block accepts wires
YE/XL122-D/SP1	16 channel Portable Data Station Kit. Plug-in screw terminal block accepts wires
YE/XL124-D/SP1	16 channel Portable Data Station Kit. M3 screw terminal block accepts wires or lugs. [no RTD inputs]

Hioki Strip Chart Recorders



8206-10

- AC or DC voltage to 500V
- AC current to 1000A
- 1 or 2 channels
- 5 paper speeds
- View input level on analog LCD display

8205-10 SPECIFICATIONS

Input:	Voltage or current, 1 channel
DC / AC Voltage:	0.1-500V f.s., 12 ranges
AC Current:	10-1000A f.s., 7 ranges (with optional clamp)
Sampling period:	10ms
Bandwidth:	20Hz - 30kHz, ±3dB
Paper Speed:	20cm/minute to 2cm/hour, 5 ranges
Accuracy:	Voltage: ±2% f.s. Current: ±4% f.s. (using 9651 clamp)
Power:	100-240VAC (50/60Hz) or 9.5-14VDC
Dimensions:	9.9" W x 4.8" H x 3.9" D
Supplied Accessories:	1 roll recording paper, carrying case, input leads

8206-10 SPECIFICATIONS

Input:	Voltage and current, 2 channels alternate recording
AC Voltage:	100/200/500V extended scale, 3 ranges
AC Current:	10-1000A f.s., 7 ranges (with optional clamp)
Sampling period:	10ms
Bandwidth:	30Hz to 30kHz, ±3dB
Paper Speed:	60cm/hour to 2cm/hour, 5 ranges
Accuracy:	Voltage: ±2% f.s. Current: ±4% f.s. (using 9651 clamp)
Power:	100-240VAC (50/60Hz) or 9.5-14VDC
Dimensions:	9.9" W x 4.8" H x 3.9" D
Supplied Accessories:	1 roll recording paper, carrying case, input leads

ORDERING INFORMATION

HK/8205-10	One Channel Micro HiCorder
HK/8206-10	Two Channel Micro HiCorder
HK/9650	Clamp-on Sensor, 100A f.s., 40Hz-1kHz, 3m length
HK/9651	Clamp-on Sensor, 500A f.s., 40Hz-1kHz, 3m length
HK/9668	Clamp-on Sensor, 1000A f.s., 40Hz-1kHz, 3m length
HK/9235	Recording paper (15m, 10 rolls)
HK/9236-01	Recording paper, Climate-resistant (15m, 10 rolls)

Partlow Chart Recorder

- 1 or 2 Trend Pen Versions
- Up to 2 Process or Limit Alarms for Each Pen
- Simple Operation and Set-Up
- Universal Inputs and Power Supply
- NEMA 3 Standard (NEMA 4X Option)
- Optional PC Configuration Port
- RS-485 Communications Option
- Two Year Warranty



MRC5000

SPECIFICATIONS

Input Range:	TC: J, K, T, R, S RTD: 100Ω Platinum, 0.00385 Ω/Ω/°C Current DC: 0 to 20mA, 4 to 20mA Voltage DC: 0 to 25mV, 0 to 50mV, 10 to 50mV, 0 to 5V, 1 to 5V
Chart Size:	10"
Chart Rotation:	User-configured: 8 hr, 12 hr, 24 hr, 48 hr, 7 day
Recording Accuracy:	0.5% of chart span reference accuracy
Power Requirements:	90 - 264VAC 50/60Hz. 18VA max. consumption
Dimensions (WxHxD):	14" x 14" x 3.8" (355.6 x 355.6 x 96.5mm)

ORDERING INFORMATION

To Order-Insert Number Code for Each Letter to Select Catalog Number.

Order Example: PA/51 110211

A	B	C	D	E	F	G	H
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A Pen 1			
PA/51	Recorder only	PA/54	High/Low Limit
PA/52	Recording Controller		
B Pen 2			
0	None	2	Recording Controller
1	Recorder only	4	High/Low Limit
C Pen 1 Outputs			
0	None	2	Two Relays
1	One Relay		
D Pen 2 Outputs			
0	None	2	Two Relays
1	One Relay		
E Digital Communications			
0	None	2	RS-485 Com (Modbus RTU)
1	Configurator Port	3	Configurator Port & RS-485 Com
F Case			
1	Standard-NEMA3	3	NEMA 4X
2	Door Lock		
G Voltage			
1	Standard (90-264V AC)	5	Standard, with CE Approval
3	Standard, with 24V DC Transmitter Power Supply	7	Standard, with CE and Transmitter Power Supply
H Option Suffix			
Blank	None	AA	Alarms and communications connectivity option

One hundred 0-100°F, 24-hour charts are provided with each instrument.

