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GLT400 MIDI LOGGER
Multi-use data logger

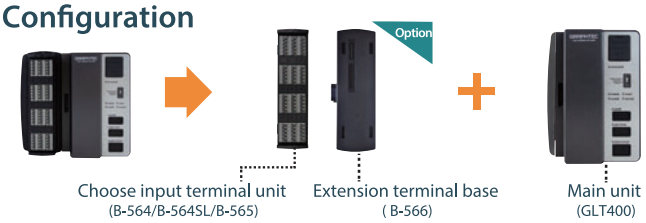
GRAPHTEC

SPECIFICATIONS

- Transferring data to PLC via Modbus/TCP protocol
- DC Power only for -20 to +60 operation
- Supports WEB server, FTP server and FTP client network functions for remote monitoring and controlling.
- High Isolation inputs to ensure signals are not corrupted by noise from other channels
- Connect as a remote terminal unit of GL840

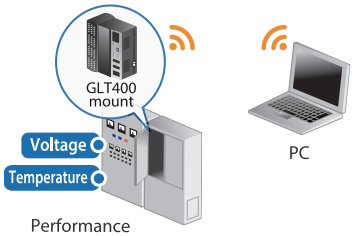
* The illustration above shows GLT400 and Options (B-564SL+B-566) are installed

Configuration



Mount or embed in a system and remote monitoring by PC.

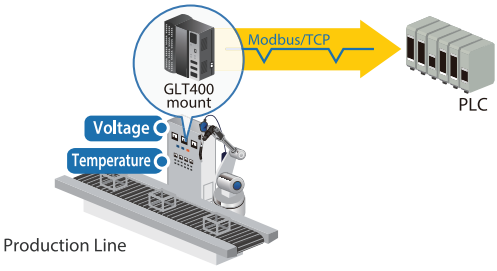
Real time remote monitoring and control via Ethernet, Wireless LAN* and USB (Software is standard accessory)



Bracket for DIN rail is optional (B-540)

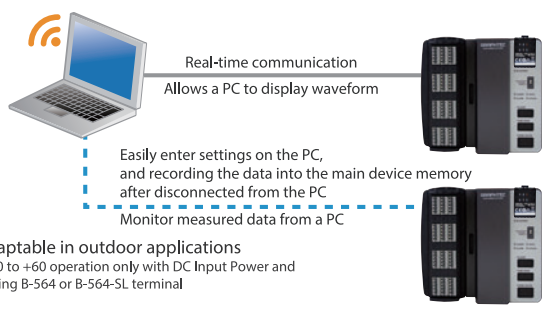
Modbus/TCP for PLC I/O channels. It can be used as additional I/Os.

Bidirectional comminucation between PLC and GLT400 via Modbus /TCP, Start or stop command can be sent from PLC.



Enable to use as PC hosted data logger

Connection to PC via USB ,LAN and Wireless LAN.
Standalone or PC hosted data logger for R&D, Quality and Production

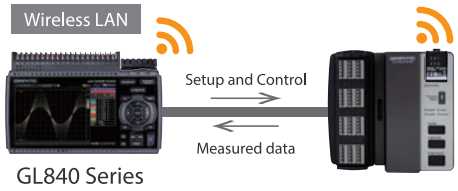


Adaptable in outdoor applications
* -20 to +60 operation only with DC Input Power and using B-564 or B-564-SL terminal

Wide range operating environment:-20 to +60°C

Connect as a remote terminal unit of GL840

Communications via Ethernet or Wireless LAN.*
(Expand up to 200 ch (incl.GLT400) per GL840 or
Up to 5 units of GLT400 can be connected to GL840 host)
Setup and control from GL840 and captured data
can be stored on GL840 which is measured from GLT400.



* Requires optional B-568
When using multiple devices, use Router by WPS

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SELECTABLE TERMINAL FOR DIFFERENT APPLICATIONS

Choose a terminal for your application needs depending on accuracy, isolation or connection type.

