

Data Logger Multicanale



Modello	LR8410/20	LR8400/20	LR8401/20	LR8402/20	LR8431/20	8423
Misure						
Tensione Vcc	Portate: ±10mV a ±100V	Portate: ±10mV a ±100V			Portate: ±10mV a ±100V	Portate: ±10mV a ±100V
Temperatura termocoppie	K, J, E, T, N, R, S, B, da -200°C a +2000°C	K, J, E, T, N, R, S, B, W, da -200°C a +2000°C			K, J, E, T, N, R, S, B, da -200°C a +2000°C	K, J, E, T, N, R, S, B, da -200°C a +2000°C
Temperatura termoresistenze	PT100 e jPT100, da -200°C a +800°C	PT100 e jPT100, da -200°C a +800°C			-	PT100 e jPT100, da -200°C a +800°C
Umidità	con sensore 2000Z da 0% a 100% U.R.	con sensore 2000Z da 0% a 100% U.R.			-	con sensore 9701 da 0% a 100% U.R.
Resistenza Rdc	Portate: da 10Ω a 200Ω	Portate: da 10Ω a 200Ω			-	-
Impulsi	-	8 canali	8 canali	8 canali	4 canali	120*
Ingressi logici	-	8 canali	8 canali	8 canali	-	120*
Prestazioni di misura e registrazione						
Velocità di campionamento	da 10msec a 60 min	da 10msec a 60 min			da 10msec a 60 min	da 10msec a 60 min
Memoria interna	16MB	16MB	16MB	16MB	7MB	32MB
Card	2GB	2GB	2GB	2GB	2GB	1GB
Ingressi di misura						
Ingressi isolati tra loro	SI*	SI*	SI*	SI*	SI	SI*
Tensione max tra canali	300Vcc	300Vcc*	300Vcc*	300Vcc*	60Vcc	200Vcc*
Tensione max verso terra	300Vcc/ca	300Vcc/ca	300Vcc/ca	300Vcc/ca	60Vcc	600Vcc/ca*
Max ingressi analogici	105	60	60	60	10	120
Max ingressi digitali	-	8	8	8	4 (solo impulsi)	120
Moduli di ingresso	Max 7, con Bluetooth	Max 4 per totale 60 canali analogici			-	Max 8 da 15 canali
Display						
Dimensioni display grafico	5.7 pollici	5.7 pollici	5.7 pollici	5.7 pollici	4.3 pollici	su PC tramite software
Interfacce						
USB	SI	SI	SI	SI	SI	SI
Slot per chiavi USB	SI	SI	SI	SI	SI	-
LAN	SI	SI	SI	SI	SI	SI
SD Card	SI	-	-	-	-	-
CF Card	-	SI	SI	SI	SI	SI
Alimentazione						
Diretta in CA	-	-	-	-	-	SI
Tramite adattatore in CA	SI	SI	SI	SI	SI	SI
Tramite batterie ricaricabili**	SI	SI	SI	SI	SI	-
Diretta in CC	SI	SI	SI	SI	SI	-

(*) Le caratteristiche indicate con asterisco (*) sono da valutare in funzione dei moduli di ingresso intercambiabili (opzionali) installati sull'unità principale
 (**) non fornite in dotazione

Mini Data Logger Bluetooth®



Modello	LR8512	LR8513	LR8514	LR8515	LR8520
Misure					
Tensione Vcc	-	-	-	±50Vcc	-
Corrente Acc	-	fino a 2000Acc	-	-	-
Corrente Aca	-	fino a 1000Aca	-	-	-
Temperatura	-	-	-40°C ... +80°C	-	-40°C ... +80°C
Termoresistenze (K e T)	-	-	-	-200°C ... +1000°C	-
Umidità	-	-	0% ... 100%	-	0% ... 100%
Conta-Impulsi/ Contagiri	2 canali	-	-	-	-
Indice fungino	-	-	-	-	SI
Prestazioni di misura e registrazione					
Quantità di canali	2 canali	2 canali	2+2 canali	2 canali	1+1 canali
Memoria interna	500.000 dati/canale				500.000 dati
Cadenza di registrazione	da 0.1sec a 60min	da 0.5sec a 60min		da 0.1sec a 60min	da 0.5sec a 60min
Tipo di registrazione	Valore istantaneo	Istantaneo e medio	Valore istantaneo		
Comunicazione e interfaccia					
Tipo di connessione	Bluetooth®2.1 + EDR				
Dispositivi supportati	Windows PC e Android tablet + smartphone				
Sistemi Operativi	Windows 8.1/8/7/Vista (32-64bit) – Android OS 4.0.3 o superiore				
Software di analisi dati	Logger Utility (in dotazione)				
Display	40 x 25 mm				
Connettività a Data-Logger	tramite Bluetooth® a LR8410/20				
Alimentazione					
Tramite batterie	Nr. 02 batterie alcaline LR6 (in dotazione)				
Tramite adattatore in CA	Alimentatore in CA (opzionale)				
Esterna in CC	Da 5Vcc a 13.5Vcc (anche tramite USB con apposito cavetto, non fornito)				
Accessori in dotazione					
Batterie LR06	02	02	02	02	02
Cavetteria	L1010 (02)	-	-	-	L1010 (01)
Accessori opzionali					
Sensori	-	7 modelli, da 500mA a 2000A	Z2010 Z2011	-	Z2010 Z2011
Alimentatore in CA	Z2003 (da 100Vca a 240Vca, 50-60Hz – uscita 12Vcc)				
Supporto magnetico	Z5004 (cinghia di fissaggio con supporto magnetico)				