Fuji Strip Chart Recorders

- Inkjet printing technology without physical contact with the paper
- Low-cost
- Lightweight, durable, and trouble-free 100mm recorder
- Available in one- or two-channel continuous trace
- Continuous analog trending on the same axis
- Prints periodic data, scale line, alarm condition, burnout, and parameter data
- Manufactured in an ISO 9001 Facility
- Three-year warranty



SPECIFICATIONS

Input Points:	1 or 2 continuous recording
Input Signals:	TC: B, R, S, K, E, J, T, N, W, L, U, PN RTD: Pt 100Ω DC Voltage: 50mV, 500mV, 5V, 50V range DC Current: 4 to 20mA, converted into voltage with 10Ω or 250Ω shunt resistor
Max. Allowable Input Voltage:	TC, RTD and DC Voltage: ±10V DC or less (50mV, 500mV range) DC Voltage Input: ±100V DC or less (5V, 50V range)
Recording Method:	Inkjet type, 3 colors
Recording Points:	1 or 2 continuous
Chart Paper:	Effective width: 100mm, Z-folding type, length-15.08m
Recording Cycle:	2 sec. minimum (chart speed dependent)
Recording Accuracy:	Indicating accuracy ±0.2%
Chart Speed:	10, 20, 24, 30, 50, 120, 200, 300, 400, 1000, 1200, 1500mm/hour, set from the keyboard
Power Supply:	100 to 120 VAC or 200 to 240 VAC, 50/60Hz
Dimensions (WxHxD):	5.67 x 5.67 x 6.89in. (144 x 144 x 175mm)

ORDERING INFORMATION

To Order-Insert Number Code for Each Letter to Select Catalog Number.

Order Example: PHE1-X-Y-32-5Y-OEV

A - B - C - D - E - F

A Recording Points	
PHE1	1 continuous recording point
PHE2	2 continuous recording points
B Input Signal for Ch. 1	
X	B Thermocouple
R	R Thermocouple
S	S Thermocouple
K	K Thermocouple
E	E Thermocouple
J	J Thermocouple
T	T Thermocouple
N	N Thermocouple
W	W Thermocouple
L	L Thermocouple
U	U Thermocouple
P	PN Thermocouple
H	Pt100Ω RTD
A	DC 1-5V
B	DC 4-20mA with shunt resistor
C	DC 10-50mA with shunt resistor
M	DC ±50mV
Q	DC ±500mV
V	DC ±5V
F	DC ±50V
C Input Signal for Ch. 2	
Y	None
X	B Thermocouple
R	R Thermocouple
S	S Thermocouple
K	K Thermocouple
E	E Thermocouple
J	J Thermocouple
T	T Thermocouple
N	N Thermocouple
W	W Thermocouple
L	L Thermocouple
U	U Thermocouple
P	PN Thermocouple
H	Pt100Ω RTD
A	DC 1-5V
B	DC 4-20mA with shunt resistor
C	DC 10-50mA with shunt resistor
M	DC ±50mV
Q	DC ±500mV
V	DC ±5V
F	DC ±50V
D Power Supply	
32	100V/120V AC, 50/60Hz
42	200V/240V AC, 50/60Hz
E Scale Range	
5Y	One channel
55	Two channels
F Alarm Output	
OEV	None
1EV	1-ch. recorder, 2-point/no external control
AEV	1-ch. recorder, 2-point/with external control
2EV	2-ch. recorder, 4-point/no external control
BEV	2-ch. recorder, 4-point/with external control

West Paperless Recorder

NEW

- 5.5" color TFT display
- Strip chart, bargraph & numerical data formats
- 3 or 6 analog inputs
- 4 logic inputs, 3 relay outputs
- Non-volatile flash memory
- RS485 & Ethernet communication
- 144 DIN case with IP54/IP65 front
- Math & web server options
- Setup, comm & evaluation software



DataVU5

SPECIFICATIONS

Inputs	
T/C	J, K, T, R, S, E, N, B, L, U, D, C, Chromel-Copel
RTD	Pt100/50/500/1000, Ni100, Cu50/100 2, 3 or 4 wire
DC	mV: user settable -20mV to +210mV V: user settable -10V to +12V mA: user settable from -22mA to +22mA
Basic Accuracy	
T/C	±0.1% of range (±1°C cold junction)
RTD	±0.5°C
DC	±0.1% of range
Sampling Cycle	250ms, 3 or 6 channels
Input Isolation	350V via optocoupler
Resolution	>14 bits
Triggers	Normal, time & event
Internal Channels	Six, 9 digit, for count, integration & trigger
Relay Outputs	Three SPDT, 3A@230VAC
Digital Inputs	Four binary, logic "1" = 12-30V
Communications	Front panel setup interface standard
Options	RS485 (Modbus RTU), Ethernet (Modbus TCP)
Display	320x240 color TFT
Internal Memory	Flash storage of 350,000 measurements
External Memory	Compact flash card, 2GB max
Math Module	+, -, *, /, SQRT, min, max, sin, cos, tan, exp, ABS, INT, FRC, LOG, LN, humidity, moving avg, !, &, , ^
Temperature	0-50°C operating
Dimensions	144 x 144 x 214mm depth, including connectors

ORDERING INFORMATION

To Order, Insert Code for Each Letter to Select Catalog Number.