Easy connection with push-in wire terminal (φ0.3 to 1.3mm)

		Standard terminal (B-564) 	Screwless terminal (B-564-SL)  NEW	Withstand high-voltage high-precision terminal(B-565) 
Number of analog channels		20ch/terminal		
Input terminal type		M3 screw	Screwless	M3 screw
Measure range	Voltage	20mV to 100V		
	Temperature	Thermocouple:K・J・E・T・R・S・B・N・C (WRe5-26)		
		RTD:Pt100・JPt100・Pt1000 (IEC751) *3 wire only		
	Humidity	0 to 100 % RH - using the humidity sensor (option B-530)		
Maximum input voltage		20mV-2V Range:60Vp-p(Input between (+)/(-) terminal) ,5V-100V Range:110Vp-p(Input between (+)/(-) terminal)		
		60Vp-p(Channel/Channel)		600Vp-p(Channel/Channel)
		60Vp-p(Channel/GND)		300Vp-p(Channel/GND)
Accuracy		±0.1%of F.S.		±(0.05%of F.S.+10μV)
Operating temperature		-20 to 60 ℃ (When used with GLT400)		0 to +45℃ (When used with GLT400)

* Terminals (B-564B,-564SL,B-565) can be mixed.
However, if you mix with B-565 with B-564 or B-564-SL, the specification of B-565 will be equivalent as B-564 or B-564-SL.

Option
Terminal Base Cover(B-588)
Compatible with all the terminals
*Except using with shunt resistor (B-551)

B-588

EXPANDABLE UP TO 200 CHANNELS

From 20 to 200 channels, the GLT400 is scalable to meet your future needs.

Direct connection (w/o cable)
Extension terminal base unit connects directly to the GLT400


Connection cable (Max.20m for 10pcs)
Cable connection between main body and screw terminal or screwless connection types

Connection cable for extension terminal(B-567 Series)

Option
Connection cable for extension terminal

50cm type: B-567-05
2m type: B-567-20

Configuration of direct connection

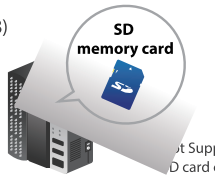
	20ch	40ch	60ch	80ch	100ch	120ch	140ch	160ch	180ch	200ch
GLT400 main unit	1	1	1	1	1	1	1	1	1	1
Terminal base	1	2	3	4	5	6	7	8	9	10
Input terminal	1	2	3	4	5	6	7	8	9	10

*Use the connection cable for extension terminal to the device,as you require.

LONG TERM RECORDING CAPABILITY

The standard features include a Built-in 4GB Flash memory ,
and SD card slot up to 32 GB to be used as external storage
for recorded data at the same time as transferring the data to a PC.(1 File size is up to 2GB)

＜Selectable from 2 types of file format＞
- Graphtec Binary Data(GBD)
- CSV Data which can be open by Excel
- Supplied software allows GBD files to be converted to CSV format



t Supplied
D card cannot be used when the wireless LAN unit is used.
*Max single file size is 2GB. (use Relay mode to extend recording)

Number of channels and sampling interval

Sampling interval		10ms	20ms	50ms	100ms	200ms	500ms	1s	2s
Number of Channels		1	2	5	10	20	50	100	200
Measuring	Voltage	●	●	●	●	●	●	●	●
	Temperature	–	–	–	●	●	●	●	●

Sampling Interval and Capturing time
(When all 20 analog channels are being used, File size of captured data is 2GB)

Sampling interval	10ms	50ms	100ms	200ms	500ms	1s	10s
GBD Format	31days	77days	95days	108days	270days	Over365	Over365
CSV Format	3days	11days	16days	21days	54days	109days	Over365

NOTIFY BY ALARM OUTPUT FUNCTION

Alarm level can be set for each channel

Alarm occurrence
- Alarm Lamp on device
- Email Alarm Notification
- Alarm Output(4 ports)
  Output port can be chosen for each channel
  *Input/Output cable(B-513) is require

USEFUL FUNCTION FOR LONG TERM DATA RECORDING

Ring capture function
- The old data is deleted, and most recent data is saved. When stop the recording, selected data point is saved.

Relay capture function
- Data is continuously saved with hard disk space or capturing time without losing any data until capturing is stopped. The multiple files can be joined on GL-Connection.

4 TO 20MA CURRENT MEASUREMENT

- Shut resistance 250 Ω for current input *
- Installing 250ohm (0.1%) resistor for converting 1 to 5V
- EU scaling function allows diverse measurements by converting voltage to user defined engineering units.

*Not compatible with B-564-SL

Option
Shunt resistor250Ω(B-551)

B-551

DIGITAL I/O PORT AVAILABLE (REQUIRES OPTION (B-513)

Input
- Logic/Pulse inputs (4 channels)
  Pulse mode: Instant/Counts/Revolutions
- Signal input for external trigger or external sampling.