(*) Le caratteristiche indicate con asterisco (*) sono da valutare in funzione dei moduli di ingresso intercambiabili (opzionali) installati sull'unità principale
 (**) non fornite in dotazione

Modularità totale...
l'acquisizione dati non ha confini



Fino a 600 canali di misura,
con campionamento 10msec
ed ingombri minimi

Versatile e veloce, doppiamente veloce

8423 è un sistema di acquisizione dati in grado di misurare e registrare una elevata quantità di segnali ad alta velocità. I dati acquisiti possono essere analizzati sfruttando le funzionalità grafiche di un computer. 8423 è ideale per l'acquisizione di dati per la valutazione e la sperimentazione in fase di Ricerca e Sviluppo. Nello sviluppo di automobili elettriche e ibride, è necessario catturare ogni variazione di carico improvvisa con elevata velocità e su una elevata quantità contemporanea di canali. 8423 campiona ogni 10 msec su tutti i canali ed include una funzione di doppio campionamento con 2 diverse frequenze di campionamento contemporanee.

Componibile ed installabile in quadri rack

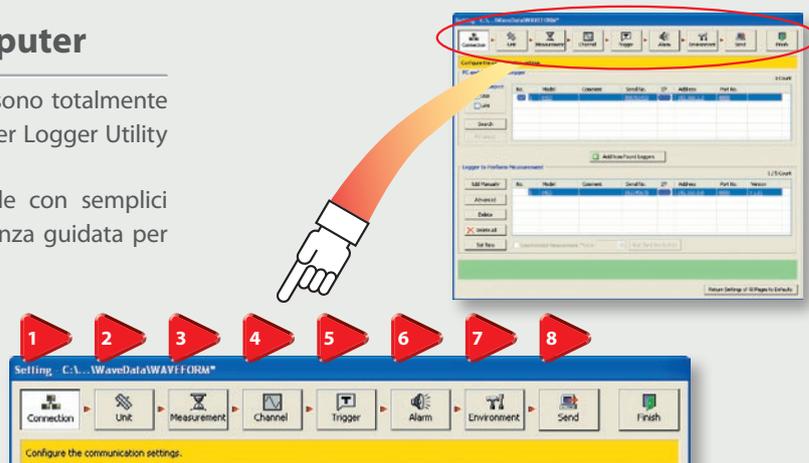
L'unità master ed i moduli di ingresso sono costruiti per una connessione combinata rapida. I singoli moduli sono facilmente rimovibili in modo da consentire il collegamento alla morsetteria di sensori e sonde prima della installazione fissa a fianco dell'unità master. L'accoppiamento è facile e veloce, basta allineare i connettori e chiudere il gancio in metallo. Il lato posteriore di ogni unità è sagomato per il montaggio su guida DIN standard installabile in quadri/moduli rack.



Configurazione tramite computer

Le configurazioni di misura e registrazione sono totalmente gestite dall'applicativo software per computer Logger Utility fornito in dotazione.

Ogni impostazione è facilmente realizzabile con semplici operazioni con il mouse, tramite una sequenza guidata per ogni elemento da configurare.

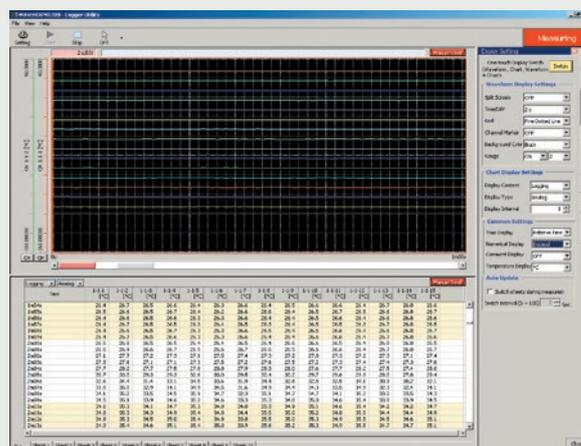


Software Logger Utility: gestione in tempo reale

L'applicativo software Logger Utility viene inoltre utilizzato per analizzare in tempo reale i dati in registrazione su 8423. La barra di scorrimento orizzontale consente di muovere sull'asse dei tempi il cursore e la visualizzazione, per analizzare i dati precedenti e le tendenze.

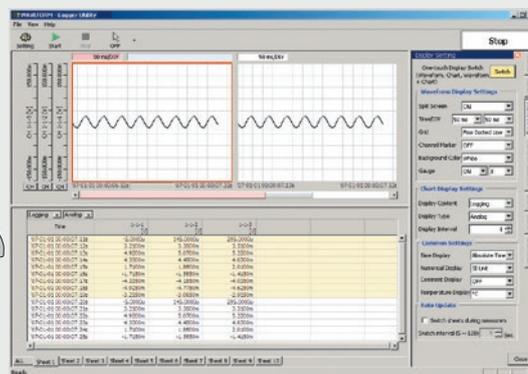
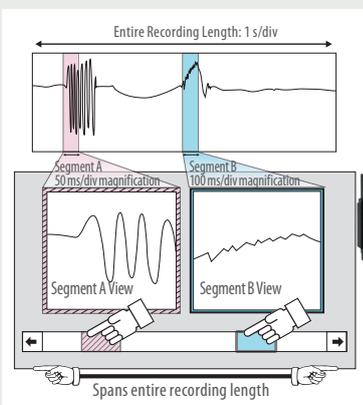