Example VU5-3-0-0-3-3 VU5 - **A** - **B** - **C** - **D** - **E**

A	Inputs
3	3 universal channels
6	6 universal channels
B	Power Supply
0	110-240V AC, 48-63Hz, 25VA
1	20-53V AC/DC, 48-63Hz
C	Option 1
0	Lithium battery for memory
1	Lithium battery & Ethernet interface
D	Option 2
0	None
1	Math function module
2	4 digital inputs / 3 relay out & RS232/485
3	Math functions + 4 digital inputs / 3 relay out & RS232/485
E	Option 3
0	None
1	IP65 front seal with wide mounting brackets

Hioki Data Loggers



- Miniature size
- 16,000 or 32,000 reading storage
- Data is retained even when the batteries are dead
- Power saving function

3641-20

Model	Range	Memory*	Feature
Temperature			
HK/3632-20	-20 to 70.0°C	16k	Waterproof with built-in sensor
HK/3633-20	-40 to 180.0°C	16k	External/internal sensor, waterproof
Temperature & Humidity			
HK/3641-20	-40 to 85.0°C, 0-100.0% RH	16k	Alternately record on two channels
Current			
HK/3634-20	0-20.00mA DC	16k	
HK/3636-20	0-50.00/500.0A AC RMS	32k	2ch with optional clamp sensor
HK/3638-20	AC Leakage Current	32k	2ch with optional clamp-on sensor
Voltage			
HK/3635-24	±500.0mVDC	16k	
HK/3635-25	±5.000VDC	16k	
HK/2635-26	±50.00VDC	16k	
HK/3637-20	0-600.0VAC RMS	32k	
HK/3645-20	±50.00mV/500.0mV/ 5.000V/50.00DC	32k	Multi-range logger with preheat signal function
HK/3639-20	9,999count/ interval	32k	Pulse Totalizer (1ch)
HK/3640-20	2000/20000/200000 lux	32k	Illumination (1ch)

*16k readings unit have record interval of 2/5/10/15/20/30 seconds, 1/2/5/10/15/20/30/60 minutes. Models with 32k readings also have a 1sec record interval.

SPECIFICATIONS

Accuracy	
3632-20:	±1.0°C, except ±0.5°C from 0-35.0°C
3633-20:	±0.5°C (0-35.0°C)
3641-20:	±0.5°C (0-35.0°C), ±5 % RH (at 25 °C)
3634-20:	±0.8% rdg ±5d
3636-20:	±1% rdg ±5d (main unit only)
3638-20:	±1% rdg ±5d (main unit only)
3635-24/-25/-26:	±0.8% rdg ±5d
3637-20:	±1% rdg ±5d
3645-20:	±0.5% rdg ±5d
3639-20:	±1d
3640-20:	±4% rdg ±5d
Data Transfer:	500 data elements/second via infrared link
Power Supply:	2 AAA batteries
Dimensions:	2.24"W x 2.91"H x 0.77"D
Environment:	Indoors, 0°C to 50°C, <80% RH

The Communication Base is used to transfer data from a Data Logger to PC. It can collect data on up to 16 channels. Data from multiple Data Loggers that are installed in fixed positions can be collected and then transferred to a PC via RS-232 or USB for analysis and processing.

Settings that can be made through the main unit: recording interval, recording start/stop.
Settings that can be made through the Communication Base: current time, recording interval, recording start time, recording method, comment.

HK/3911-20	RS-232 Communications Base
HK/3920-20	USB1.1 Communications Base

AEMC Power & Energy Logger

- 1 ϕ , dual (split-phase) & 3 ϕ (Y, Δ) power & energy loggers
- Use on 50Hz, 60Hz, 400Hz & DC distribution systems
- Current measurements from 200mA to 10,000A
- Power measurements: VA, W and var
- Energy measurements: VAh, Wh (source/load indication) & varh (including quadrant indication)
- Power Factor (PF), Cos (ϕ), Tan (Φ) and DPF
- Total Harmonic Distortion (THD) for voltages & currents
- Harmonics up to the 50th order for 50/60Hz & 7th order for 400Hz
- Simultaneous RMS measurements of each phase at 128 samples/cycle and DC
- Storage of measured and calculated values on SD or SDHC card
- Current & voltage ratios configured to external PT & CT
- USB, LAN, and Bluetooth communication
- 3 phases shown on bright, 4 line LCD display (PEL103)
- Includes DataView® software for data storage, real-time display, analysis & report generation



PEL103

* with supplied probe

Each kit includes a PEL Logger, classic tool bag, 3 mini-flex MA193-10-BK current sensors, 5ft USB cable, 4 black test leads w/alligator clips, Multifix mounting system, power cord, 2GB SD card with card reader, DataView software & manuals.