Output
- Alarm output(4ch)
  When the input value exceeded the threshold level, output the alarm.
  Output format: Open collector output
  (5 V, pull-up resistance 10KΩ)

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SELECTABLE POWER SOURCE FOR DIFFERENT APPLICATION

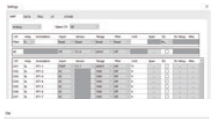
AC100 to 240V	DC 8.5 to 24V	USB PD
● Powered from AC adapter (Standard accessory) * Supplied AC adapter does not comply with -20 to 60˚C operating environment specification. If you need to have the harsh operating environments specification, please contact the Graphtec sales office.	● Powered from DC Drive Cable(Requires option (B-513)	● USB PD compliant battery and AC adapter (Supported USB PD 2.0 later) *Not supplied

STANDARD ACCESSORY FOR 2 TYPES OF PC SOFTWARE AND WEB BROWSER FUNCTION

Software
GLT400 SETTING APP
Simple Operation S/W

Easily enter settings and monitor measured data from a PC.
GLT400 is ideal for use with single unit. GLT400 inherited the setting screen menus from GL series.

Connect on the main screen

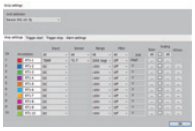

Sets the various settings by push button
※ When Remote mode is set, remote settings are displayed in the screen


View recorded data files, download and delete data files on your PC through simple software manipulations.

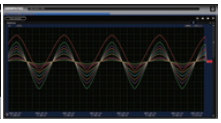

Displaying the current value of GLT400 and controlling the capturing start.

Software
GL-Connection
Advanced Function S/W

Max 20 units of GLT400 can be connected.
Display modes come standard with a Y-T View, Digital View, XY View and FFT View.
Contains direct Excel functions and a file connection function.
Can convert GBD files to CSV format.


Setting screen


Measurement Screen (4 Screen)

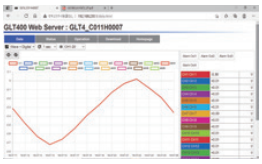

Measurement Screen (1 Screen)

Direct Excel function installed

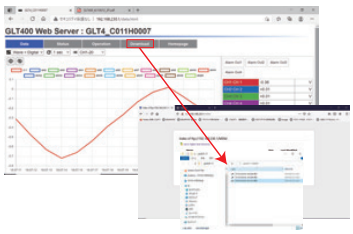
A function that transfers recorded data directly to specified Excel template file with recording start. Creates a measured data file when stop recording by utilizing a computational expression and macro in combination.

Useful function
Web browser function
Simple Operation S/W

GLT400 can be controlled, monitored, and data transferred to PC via web browser.



<<Supported browser>>
・Google Chrome(Recommended)
・Microsoft Edge
・Fire Fox



Transferring device data to PC with drag and drop.

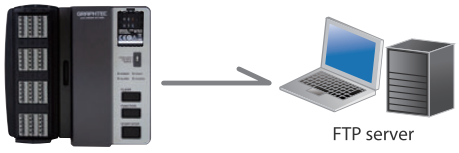
- Available functions on 2 software and web browser

		GLT400 SETTING APP	GL-Connection	WEB browser
Device connection	Wire LAN	●	●	●
	Wireless LAN	●	●	●
	USB	●	●	×
Number of connected units		1 unit	20 units	1 unit
Device setting		●	●	×
Device control (Start/Stop)		●	●	●
Display data	Digital value	●	●	●
	Waveform	×	●	●
	Other	×	●	×
Redisplaying the recorded file		×	●	×
Connect/ Disconnect during recording		●	×	●
Data transfer to PC		●	●	●
File conversion （CSV)		×	●	×
Supported model		GLT400 only	GL Series *	GL Series *

* GL7000・GL2000・GL980・GL840series・GL240・GLT400(Currently-used models only)

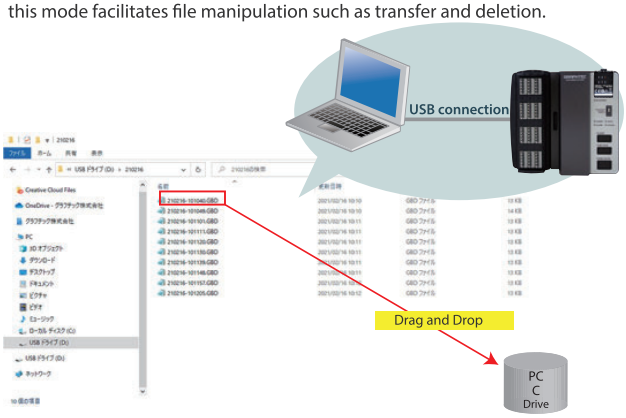
Useful function
FTP backup functions
Remote monitoring & Data sharing

Periodically backing up recording data to FTP server.
Backup Interval: 1H・2H・6H・12H・24H・per file
When the upload is succeeded, the file can be deleted automatically from device memory.