Direct connection with a LAN crossover or USB cable



Software Logger Utility: analisi a posteriori con doppio cursore

La funzione doppio-cursore, brevettata Hioki, semplifica l'analisi a posteriori in quanto visualizza 2 finestre affiancate, ciascuna con una barra di scorrimento orizzontale, contenenti una casella di scorrimento che corrisponde all'ampiezza del segmento e alla posizione entro la forma d'onda complessiva. La possibilità di modificare la base tempi su ognuna delle 2 finestre di zoom fornisce un modo pratico e veloce per analizzare i dati raccolti nel lungo periodo, semplificando notevolmente le operazioni di ricerca a scorrimento sull'asse dei tempi.



3 moduli di ingresso, ognuno con 15 canali analogici ed 1 modulo per allarmi

8948: UNITÀ 15 CANALI TENSIONE - TEMPERATURA (termocoppie)

Tensione: 6 portate di misura: da 10mV a 100V + 1-5V f.s. per trasduttori (ris. 500uV)

Temperatura: 9 tipi di termocoppie: K, J, E, T, N, R, S, B, W da -200°C a +2000°C, con risoluzione 0.01°C

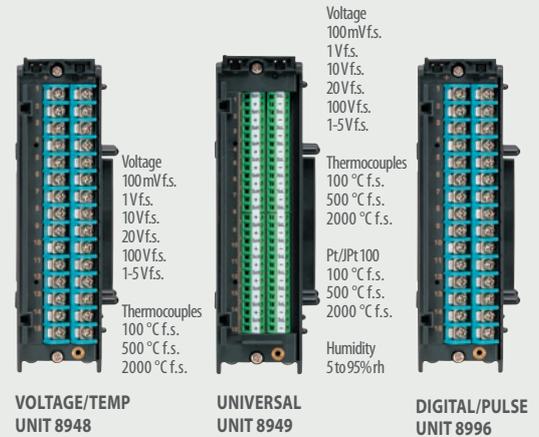
8949: UNITÀ 15 CANALI UNIVERSALI

Tensione: 6 portate di misura: da 10mV a 100V + 1-5V f.s. per trasduttori (ris. 500uV)

Termocoppie: 9 tipologie: K, J, E, T, N, R, S, B, W su campo da -200°C a +2000°C, con risoluzione 0.01°C

Termoresistenze: 2 tipologie: PT100 e jPT100, da -200°C a +800°C, con risoluzione 0.01°C (canali non isolati tra loro)

Umidità: 100%U.R. f.s. con sonda 9701, risoluzione 0.1%U.R. (canali non isolati tra loro)



8996: UNITÀ 15 CANALI DIGITALI - IMPULSI

Conteggio impulsi proporzionali da contatori esterni - **Velocità di rotazione** di motori ed encoder

8997: UNITÀ 15 USCITE D'ALLARME

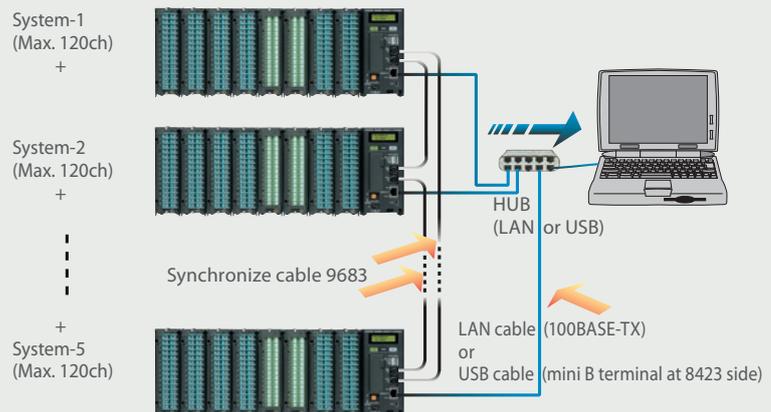
Uscite per segnalazione allarme: uscite digitali di tipo open collector che si attivano quando è soddisfatto il requisito di attivazione. Configurazione tramite formule logiche AND e OR tra i canali (uscita 5Vcc e potere di commutazione 5-60V @ 10mA)

Sincronizzazione tra unità 8423

Per misure fino a 120 canali su moduli combinati con la medesima unità master, tutti i canali sono campionati simultaneamente.

La connessione multipla fino a 5 unità 8423 (LAN o USB) consente di mantenere la sincronia definendo preliminarmente qual è l'unità 8423 di riferimento; in questo modo si ottiene una misura simultanea di 600 segnali.

Le funzioni di START e STOP della registrazione sono disponibili su PC oppure da tastiera frontale dell'unità 8423 identificata come master del gruppo.