ORDERING INFO

AE/2137.52 PEL103 kit w/LCD display
AE/2137.51 PEL102 kit (no display)

NEW

SPECIFICATIONS

Sampling Frequency	128 samples/cycle @50/60Hz, 16/cycle @400Hz
Data Storage Rate	1 per second
Demand Period	1/2/3/4/5/6/10/12/15/20/30/60 minutes, user selectable
Recorded Parameters	V, I, W, VA, var, PF, Tan, Wh, Vah, varh, THD (V and I), Individual harmonics (1 to 50 per phase), Crest Factor (CF), Cos ϕ / DPF
PT Ratios	Programmable from 50V to 65,000V
CT Ratios	Programmable from 1:1 to 25,000:1 *
Communication Ports	USB 2.0, Ethernet, Wireless Bluetooth Class 1
Operating Temperature	32° to 122°F (0° to 50°C) / up to 85% RH
External Supply	110V/250V (10%) @ 50/60Hz; 400Hz
Back-Up Power	8.4V NiMH battery pack, \approx 5 hours recharge time
Battery Life	Up to 30 minute ride through upon power loss
Dimension/Weight	10.08 x 4.92 x 1.46" (256 x 125 x 37mm) / <1kg
Safety Rating	1000V CAT III / 600V CAT IV, Pollution Degree 2
Measurements:	
Single-Phase RMS Volts	0.1 to 1000V (50/60Hz), 600V (400Hz)
ϕ to ϕ RMS Volts	0.1 to 1700V (50/60Hz), 1200V (400Hz)
DC Volts	0.1 to 1000V
RMS Current*	1mA to 10000A (50/60Hz), 5000A (400Hz)
Power (P, Q, S)	-2 to 2GW, -2 to 2 Gvar, 0 to 2 GVA
Energy (EP, EQ, ES)	0 to 4 x 10 ¹⁸ (Wh, varh, Vah)
Power Factor	-1 to +1

Extech TRMS Data Logger

- Simultaneously measure two AC Voltage inputs or two AC Current inputs or one AC Voltage & one AC Current input
- Programmable sample rate from 1 second to 24 hours
- Store up to 256,000 readings
- LCD indicates time/date, present readings and Min/Max
- USB interface
- Readings can be analyzed using the included software or exported to a spreadsheet



SPECIFICATIONS

AC Current	10 to 200A
AC Voltage	10 to 600V
Resolution	0.1A or 0.1V
Accuracy	\pm (2% rdg \pm 1A), \pm (2% rdg \pm 1V)
Memory	256,000 points
Sampling Rate	1 second to 24 hours
PC Interface	USB, includes software
Power	3.6V Lithium battery
Dimensions	4.5 x 2.5 x 1.3" (114 x 63 x 34mm)

Complete with two Current sensor modules, two Voltage sensor modules, two sets of test leads, two sets of alligator clips, USB cable, Windows compatible software, universal AC Adaptor, 4 AAA batteries and two memory 2032 button batteries.

ORDERING INFORMATION

EX/DL160 Dual Input True RMS AC Voltage/Current Datalogger

AEMC AC Current Data Logger

- Two integral MiniFlex® flexible current probes measure from 0.5A to 1000A
- Dual range 100/1000A
- Programmable storage rates from 8 every second to 1 every day
- 3 user selectable storage modes
- Stores up to 240,000 measurements in non-volatile memory
- Lightweight, compact, fits anywhere
- 5 LED indicators quickly and clearly display logger status



SPECIFICATIONS

Inputs	Two captive MiniFlex® AC current flexible sensors
Range	0.5 to 100AAC, 5 to 1000AAC
Resolution	0.1A
Basic Accuracy	\pm 1% of Reading, 50/60Hz
Sample Rate	64 samples/cycle
Storage Rate	Programmable from 125ms to 1 day
Record Modes	Start/Stop, FIFO and Extended Recording Mode (XRM™)
Record Length	15 minutes to 8 weeks, programmable using DataView
Memory	Non-volatile storage of 240,000 measurements (512kB).
Communications	Optically isolated USB 2.0
Protection	IP40
Rating	600V CAT IV, 1000V CAT III
Operating Temp.	14° to 122°F (-10° to 50°C), <85% RH
Dimensions	4.95 x 2.75 x 1.28" (136 x 70 x 32mm) w/o Sensors
Sensor/Cable	Sensor: 6" (152mm) / Cable: 6 ft (2m)

* In XRM, each time the memory fills, every other of the oldest data samples is discarded to make room for new samples.