FTP server

Useful function
USB Drive Mode
Easy&Convenient

Internal memory is recognized as a removal disk, this mode facilitates file manipulation such as transfer and deletion.



SDK (Software Development Kit) is offered for free

Please select the OS that may be used to develop for your software

- USB Driver
- Manual(Product-releated,Communication interface-releated,Data files-releated, ModbusTCP specification)
- Sample Program(C# ・ VisualC++ ・ VisualBasic)
- LabVIEW VI
- Digital certificate installation tool

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GLT400 midi Logger
Multi-use data logger

ALTHEN SENSORS & CONTROLS

Main unit speciation's

Item		Description
Number of analog terminal units		Up to 10 units (200CH)
Sampling speed		10msec to 1 hour (Only voltage:10ms to 50ms with limited channels), External (Able to select at only "STAND ALONE" mode) (*1)
Trigger / Alarm Functions	Repeat Trigger	Off・On
	Trigger conditions	Start/Stop: Off, level value, alarm, external input, specified time, specified day of the week, certain time
	Alarm judgment modes	Combination: Analog, Logic or "AND" / "OR" of pulse Analog judgment: H (↑), L (↓),Window In, Window Out Logic judgment: Pattern Pulse judgment: H (↑), L (↓),Window In, Window Out
	Operation of the alarm output function	Alarm Lamp on device, Email Alarm Notification, Alarm Output (4channels ("REMOTE" 1 channel only)
	Alarm output (hold function)	Yes
External Input/ Output (* 1)	Input/ output types	Trigger input (1 ch) or External sampling input (1 ch) Logic input (4 ch) or Pulse input (4 ch) (Only for STAND-ALONE mode)
	Input specifications	Input voltage range: 0 to +30 V (single-ended ground input) Input signal: No-voltage contact (a-contact, b-contact, NO, NC), Open collector, Voltage input Input threshold voltage: Approx. +2.5 V , Hysteresis: Approx. 0.5 V (+2.5 to +3 V)(*7)
	Alarm output specifications	Alarm output: 4CH ("REMOTE" 1 channel only) Output format: Open collector output (5 V, pull-up resistance 10KΩ) <Maximum ratings of output transistor> Collector-GND voltage: 50 V,Collector current: 2 A, Collector dissipation: 0.3 W
Pulse input	Revolutions mode	This mode counts the number of pulses per sampling interval, and then converts them by multiplying the scaling factor to the RPM.Settable the number of pulses per revolution during revolution. Spans: 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M RPM/F.S.
	Counts mode	Displays a count of the number of pulses for each sampling interval from the start of measurement. Spans: 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S.
	Inst. Mode	Counts the number of pulses for each sampling interval. Resets the count value after each sampling interval. Spans: 50, 500, 5000, 50 k, 500 k, 5 M, 50 M, 500 M C/F.S.
	Maximum number of pulse inputs	Maximum input frequency: 50kHz, Maximum number of count: 50kC/sampling (16-bit counter)
Math Channels		Computation types: +,−,×,÷(Arithmetic) CH:Input Channel(CH1 to 200)
Scaling function(EU)		4 points can be set for each channel, Temperature range: 2 points is available
Annotation Input		Alphanumerics ,Number of characters: 31 Function: A comment can be input for each channel
PC I/F	Types	Ethernet (10BASE-T/100BASE-TX),USB 2.0,Wireless LAN (Option)
	Functions	Transfer device data to the PC, control device from PC, and connect as a remote terminal unit of GL840
	Ethernet functions	Web server function,FTP server function,FTP client function,NTP client function, DHCP client function,DHCP server function,Modbus/TCP communication
	USB functions	USB drive mode: Transfer and delete the captured files in the internal memory or SD CARD
	Realtime data transfer speed	10 msec/1 ch maximum * The transfer speed varies depends on the number of channels.
Memory devices	Internal memory	Approx. 4GB
	External memory slot	SD CARD slo: 1(Compatible with SDHC, up to approx. 32GB memory available)
	Maximum size for 1 file	1 File size is up to 2GB
	Memory contents	Setup conditions/ Measured data
Capture function	Functions	OFF, Ring capturing, Relay capturing
	Ring capturing	If the number of recordings is exceeded "1000 to 2000000", recording will continue on another file with deleting the oldest one. When ring capture is ON, the possible recording time becomes less
	Relay capturing	The captured data is continuously captured by files separated in the set relay unit without losing data.
	File format	GBD (Graphtec Binary Data)Format/CSV Format
	Functions during capture	Replacement of SD CARD
Data backup function (*2)	Backup interval	OFF, 1, 2, 6, 12, 24 hours, Each file
	Backup destination	Internal memory, SD card, FTP
	Data format	GBD・CSV
Operating Environment		-20 to +60℃ only when using B-564 or B-564SL input terminals & DC power. 0 to +45℃ when using B-565 input terminal or AC Adapter. 5 to 85%R.H. (non condensed) (When using the USB PD as the power supply, the spec. is based on power supply requirements.)
Power source	AC Adapter	AC 100～240V / 50～60Hz
	DC power	8.5 to 24V DC (Maximum 26.4V)(Requires option (B-514)
	USB PD	External USB PD compatible battery(USB Power Delivery Revision 2.0 later) ,(not supplied)
Power consumption		Below 24VA(when using the supplied AC adapter,AC100V)
External dimensions [WxDxH] (approx.) (excluding protrusions)		Standard terminal (B-564) or Screwless terminal (B-564SL) : 187.5 × 183 × 65.5 mm Withstand high-voltage high-precision terminal (B-565): 187.5×183×73.4mm
Weight (approx.) (Excluding AC adapter)		Standard terminal (B-564) is attached: 1090g Screwless terminal (B-564SL) is attached: 1020g Withstand high-voltage high-precision terminal (B-565) is attached: 1120g
Others		Vibration: Automobile parts Type 1 Class A equivalent