Misura e registrazione a lungo termine

Recording Times with a 256 MB Card (Voltage, Temperature and Humidity Measurements, but no Pulse Channels)

Recording intervals	256MB (using 1 channel)	256MB (using 15 channels)	256MB (using 30 channels)	256MB (using 60 channels)	256MB (using 120 channels)
10ms	15 d 12 h 49 min	1 d 00 h 51 min	12 h 25 min	6 h 12 min	3 h 06 min
20ms	31 d 01 h 39 min	2 d 01 h 42 min	1 d 00 h 51 min	12 h 25 min	6 h 12 min
50ms	77 d 16 h 08 min	5 d 04 h 16 min	2 d 14 h 08 min	1 d 07 h 04 min	15 h 32 min
100ms	155 d 08 h 16 min	10 d 08 h 33 min	5 d 04 h 16 min	2 d 14 h 08 min	1 d 07 h 04 min
200ms	310 d 16 h 32 min	20 d 17 h 06 min	10 d 08 h 33 min	5 d 04 h 16 min	2 d 14 h 08 min
500ms	"★"	51 d 18 h 45 min	25 d 21 h 22 min	12 d 22 h 41 min	6 d 11 h 20 min
1s	"★"	103 d 13 h 30 min	51 d 18 h 45 min	25 d 21 h 22 min	12 d 22 h 41 min
10s	"★"	"★"	"★"	258 d 21 h 47 min	129 d 10 h 53 min
1min	"★"	"★"	"★"	"★"	"★"
10min	"★"	"★"	"★"	"★"	"★"
1hour	"★"	"★"	"★"	"★"	"★"

Note: Actual CF data capacity is less than total CF storage capacity, and waveform file headers are not included in these calculated values, so we recommend using 90% of these values for estimation purposes.

Note: "★" Periods longer than 1 year is abbreviated.

Recording Times with a 256 MB Card (Pulse Channels use only)

Recording intervals	256MB (using 1 channel)	256MB (using 15 channels)	256MB (using 30 channels)	256MB (using 60 channels)	256MB (using 120 channels)
10ms	7 d 18 h 24 min	12 h 25 min	12 h 25 min	12 h 25 min	3 h 06 min
20ms	15 d 12 h 49 min	1 d 00 h 51 min	1 d 00 h 51 min	12 h 25 min	6 h 12 min
50ms	38 d 20 h 04 min	2 d 14 h 08 min	2 d 14 h 08 min	1 d 07 h 04 min	15 h 32 min
100ms	77 d 16 h 08 min	5 d 04 h 16 min	5 d 04 h 16 min	2 d 14 h 08 min	1 d 07 h 04 min
200ms	155 d 08 h 16 min	10 d 08 h 33 min	10 d 08 h 33 min	5 d 04 h 16 min	2 d 14 h 08 min
500ms	"★"	25 d 21 h 22 min	25 d 21 h 22 min	12 d 22 h 41 min	6 d 11 h 20 min
1s	"★"	51 d 18 h 45 min	51 d 18 h 45 min	25 d 21 h 22 min	12 d 22 h 41 min
10s	"★"	"★"	"★"	258 d 21 h 47 min	129 d 10 h 53 min
1min	"★"	"★"	"★"	"★"	"★"
10min	"★"	"★"	"★"	"★"	"★"
1hour	"★"	"★"	"★"	"★"	"★"

Note: Actual CF data capacity is less than total CF storage capacity, and waveform file headers are not included in these calculated values, so we recommend using 90% of these values for estimation purposes.

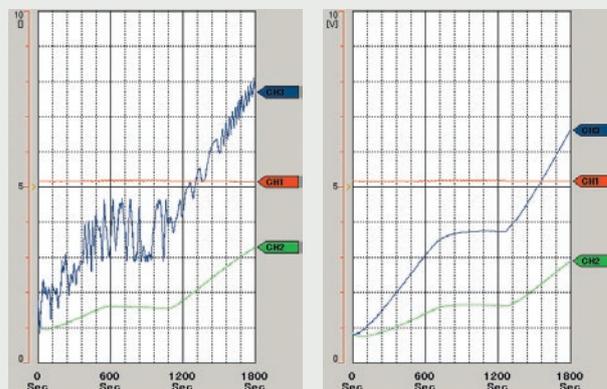
Note: "★" Periods longer than 1 year is abbreviated.

Funzione di soppressione del rumore

La funzione di filtro soppressore riduce il rumore elettrico in uscita dai convertitori di potenza (inverter) a 50/60Hz.

L'effetto di riduzione del rumore migliora con intervallo di registrazione più lungo.

Le due immagini qui a fianco evidenziano la misura di temperatura su un forno elettrico, con e senza l'attivazione del filtro sul rumore elettrico.



Interfacce di comunicazione e registrazione

- Interfaccia LAN 100Base-TX
- Funzione HTTP server
- Funzione FTP server
- Porta per mini-USB
- Slot per CF Card