ORDERING INFORMATION

AE/2126.37 Simple Logger® II Model ML912 with two mini-flex probes, USB cable, batteries & DataView software

AEMC Simple Logger® II Data Loggers

NEW

- Compact size, battery operated
- Easily installed, operational in seconds
- TRMS measurement for accuracy on distorted waveforms
- Programmable alarm setpoints & triggers
- 5 LED indicators display logger status
- Choice of data storage modes
- Stores >240k measurements in non-volatile memory
- DataView software displays & analyzes real-time data on a PC



MODEL	L101	L102	L111	L261	L322	L432
Channels	One	Two	One	One	One	Two
Input Connector	BNC		Recessed banana jacks		Removeable screw term block	
Measurement Range	0-1V AC (probe dependent)		0-1A AC (probe dependent)		±20mA DC ±100mV/±1V/±10V	
Resolution	0.1mV		0.1mA		0.01mA 0.1mV/1mV/10mV	
Accuracy (50/60Hz)	10-50mV: ±0.5% of Rdg ±1mV 50-1000mV: ±0.5% of Rdg ±0.5mV		10-50mA: ±0.5% of Rdg ±1mA 50-1000mA: ±0.5% of Rdg ±0.5mV		5-50V: ±0.5% of Rdg ±1V 50-600V: ±0.5% of Rdg ±0.5mV	
Sample Rate	64 samples/cycle				Max. 8 samples at storage interval	
Storage Rate	Programmable from 125mS to 1 day					
CAT III Rating	50V			300V		50V

MODEL	L562	
Channels	Two	
	Current Channel	Voltage Channel
Input Connection	BNC	Banana jacks
Input Range*	0 to 1VAC (use current probes with a voltage output)	0 to 600VAC/DC
Resolution	0.1mA	0.1V
Accuracy (50/60Hz)	10-50mV: ±0.5% of Rdg ±1mV 50-1000mV: ±0.5% of Rdg ±0.5mV	5-50V: ±0.5% of Rdg ±1V 50-600V: ±0.5% of Rdg ±0.5V
Measurement Input	5Vrms (±7.07V pk-pk max)	1000V
Sample Rate	64 samples/cycle	
Storage Rate	Programmable from 125mS to 1 day	
CAT III Rating	600V	

MODEL	L642
Channels	Two
Input Connection	Mini TC
Measurement Range	°F (°C)
J	-346 to +2192 (-210 to + 1200)
K	-328 to +2501 (-200 to + 1372)
T	-418 to +752 (-250 to + 400)
N	-328 to +2372 (-200 to + 1300)
E	-238 to 1742 (-150 to + 950)
R	32 to 3212 (0 to 1767)
S	32 to 3212 (0 to 1767)
Resolution	0.1° C/F up to 1000° C/F, 1° above 1000° C/F
Accuracy	0.1% to 0.2% + 0.6° to 1°, depending on the range & T/C type
Sample Rate Max.	8 samples at storage interval
Storage Rate	Programmable from 5 sec to 1 day
CAT III Rating	50V

SPECIFICATIONS

Memory	240,000 measurements (512KB)
Recording Length	15 minutes to 8 weeks, programmable using DataView®
Storage Modes	Start/Stop, FIFO and Extended Recording Mode (XRM™)
Communication	USB 2.0 optically isolated
Power	2 x 1.5V AA-cell Alkaline batteries
Battery Life	100 hrs to >45 days, depending on storage rate
Dimensions	5.38 x 2.75 x 1.28" (136 x 70 x 32mm)
Temperature	-10 to 50°C operating

ORDERING INFORMATION

AE/2126.02	Simple Logger® II Model L101 (TRMS, 0 to 1VAC, 1 channel)
AE/2126.03	Simple Logger® II Model L102 (TRMS, 0 to 1VAC, 2 channel)
AE/2126.04	Simple Logger® II Model L111 (TRMS, 0 to 1AAC, 1 channel)
AE/2126.05	Simple Logger® II Model L261 (TRMS, 0 to 600VAC/DC, 1 channel)
AE/2126.06	Simple Logger® II Model L322 (4-20mA DC)
AE/2126.07	Simple Logger® II Model L432 (±100mV,1V,10VDC, 2 channel)
AE/2126.35	Simple Logger® II Model L562 (TRMS Voltage & Current)
AE/2126.08	Simple Logger® II Model L642 (Thermocouple Temperature)
AE/2126.01	Simple Logger® II Model CL601 (Clamp-On, TRMS Current, 0 to 600A, 1.65" jaw opening)

ACCESSORIES

AE/1201.51	AC/DC Current Probe Model SL261 (10A@100mV/A, 100A@10mV/A, BNC)
AE/2115.82	AC Current Probe Model MN261 (24A@100mV/A, 240A@10mV/A, BNC)
AE/1200.72	AC Current Probe Model MR461 (60A@10mV/A, 600A@1mV/A, BNC)
AE/1200.73	AC Current Probe Model MR561 (150A@10mV/A, 1500A@1mV/A, BNC)
AE/2113.49	AC Current Probe Model SR661 (10A@100mV/A, 100A@10mV/A, 1000A@1mV/A, BNC)
AE/2110.90	AC Current Probe Model JM861 (30A@10mV/A, 300A@1mV/A, 3000A@0.1mV/A, BNC)
AE/2140.62	Test Lead Pair, 5 ft w alligator clips, 600V CAT IV, 15A

CLAMP-ON AC LOGGER

Simply clamp-on and start recording, no exposed wires to connect.