Input terminal specification (Option)

Item		Standard terminal (B-564)	Screwless terminal (B-564SL)	Withstand high-voltage high-precision terminal (B-565)
Number of analog channels		20ch	20ch	20ch
Input terminal type		M3 screw (Rectangular flat washer)	Screwless	M3 screw (Rectangular flat washer)
Input method		Photo MOS relay scanning system, All channels isolated, balanced input *Terminal b to be used to connect the RTD and is shorted within all channels.		
Sampling speed		10 ms/1 ch maximum (10 ms to 50ms: voltage only, Due to restrictions on the number of channels)		
Measurement ranges	Voltage	20, 50, 100, 200, 500 mV：1, 2, 5, 10, 20, 50, 100 V：1-5 VF.S.		
	Temperature(*4)	Thermocouples: K, J, E, T, R, S, B, N, C (WRe5-26) RTD: Pt100, JPt100, Pt1000 (IEC751) Temperature range: 100°C, 500°C, 2000°C		
	Humidity(*5)	0 to 100% (voltage 0 to 1 V scaling conversion) fixed *B-530(option) is required		
A/D converter		Method：ΔΣ method, Resolution: 16-bit (Effective resolution: About 1/40000 of the +/– range)		
Input resistance		1MΩ ±5%	1MΩ±5%	1MΩ±5%
Allowable signal source resistance		Less than < 300 Ω	Less than < 300 Ω	Less than < 100 Ω
Maximum permissible input voltage	Channels ((+) / (-))	20mV-2V Range: 60Vp-p,5V-100V Range : 110Vp-p		
	Channel/Channel	60Vp-p		600Vp-p
	Channel/GND	60Vp-p		300Vp-p
Withstand voltage	Channel/Channel	350 Vp-p 1 minute		600Vp-p
	Channel/GND	350 Vp-p 1 minute		2300VACrms 1 minute
Filter		Off, 2, 5, 10, 20, 40(Filter operation is on a moving average basis.The average value of the set sampling count is used. If the sample interval exceeds 30 seconds, the average value of data obtained in a sub-sample (30 seconds) is used)		

＊Inquiries related to Measurement accuracy shall be referred to our web site.