Product Specifications

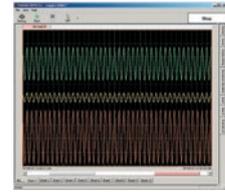


8423 Hardware Specifications <small>(accuracy is specified @23 ±5°C/73 ±9°F, 30 to 80 % rh, from 30 minutes after power on, accuracy guaranteed for one year, product guaranteed for one year)</small>	
Display	LCD, 16 characters × 2 lines, 5 × 8 dots / characters
Memory capacity	Total 16 M-word (about 16.77 million data points: 32 mega-bytes)
External control connectors	Push-button type terminal block : External trigger/ External sampling input (exclusive OR), External start input, External stop input External sampling : rise-up, or fall-down (selectable) Rise-up : Low (0 to 1.0 V) to High (2.5 to 5.0 V) Fall-down : High (2.5 to 5.0 V) to Low (0 to 1.0 V), or terminal short Input voltage range : -5 to 10 V DC, Filter ON/OFF possible Pulse width response : Over 1 ms at "H", over 2 μs at "L" (at filter OFF), Over 2.5 ms at "H", over 4 ms at "L" (at filter ON) Maximum external sampling period : 10 ms (at digital filter OFF), 20 ms (at digital filter OFF, and synchronous measurement), 5 s (at digital filter ON, and combined with humidity measurement) Synchronous sampling : Five-units maximum for synchronous connection, Function : Connect via the connection cable model 9683 for synchronous sampling
Clock	Auto calendar, leap year auto distinguish, Precision : ±0.2s/ day at power ON, ±3s/ day at power OFF (at 23 °C/ 73°F)
Accuracy of timebase	±0.2s/ day on measurement (at 23 °C/ 73°F)
Recording intervals	10ms, 20ms, 50ms, 100ms, 200ms, 500ms, 1s, 2s, 5s, 10s, 20s, 30s, 1min, 2min, 5min, 10min, 20min, 30min, 1hr (5s to 1hr when combined with humidity measurement)
Recording length	Set to arbitrary length or continuous; Data storage : last 16-mega datas in internal memory (for one channel recording. For n channels, 16 M-datas / n data)
Recording mode	Continue, Repeat, Timer measurement
Number of data	For analog "n" channels, (16-mega datas / n) datas
Durability of battery	Backup battery for clock and setting conditions: battery life of at least 10 years, For measurement data: none (at 23 °C/ 73°F)
No. of connectable units	Maximum 8 units (total 120 channels)
Environmental conditions	Operating temperature and humidity : 0 (32°F) to 40°C (104°F), 30 to 80% rh, Storage temperature and humidity : -10 (14°F) to 50°C (122°F), 80% rh or less, (non-condensating)
Conforming standards	Safety : EN61010, EMC : EN61326, EN61000-3-2, EN61000-3-3
Power supply	(1) Using the AC ADAPTER 9418-15 , 100 to 240 VAC, 50/60 Hz (2) 12 V Battery (voltage may range from -20% to +30%, Please contact HIOKI for connection cord).
Power consumption	20 VA (when connected with 8 units)
Dimensions & Mass	Approx. 67 mm (2.64 in) W × 133 mm (5.24 in) H × 125 mm (4.92 in) D, 600 g (21.2 oz)
Accessories	Operating Manual x1, Quick Start Manual x1, AC ADAPTER 9418-15 x1, USB cable x1, Connection Plate x1, CD-R (data collection software "Logger Utility") x1, Connector cover x1, Ferrite clamp x1

PC Interface	
Data storage media	CF card slot × 1, HIOKI 9727 (256MB), 9728 (512MB), 9729 (1GB), MS-DOS format, <i>Note: Cannot use with the 9830 (2GB) card</i>
Interface	LAN : supports 100Base-TX, DHCP, DNS USB : Ver 2.0, mini-B receptacle
PC control	Data acquisition and measurement criteria settings are controlled by the PC data acquisition program; data acquired to internal memory and CF Cards is downloaded via FTP server function; simple operations (measurement start/stop and data acquisition to internal memory) are available via HTTP server function

Function Specifications	
Major Functions	Control the input units, or output units, Communication to the PC, Data storage to the CF card
Measurement parameters	Depending on the connected measurement unit: Temperature (thermocouple, Pt), voltage, humidity (used optional sensor), totalized pulses (addition, instantly), rotation count, digital signal
Real time save	Measurement data are saved as binary data to the CF Card in real time, and can be saved to separate files at preset times, selectable as full files or an endless loop with automatic deletion of oldest data.
Dual sampling	Two (high-speed and low-speed) recording intervals can be specified for every input module from the following: 10, 20, 50, 100, 200 and 500 ms; 1, 2, 5, 10, 20 and 30 s; 1, 2, 5, 10, 20 and 30 min; and 1 hr (the low-speed setting divided by the high-speed setting must be an integer less than 1,000)
Marking	Event mark input : Press [Start / Stop] key at measurement
Trigger function	Mode : Single / Repeat, Timing : Start / Stop / Start & Stop, Pre-Trigger : records period before trigger, can be set for real-time saving
Trigger source	Analog input : Maximum 120 channels, depend on number of the input unit. Pulse totalizer inputs : Maximum 120 channels, depend on number of the input unit. Logic inputs : Maximum 120 channels, depend on number of the input unit. External trigger : Rise up or fall down of the external input signal (selectable) Logical AND or OR for each trigger source, Trigger condition settable for each channels
Trigger type	Level : Triggers when rising or falling through preset level Window : Triggers when entering or exiting range defined by preset upper and lower limit values Trigger level resolution : 0.1 % f.s. Logic : 1, 0, × Pattern trigger
External trigger signal	Rise up : Low level (0 to 1.0 V) to High level (2.5 V to 5.0 V) Fall down : High level (2.5 V to 5.0 V) to Low level (0 to 1.0 V), or terminal short Input voltage range : -5 V to 10 V, Filter ON/OFF possible, Pulse width response : more than 1 ms (High period), more than 2 μs (Low period) at filter OFF, more than 2.5 ms (High period), more than 4 ms (Low period) at filter ON
Alarm output	Alarm Module 8997 can be connected along with various measurement modules (although it cannot be connected alone)
Alarm type	Level : Triggers when rising or falling through preset level Window : Triggers when entering or exiting range defined by preset upper and lower limit values Logic pattern : agreement (or disagreement) in the specified pattern Output latch settings : latch / no latch
Start backup	Possible