- 50/400/600A TRMS ranges
- One button operation
- Alarm function
- 5 LED indicators display logger status
- Optically isolated USB 2.0 output
- Includes DataView® software for data storage, real-time display, analysis & report generation
- 300V CAT IV, 600V CAT III



CL601

Each Simple Logger® II includes USB cable, DataView CD, batteries & manual.

RECORDERS / DATA LOGGERS

Lascar Data Loggers

NEW

Lascar USB Data Loggers measure and record a variety of parameters such as temperature, humidity, dew point, voltage and current. Simply insert any of these loggers into your computer's USB port, name it, choose your required sampling rate, set high and low alarms (if required) and set the logger start time. Once configured, the logger can be removed from the computer to log independently. Data is downloaded back to the PC where it can be analyzed and viewed as a graph. All loggers are supplied with configuration software and a 3.6 V battery.

WiFi data loggers measure temperature and humidity or temperature. Data is transmitted wirelessly via a WiFi network and viewed on a PC using Lascar's free configuration and data download software.

USB VOLTAGE & CURRENT DATA LOGGERS



EL-USB-3



EL-USB-4

- Store More than 32,000 Readings
- High and Low Alarm Thresholds with LED Indicators
- Programmable Sample Rates from 1 Sec to 12 Hours
- Screw Terminal Connections

ORDERING INFORMATION

EL-USB-3	Voltage Data Logger, 0-30 VDC Measurement Range
EL-USB-4	Current Data Logger, 4-20 mADC Measurement Range

AC AND DC MILLIVOLT DATA LOGGER

When used with a current clamp, this standalone data logger measures and stores up to 127,000 AC and DC current readings over a 0 to 1000A measurement range (0-723A for AC). In 'energy monitoring' mode, data is converted into power, energy (applying a user defined voltage value) and cost (with a user supplied energy unit cost). The millivolt measurement mode allows for direct measurement of voltage, up to 1V DC (700mV AC).



EL-USB-ACT

- Compatible with AC and DC Current Clamps
- Stores More Than 127,000 Readings
- Programmable Sample Rates from 1 Sec to 12 Hours
- USB Interface for Set-up and Data Download
- Immediate, Delayed and Push-to-start Logging Modes
- High Contrast 4 Digit LCD Screen

ORDERING INFORMATION

EL-USB-ACT	AC and DC Millivolt Data Logger with Current Clamp Input
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STAND-ALONE DATA LOGGERS

These robust, IP67/NEMA 4X rated data logger stores up to 256,000 readings with on-screen programming, data download and graphing independent of the computer. Micro USB interface (cable supplied) allows for PC based set-up and download if required. Also includes a high contrast graphic screen with white backlight, logging rates between 10 sec and 12 hrs, user programmable alarm thresholds, audible alarms, status LEDs and 2 user replaceable batteries.



EL-GFX-1

- -30 to +80°C (-22 to +176°F) Measurement Range
- Stores More Than 256,000 Readings with 0.1°C Resolution
- Programmable Sample Rates from 10 Sec to 12 Hours
- Immediate, Delayed, Push-button or Temperature Triggered Start Mode
- Graphic LCD Shows Real-time Readings, Graph & Current Status
- High & Low Temperature Alarms with Programmable Thresholds

ORDERING INFORMATION

EL-GFX-1	Temperature Data Logger with Graphic LCD Screen
EL-GFX-2	Temperature/RH Data Logger with Graphic LCD Screen

USB TEMPERATURE DATA LOGGERS



EL-USB-1



EL-USB-1-LCD

- -35° to +80°C (-31° to +176°F) Measurement Range
- Stores More Than 16,000 Readings
- Programmable Sample Rates from 10 Sec to 12 Hours
- High and Low Alarm Thresholds with LED Indicators
- 2½ Digit LCD Display Shows Latest Log & Min/Max Temperatures
- Clear Cap Provides IP67 Seal

ORDERING INFORMATION

EL-USB-1	Temperature Data Logger
EL-USB-1-LCD	Temperature Data Logger with Display
EL-USB-1-PRO	Extended Temperature Data Logger



EL-USB-1-PRO

- -40° to +125°C (-40° to +257°F) Range
- Stores More Than 32000 Readings
- 316 Stainless Steel Case, IP67 Rating

USB TEMPERATURE/RH DATA LOGGERS



EL-USB-2



EL-USB-2-LCD

- -35° to +80°C (-31° to +176°F) & 0-100% RH Measurement Range
- Stores Than 16,000 Dual Readings
- Programmable Sample Rates from 10 Sec to 12 Hours
- High and Low Alarm Thresholds with LED Indicators
- 2½ Digit LCD Display Shows Latest Log & Min/Max Temperatures
- Clear Cap Provides IP67 Seal

ORDERING INFORMATION

EL-USB-2	Temperature/RH Data Logger
EL-USB-2-LCD	Temperature/RH Data Logger with Display
EL-USB-2+	Higher Accuracy (0.3°C) Temperature/RH Data Logger
EL-USB-2-LCD+	Higher Accuracy Temperature/RH Data Logger with Display