Wireless LAN Unit B-568 (Option)

Communication method	Wireless communication (2.4GHz band)
Installation location	Insert into the SD CARD slot *When the wireless unit is inserted, an SD CARD cannot be inserted into the SD CARD slot.
Wireless LAN standard	IEEE802.11b/g/n
Function	Communication range: Approx. 40 m (Range varies depending on the obstacles and the surrounding environment) WPS: Push button method / PIN method Encryption function: WEP64, WEP128, WPA-PSK/WPA 2-PSK, TKIP/AES

Humidity sensor B-530(Option)

Allowable range	Temperature: -25 to +80℃, Humidity: 0 to 100% RH, Capacitance method
Relative humidity measurement accuracy(5 to 98%)	Measurement environment(0 to 80℃) Measurement accuracy(±3% to ±8%RH) *Measurement accuracy at 60℃ or more is a reference value.
Response time	15 sec. (90% response when membrane filter is installed)
External dimensions	φ14 x 80 mm (excluding cable)
Cable length	3m

Control Software GL-Connection (Only STAND-ALONE mode)

Item	Description
Supported OS(*3)	Windows10/Windows8.1
Function	Main unit control, real-time data capture, data conversion
Number of CHs per 1 group	Up to number of connected units
Maximum number of channels	MAX: 2000CH
Settings	AMP settings, capture settings, Trigger/Alarm settings, others
Captured data	Realtime data (CSV, GBD Binary) Data in Internal memory or SD CARD (CSV, GBD binary)
Display	Analog waveforms, logic waveforms, pulse waveforms, digital values
Display modes	Y-T View, Digital View, XY View, FFT View
File conversion	Between cursors, All data
Statistic/History	Maximum, Minimum, and Average during data capturing
E-mail function	Alarm monitor enables sending of e-mail to the specified address

Options and Accessories

Item	Description	Description
Input/output cable for GL	B-513	2 m long (teminated with mating connector and bare wires)
DC drive cable	B-514	2 m long (teminated with mating connector and bare wires)
Humidity sensor (*6)	B-530	3 m, with a dedicated power connector (Allowable operating temperature range: -25°C to +80°C)
Humidity sensor power box	B-542	Used for connecting 10 humidity sensors : Built to order
Standard terminal	B-564	Analog input terminal
Withstand high-voltage high-precision terminal	B-565	Analog input terminal
Screwless terminal	B-564SL	Analog input terminal
Expansion terminal base	B-566	Used for attaching each input terminal
Expansion terminal connection cable	B-567-05	Connection cable (50cm)
	B-567-20	Connection cable (2m)
Wireless LAN unit	B-568	
Bracket for DIN rail	B-540	Bracket for DIN rail (GLT400 or B-566)
Shunt resistor 250Ω	B-551	250Ω (± 0.1%), rated power 1W, maximum operating voltage15.8V
Terminal base cover	B-588	Mountable each analog terminal. Not mountable when B-551 Shunt resistor used.
Needle-shape K-type thermocouple	RIC-410	-100 to 300°C, Class 1, Cord length: 1.1 m
Stationery-surface K-type thermocouple	RIC-420	-30 to 400°C, Class 2, Cord length: 1.1 m
L-type stationery-surface K-type thermocouple	RIC-430	-30 to 600°C, Class 2, Cord length: 1.1 m

＊1: The Input/output cable for GL B-513 (option) is required to use the external I/O function.
＊2: (Each file can be selected only when the backup destination is set to FTP and the captured file is deleted when the backup of the FTP client settings is activated normally)When the RING mode or external pulse synchronization sampling is selected for recording, the backup function is not available.When there are many active channels or the sampling time is fast or the backup interval is long, it may take time to close the data file after recording stops because the size of the data to be backed up becomes large.
When saving file to FTP server using wireless LAN connection, backup may fail depending on the communication condition.
Available sampling speed is 100 ms or slower when using the CSV format.
When backup is enabled and data file format is specified as CSV format, SD memory card exchange (hot-swapping) and RELAY recording are not available.
＊3: We cannot support OS that is no longer supported by the OS manufacturer.
＊4: Thermocouple diameters T - K: 0.32 φ, others: 0.65 φ
＊5: 3-wire system
＊6: When you are not used B-542, available for only one humidity sensor. Allowable temperature range:-25℃ to +80℃(Built to order with 10m,15m and 20m)
＊7: Switch between Logic and Pulse. Switch between Trigger and External sampling.

CE

GLT400_KE10684_1D

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- Due to the possibility of equipment or PC failure, the data files on the instrument will not be guaranteed to be held on the memory. Please make a backup of data whenever possible to avoid data loss.
- Brand names and product names listed in this brochure are the trademarks or registered trademarks of their respective owners.
- Items mentioned are subject to change without notice. For more information about product, please check the web site or contact your local representative.

⚠ Important safety instructions

- Before using it, please read the user manual and then please use it properly in accordance with the description.
- To avoid malfunction or electric shock, please ensure ground connection and use it in specified power source.