■ Specification



■ Bundled software specifications



Logger Utility (bundled application software)	
Operating environment	One CD-R, CPU: Pentium 3 (500 MHz or more), at least 512 MB of memory Interface: USB, LAN (LAN not available with the Model 8430-20/-21) OS: Windows 2000 (SP4 or later)/ XP (SP2 or later)/ Vista (32-bit/ 64-bit), (Ver 1.50 or later) Windows 7 (32-bit/ 64-bit) (This software is compatible only to the MEMORY HiLOGGER LR8400-20s, LR8400-21s, 8423, 8430-20/-21)
Real-time data acquisition	Measurements on multiple loggers connected by LAN or USB can be controlled to sequentially acquire, display and save waveform data (for recording up to 10 million samples) Number of controllable instruments: up to 5 units Display: Waveforms (multiple time axis can be displayed), Numerical values (logging), Alarm status at the same time, Numerical value monitoring in a separate window, Waveform scroll while measuring Data saving destination: Real-time data transfer to EXCEL (new function), or Real-time data acquisition file (LUW format, only for HIOKI) Event marks: can be applied while recording
Data acquisition settings	Data acquisition settings for the HiLOGGER Saving: The setting for multiple HiLOGGERS can be saved together in one file (LUS format); Instrument configuration settings can be sent and received
Waveform display	Processed data file: Real-time data acquisition file (LUW format), Record to internal memory data (MEM format) Display format: Simultaneously display waveform and numerical value, (time-axis divided display possible) Maximum number of channels: 600 channels (measurement data, used with the 8423) + 60 channels (waveform processing data) Others: Waveform display on sheet for each channel, scroll, record event mark, cursor, hard copy, numerical value display

Data conversion	Target data: Real-time data acquisition file (LUW format), Record to internal memory data (MEM format), Waveform processing data Converted sections: All data, designation section Format: CSV format (separate by comma, space, tab), transfer to EXCEL spreadsheet, arbitrary data thinning
Parameter calculations	Target data: Real-time data acquisition file (LUW format), Record to internal memory data (MEM format), Data acquired in real time, Waveform processing data Calculation items: average, peak, maximum values, time to maximum values, minimum values, time to minimum values, ON time, OFF time, count the number of ON time and OFF time, standard deviation, integration, area values, totalization
Search function	Target data: Real-time data acquisition file (LUW format), Record to internal memory data (MEM format), Waveform processing data, Search mode: event mark, time and date, maximum position, minimum position, maximum pole, minimum pole, alarm position, level, window, amount of change
Print function	Supported printer: printer compatible with the OS Target data: Real-time data acquisition file (LUW format), Record to internal memory data (MEM format), Waveform processing data Print format: waveform image, report format, list print (channel settings, event, cursor value) Print area: the entire area, area between cursors A and B Print preview: supported
Waveform processing	Processing items: Four arithmetic operations Number of processing channels: 60 channels



VOLTAGE/TEMP UNIT 8948 (accuracy specified @23 ±5°C/73 ±9°F, 30 to 80% rh., from 30 minutes after power on and after zero point adjustment, accuracy and product guaranteed for one year)																																																																																																																																															
Input	Measurement parameters : Voltage, Thermocouples (K, E, J, T, N, W, R, S, B) Terminal : M3 (mm) screw terminals (2 terminals/1ch), terminal block removable, supplied terminal block cover Number of channels : 15 channels isolated from each other and chassis, (voltage or thermocouple selectable for each channels) Input impedance: 1MΩ (850kΩ when open-circuit polling is enabled)																																																																																																																																														
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Specification

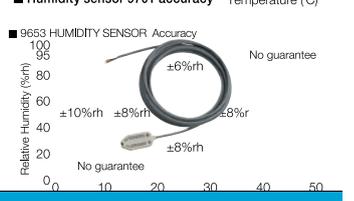
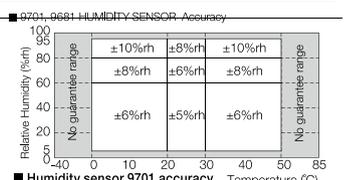


UNIVERSAL UNIT 8949 (accuracy specified @ 23 ±5°C/73 ±9°F, 30 to 80% rh., from 30 minutes after power on and after zero point adjustment, accuracy and product guaranteed for one year)

Input **Measurement parameters:** Voltage, Thermocouples (K, E, J, T, N, W, R, S, B), Resistance temperature sensor (Pt 100, JPt 100), Humidity (only use with the Model 9701 sensor)
Terminal: Screw-type terminals (4 terminals/1ch), terminal block removable, supplied terminal block cover **Number of channels:** 15 channels (input type selectable for each channels), Isolated from each other and chassis (at voltage or thermocouples), Not isolated from each other and common GND (at resistance temperature sensor or humidity)
Input impedance: 1MΩ (850kΩ when open-circuit polling is enabled at thermocouples), 2MΩ (when resistance temperature sensor)