USB THERMOCOUPLE DATA LOGGERS



EL-USB-TC



EL-USB-TC-LCD

- -200° to +1350°C (-328° to +2462°F) Measurement Range
- Stores More Than 32,000 Readings
- Programmable Sample Rates from 1 Sec to 12 Hours
- 4 Digit LCD Readout (-LCD model) 0.5°C/1°F Resolution
- Accepts K, J & T Thermocouples via Connector in Base
- Supplied with Type K probe

ORDERING INFORMATION

EL-USB-TC	Thermocouple Data Logger
EL-USB-TC-LCD	Thermocouple Data Logger with Display

WiFi TEMPERATURE LOGGERS

These data loggers measure ambient temperature, RH & dew point. During set-up, the user selects the WiFi network, names the logger, chooses the sample and transfer-to-PC rate as well as high and low alarms. Once programmed, the units can be placed in the range of the WiFi network, transferring data to the PC for on-screen viewing.



EL-WIFI-TH

- Easy Set-Up Using Free PC Software and USB Cable
- LCD Display Shows Min/Max/Last Values plus Alarm & Battery Status
- Adjustable High and Low Alarms
- View Multiple Sensors from 1 PC
- Rechargeable Internal Lithium Polymer Battery
- Sensor's Memory Stores Data if Temporarily Disconnected from WiFi

ORDERING INFORMATION

EL-WIFI-TH	Temperature, Humidity & Dew Point Logger
EL-WIFI-T	Temperature Logger
EL-WIFI-TP	Temperature Logger with external probe

Extech Temperature & Humidity Dataloggers

Thermocouple Datalogger

- Dual & differential temperature measurements
- Time stamped datalogging
- 7 thermocouple types
- Pushbutton or timer triggering
- 3 to 355 second sample rate
- Large 4¹/₂ digit backlit display
- Min/Max/Avg or Min/Max with elapsed time



EA15

SPECIFICATIONS

Range:		
J	-200 to 1994°F	-150 to 1090°C
K	-200 to 1999.9°F	-150 to 1370°C
T	-200 to 752°F	-150 to 400°C
E	-200 to 1598°F	-150 to 870°C
R	35 to 1999.9°F	2 to 1767°C
S	35 to 1999.9°F	2 to 1767°C
N	-200 to 1999.9°F	-150 to 1300°C

Resolution:	0.1°
Basic Accuracy:	±0.05% rdg (+1.5°F/+0.75°C) Types J,K,E,T,N ±0.05% rdg (+4°F/+2°C) Types R,S
Dimensions:	6" x 2.8" x 1.5" (152x72x37mm)
Supplied with 2 Type K probes, PC software, RS-232 cable, holster, case & AAA batteries.	

EX/EA15	EasyView™ Temperature Datalogger
EX/EA15-NIST	EasyView™ Temperature Datalogger w/ NIST Certificate
EX/871515	Type K General Purpose Temperature Probe
EX/872501-S	Bead Wire Temperature Probe
EX/409996	Soft Vinyl Pouch Carrying Case

Hygro-Thermometer Datalogger

- Dual display of RH, temperature, dew point & wet bulb
- Store up to 15,000 readings
- Sample rates from 1 to 86000 seconds
- Data hold, Relative & Min/Max
- Programmable power off timer



EA25

SPECIFICATIONS

Range:		
Dew Point	-91.1 to 139.8°F (-68.4 to 59.9°C)	
Wet Bulb	21.7 to 140°F (-5.7 to 60.0°C)	
Temperature	-4 to 122°F (-20 to 50°C)	
Humidity	0-95% RH	
Resolution:	0.1°, 0.1%	
Accuracy:	±0.9°F (±0.5°C), ±3% RH	
Dimensions:	6"x2"x1.4" (152x72x35mm)	
Supplied with probe, stand, protective cover, PC software, RS-232 cable, holster, case & AAA batteries.		

EX/EA25	EasyView Hygro-Thermometer Datalogger
EX/EA25-NIST	EasyView Hygro-Thermometer Datalogger w/ NIST certificate

Chart Recorder

- Graphical & digital display
- 49000 reading memory
- Programmable resolution
- Audible & visual alarms
- Wall or benchtop mounting



RH520

SPECIFICATIONS

Temperature	-20.0 to 140.0°F (-28.0 to 60.0°C)
RH	10.0 to 95.0%
Accuracy:	±1.8°F (±1°C), ±3% RH
Dimensions:	5" x 7.7" x 0.9" (129x195x22mm)

Supplied with 3' probe, stand, RS-232 cable, AA batteries & AC adapter.

EX/RH520	Humidity + Temperature Chart Recorder
EX/RH520-NIST	Humidity + Temperature Chart Recorder w/ NIST certificate
EX/SL123	AC Alarm Relay Module with 9' (3m) cable
EX/SL124	DC Alarm Relay Module with 9' (3m) cable

Datalogger Kits

- Log temperature or temperature/humidity
- Store 8000 readings for each parameter
- Log data for days, weeks or months
- Sample rates from 1sec to 2hrs
- Start on schedule, immediate or magnetic trip
- Program & download multiple modules from one docking station



42275

SPECIFICATIONS

Temperature:	-40°F to 185°F (-40°C to 85°C)
Humidity:	0 to 100%RH
Accuracy:	±1°F (-4 to 122°F), ±2°F (-40 to -4°F, 122 to 185°F) ±0.6°C (-20 to 50°C), ±1.2°C (-40 to 20°C, 51 to 85°C)
	±5%RH
Resolution:	0.1°, 0.1%
Battery:	Lithium, 1 yr life
Module:	3" x 2.3" x 0.88" (76x57.2x22.3mm)

EX/42275	Temperature/Humidity Datalogger Kit
EX/42270	Temperature/Humidity Datalogger
EX/42265	Temperature Datalogger Kit
EX/42260	Temperature Datalogger for 42265

Datalogger kits include docking station & software.

Extech Sound Meters

Datalogging Sound Level Meter

- ANSI Type 2 meter with 16000 record memory
- Large LCD with fast 50 segment bargraph
- Time stamped data, Max Hold function
- RS-232 & recorder outputs
- Tripod mounting

407764 ▶



SPECIFICATIONS

Range:	30-130dB
Basic Accuracy:	±1.5dB
Weighting:	A & C
Response Time:	Fast, slow
Dimensions:	10.4 x 2.8 x 0.8" (265x72x21mm)

ORDERING INFORMATION

Complete with microphone, wind cover, Windows software, serial cable, AA batteries & carrying case.

EX/407764	Datalogging Sound Level Meter
EX/144117	120V AC Adapter
EX/407764-EXT	Microphone Extension Cable, 15ft (4.7m)
EX/407744	94dB Sound Calibrator
EX/407766	94/114dB Sound Calibrator

Sound Level Monitor

NEW

- Extra large display with bargraph
- Adjustable high or low limit
- OVER display
- External alarm output
- Time stamped Max reading memory
- Meets ANSI Type 2
- Wall, bench or tripod mounting

▶ **SL130**



SPECIFICATIONS

Frequency:	31.5Hz - 8kHz
Ranges:	30-80dB, 60-110dB, 80-130dB
Resolution:	0.1dB
Weighting:	A & C
Response Time:	Fast (125ms), Slow (1s)
Dimensions:	8.75 x 7.1 x 1.25" (22x18x3.2mm)

ORDERING INFORMATION

Complete with swivel microphone, wind cover, AA batteries

EX/SL130G	Sound Level Monitor with 110V AC Adapter
EX/SL125	Microphone Extension Cable, 15ft (4.7m)
EX/SL123	AC Alarm Relay Module, 9ft cable
EX/SL124	DC Alarm Relay Module, 9ft cable
EX/TR100	Tripod

Extech Clamp-On Power Datalogger

- 1000A Clamp measures 1Ø & 3Ø power to 600kW
- Display True Power, Apparent Power, Power Factor, True RMS Voltage & Current, Resistance and Frequency
- Dual display of kW+PF, kVA+PF, V+A, A+Hz or V+Hz
- Clamp jaws open to 1.8" (46mm)
- Data Hold and Auto Power Off
- Built-in recorder datalogs up to 4000 readings
- 25 point data memory viewable on the LCD display
- Full function display on large 4-digit LCD with fast 40 segment bargraph, Peak Hold and Min/MAX
- CAT III-600V; CE
- Includes 9V battery, alligator clips, test leads, case, RS-232 module, Windows compatible software and cable

382068 ▶



SPECIFICATIONS

	Range	Resolution	Basic Accuracy
True Power:	600kW	10W	±(2%rdg+5d)
Apparent Power:	1000kVA	10VA	±(2%rdg+5d)
Peak Current:	1000A	0.1A	±(6%rdg+10d)
Peak Voltage:	600V	0.1A	±(6%rdg+10d)
AC Current (40-500Hz):	1000A	0.1A	±(1.5%rdg+5d)
DC Current:	1000A	0.1A	±(1.5%rdg+5d)
AC Voltage (40-500Hz):	600V	100mV	±(0.5%rdg+5d)
DC Voltage:	600V	100mV	±(0.5%rdg+5d)
Frequency:	5kHz	0.1Hz	±(0.5%rdg+5d)
Resistance:	10kΩ	1Ω	±(1%rdg+5d)
Continuity:	Beeper when <50Ω		
Dimensions/	10.2x3.7x1.8" (260x93x45mm)/		
Weight:	15.9oz (450g)		

ORDERING INFORMATION

EX/382068	Clamp-on Power Datalogger kit with software
EX/382068-NIST	Clamp-on Power Datalogger kit with software & NIST certificate
EX/480172	AC Line Splitter, 3-prong plug with x1 & x10 positions, live voltage indicator

480172 ▶



RECORDERS /
DATA LOGGERS