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	100V f.s.	-60V to +60V	5mV		S 500°C f.s.	0°C to 500°C	0.05°C																											
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Thermocouples <small>Exclude the standard reference contact accuracy</small>	K 100°C f.s.	-100°C to 100°C	0.01°C	±0.05% f.s., ±1°C (400°C and above)	B 2000°C f.s.	0°C to 1800°C	0.1°C	W : Wre5-26 W 100°C f.s. 0°C to 100°C 0.01°C W 500°C f.s. 0°C to 500°C 0.05°C W 2000°C f.s. 0°C to 2000°C 0.1°C																										
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	K 2000°C f.s.	-200°C to 1350°C	0.1°C																															
	E 100°C f.s.	-100°C to 100°C	0.01°C																															
	E 500°C f.s.	-200°C to 500°C	0.05°C																															
	E 2000°C f.s.	-200°C to 1000°C	0.1°C																															
	J 100°C f.s.	-100°C to 100°C	0.01°C																															
	J 500°C f.s.	-200°C to 500°C	0.05°C																															
	J 2000°C f.s.	-200°C to 1200°C	0.1°C																															
	T 100°C f.s.	-100°C to 100°C	0.01°C																															
	T 500°C f.s.	-200°C to 400°C	0.05°C																															
	T 2000°C f.s.	-200°C to 400°C	0.1°C																															
	N 100°C f.s.	-100°C to 100°C	0.01°C																															
	N 500°C f.s.	-200°C to 500°C	0.05°C																															
N 2000°C f.s.	-200°C to 1300°C	0.1°C																																
Standard reference contact accuracy <small>with internal compensation, add to measurement accuracy</small>					±0.5°C (K, E, J, T) ±1.0°C (N, R, S, B, W)																													
Switching					Switchable between internal and external																													
Resistance temperature sensor <small>Pt 100, JIS C 1604-1997</small>	100°C f.s.	-100°C to 100°C	0.01°C	±0.05% f.s., ±0.5°C	<table border="1"> <thead> <tr> <th>Setting Range</th> <th>Measurement range</th> <th>Resolution</th> <th>Accuracy</th> </tr> </thead> <tbody> <tr> <td>100°C f.s.</td> <td>-100°C to 100°C</td> <td>0.01°C</td> <td rowspan="2">±0.05% f.s., ±0.5°C</td> </tr> <tr> <td>500°C f.s.</td> <td>-200°C to 500°C</td> <td>0.05°C</td> </tr> <tr> <td>2000°C f.s.</td> <td>-200°C to 800°C</td> <td>0.1°C</td> <td rowspan="2">±0.05% f.s., ±0.5°C</td> </tr> <tr> <td>100°C f.s.</td> <td>-100°C to 100°C</td> <td>0.01°C</td> </tr> <tr> <td>500°C f.s.</td> <td>-200°C to 500°C</td> <td>0.05°C</td> <td rowspan="2">±0.05% f.s., ±0.5°C</td> </tr> <tr> <td>2000°C f.s.</td> <td>-200°C to 500°C</td> <td>0.1°C</td> </tr> </tbody> </table>					Setting Range	Measurement range	Resolution	Accuracy	100°C f.s.	-100°C to 100°C	0.01°C	±0.05% f.s., ±0.5°C	500°C f.s.	-200°C to 500°C	0.05°C	2000°C f.s.	-200°C to 800°C	0.1°C	±0.05% f.s., ±0.5°C	100°C f.s.	-100°C to 100°C	0.01°C	500°C f.s.	-200°C to 500°C	0.05°C	±0.05% f.s., ±0.5°C	2000°C f.s.	-200°C to 500°C	0.1°C
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Humidity	100% rh	5.0 to 95.0% rh	0.1% rh	Refer to the accuracy table																														

A/D conversion Resolution : 16 bit, Maximum sampling speed : 10 ms (5 s when combined with humidity measurement)
Filter function Digital filter : OFF, 50 Hz, 60 Hz (With 50 and 60 Hz settings, the digital filter is automatically set according to recording interval)
Max. allowable input Max. allowable input : 60 V DC (maximum voltage between input terminals that does not cause damage), Max. rated voltage between channels : 120 V DC
 Max. rated voltage to earth : 600 V DC, AC (Upper limit voltage that does not cause damage when applied between input channel and chassis, and between each input channels)
Conforming standards Safety : EN61010, EMC : EN61326
Dimensions & Mass Approx. 38.5 mm (1.52 in) W × 133 mm (5.24 in) H × 141.2 mm (5.56 in) D mm, 530 g (18.7 oz)
Accessories Flat-blade Screwdriver x1 (for terminal block), Connection Plate x1, Operating Manual x1



DIGITAL/PULSE UNIT 8996 (product guaranteed for one year)

Input **Input signal condition:** No-voltage 'a' contact (normally open contact), open collector or voltage input, Digital / Pulse input selectable for each channels
Measurement parameters: Voltage, Totalized pulses (integrated or instantaneous), Rotation count, ON/OFF digital signal
Terminal: M3 (mm) screw terminals (2 terminals/1ch), terminal block removable, supplied terminal block cover
Number of channels: 15 channels (digital / pulse selectable for each channels) (common ground for CH-1 to CH-5, common ground for CH-6 to CH-10, common ground for CH-11 to CH-15) **Input impedance:** 1.1MΩ

Pulse input	Setting Range	Measurement range	Resolution	Pulse input period with filter OFF	Pulse input period with filter ON
Totalized pulses	1,000M pulse f.s.	0 to 1,000M pulse	1 pulse	200 μs or more (both H and L periods must be at least 100 μs)	100 ms or more (both H and L periods must be at least 50 ms)
Rotation count	5,000/n (r/s) f.s.	0 to 5,000/n (r/s)	1/n (r/s)	Chatter-prevention filter : can be set ON/OFF for each channels	
			<i>Note: n = pulses per rotation (1 to 1,000)</i>		
Logic detection level	HIGH = at least 1.0 V, LOW = 0 to 0.5 V HIGH = at least 4.0 V, LOW = 0 to 1.5 V				

Max. allowable input 50 V DC (maximum voltage between input terminals that does not cause damage)
Max. rated voltage to earth 600 V DC, AC (Upper limit voltage that does not cause damage when applied between CH-1 to CH-5 each channel and chassis, CH-6 to CH-10 each channel and chassis, CH-11 to CH-15 each channel and chassis, and between each UNITS)
Max. rated voltage to each channels 33 V AC rms, 70 V DC (Upper limit voltage that does not cause damage when applied between CH-1 to CH-5 each channel and CH-6 to CH-10 each channel, CH-6 to CH-10 each channel and CH-11 to CH-15 each channel, CH-1 to CH-5 each channel and CH-11 to CH-15 each channel)
Conforming standards Safety : EN61010, EMC : EN61326
Dimensions & Mass Approx. 38.5 mm (1.52 in) W × 133 mm (5.24 in) H × 141.2 mm (5.56 in) D mm, 500 g (17.6 oz)
Accessories Connection Plate x1, Operating Manual x1

ALARM UNIT 8997 (product guaranteed for one year)

Output **Output type:** open collector (active low)
Alarm parameters: Use up to 15 channels in response to analog input, pulse input, rotation count, or ON/OFF digital signal
Terminal: M3 (mm) screw terminals (2 terminals/1ch)
Number of channels: 15 channels isolated from each other and chassis
Output sink current Maximum switching capability : 5 to 60 V DC @10 mA (open collector drive)
Output refresh Output latch settings : Latch / No latch at every recording interval
Max. rated voltage to earth 600 V DC, AC (Upper limit voltage that does not cause damage when applied between each output channel and chassis, and between each units)
Max. rated voltage to each channels 33 V AC rms, 70 V DC (Upper limit voltage that does not cause damage when applied between each output channels)
Conforming standards Safety : EN61010, EMC : EN61326



Options in Detail

Main unit and input or output module



Note: 8423 cannot operate alone. You must install one or more optional input modules in the unit. Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.

MEMORY HILOGGER 8423
Maximum number of connectable units: 8



VOLTAGE/TEMP UNIT 8948
15-channels, Voltage, Thermocouple input



UNIVERSAL UNIT 8949
15-channels, Voltage, Thermocouple, Resistance temperature sensor, Humidity measurement



DIGITAL/PULSE UNIT 8996
15-channels, ON/OFF logic signal, Totalized pulses (integrated or instantaneous), Rotation count



ALARM UNIT 8997
15-channels, Open-collector output

Other options



AC ADAPTER 9418-15
Universal 100 to 240 V AC, 12 V DC/ 2.5 A output

Supplied Accessories



LAN CABLE 9642
Straight Ethernet cable, supplied with straight to cross conversion cable, 5 m (16.41 ft) length



CONNECTION CABLE 9683
For synchronization, cable length 1.5 m (4.92 ft)



HUMIDITY SENSOR 9701
1-channel, for UNIVERSAL UNIT 8949

Removable storage (CF card)



Supplied with PC Card adapter

PC CARD 1G 9729
(1 GB capacity)

PC CARD 512M 9728
(512 MB capacity)

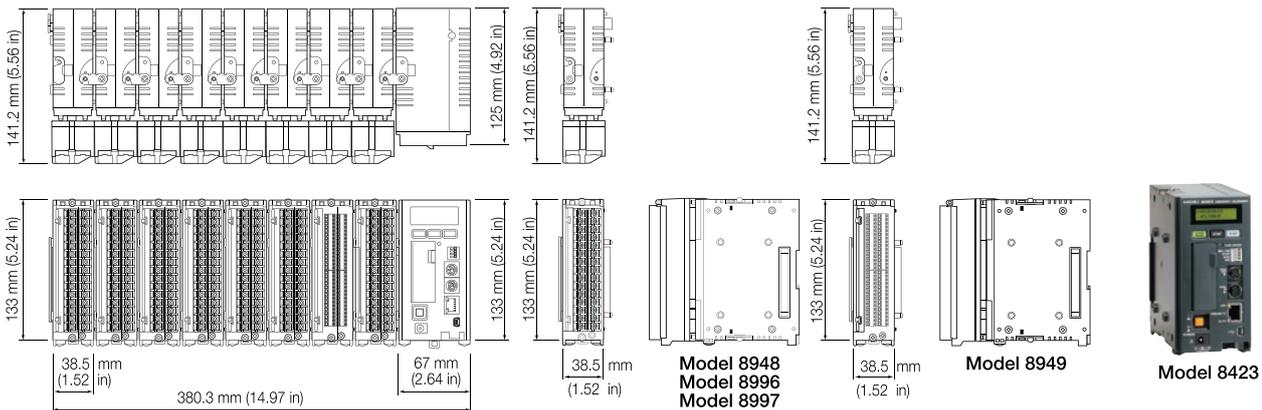
PC CARD 256M 9727
(256 MB capacity)

PC Card Precaution

Use only PC Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers. You may be unable to read from or save data to such cards.

Note: The PC CARD 2G 9830 is not usable with the Model 8423

Appearance/Dimension Illustration



Configuration Examples

