

Data Logging System and Software

STRAIN DATA LOGGER

Static / Dynamic Strainmeter



INTRODUCTION

GREENTECH is manufacturing precise and convenient data measuring equipments using core technologies

GREENTECH established in 2002 is a R&D manufacturer recognized by its technologies based on long experience of research in data measurement and server control. On the basis of core technologies that are related to strain gauge sensor measurement, we are producing various types of data measuring equipments.

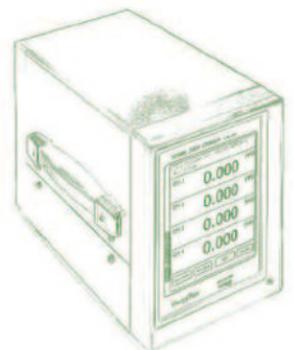
Strain data logger is a measuring equipment related to civil engineering, marine, architecture and machinery connecting various measurement sensors for load, displacement, pressure, temperature or humidity as well as strain gauge. According to the purpose, types are various such as portable, multi-channel, PC-connected, multi-function or field-type.

We are doing our best to develop more precise and convenient products, while doing our utmost for upgrading and immediate response to customers' needs with hardware/software technologies and human resources.

With precise and fast multi-channel monitoring GREENTECH's technologies are trustful

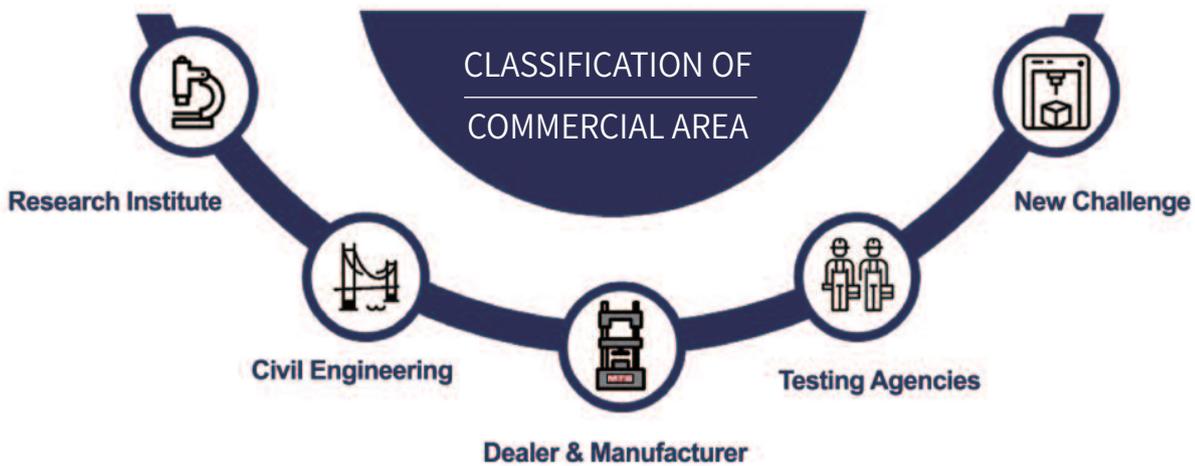
'The GREENTECH's measuring equipment' has excellent quality with high-precision, multi-function, and high speed function. In particular, difficulties in field measurement are immediately solved thanks to our civil engineering-centered core technologies.

Also, the state of field is transferred faster and more precise through a smart phone & network interlocking technology monitoring in real-time.



GREENTECH is Another Name of 'Safety'

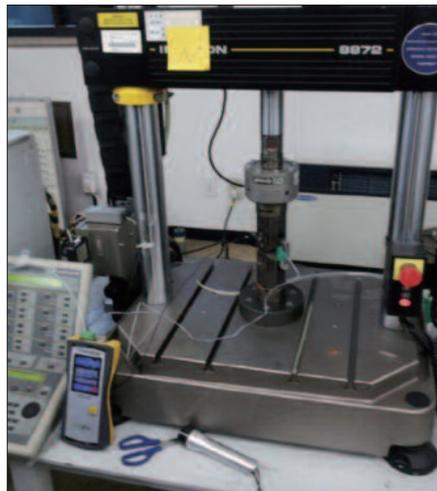
GREENTECH is creating a safer and better world by developing a precision measurement system related to civil engineering, marine, architecture and machinery.



| APPLICATION CASES |



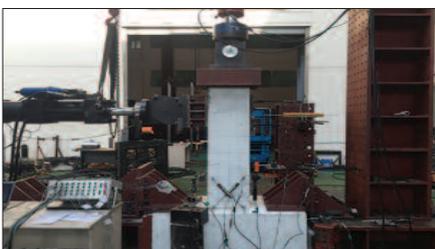
| MATERIAL TEST |



| STRAIN GAUGE MEASUREMENT |



| LOAD TEST |



| LATERAL LOADING TEST |



| FATIGUE TEST |



| 2 DATA LOGGERS CONNECTION |

Portable Data Logger | GTDL-H20

This product is a portable handy type for strain gauge and connectable 4-gauge sensors such as load cell or displacement meter, 1-gauge or 2-gauge. Also, it is equipped with various functions like 3.2" TFT screen, 4GB save memory, lithium-ion battery and USB charging and communications.



Feature |

- Strain gauge and temperature sensor
- Not need a separate bridge box due to built-in 120 Ω/350 Ω bridge circuit
- Supporting Tajimi circular connector and 5-pin green terminal connector
- 3.2" color touchable screen
- Charging and communicating using smart phone charger
- Automatic power off function (When not in use for a long time)
- Displaying and saving date and time
- Providing PC program

Specification |

Model	GTDL- H20
Display	3.2 inch TFT Touchable LCD
Internal battery	Lithium-ion 3.7V, 1800 mAh
Internal data memory	4KByte (Option : 4GByte)
Input Sensor	- 1 Gauge & 2 Gauge : 120 Ω, 350 Ω - 4 Gauge Bridge Sensor : 0.5 mV/V~ 10 mV/V - Potentiometer Sensor - Pt100 RTD
Connector for sensor	5p Screw connector & TAJIMI
Strain Input Range	±30,000 (μϵ)
A/D Conversion	24 Bit
A/D Conversion Speed	10 times/sec
Data Save	400 Point Save
Data Download	USB
Program	Multiscan S/W & Multiload S/W
Demension	98(W)*200(H)*35(D)mm

4 Channel Data Logger | GTDL-152

This product is a 4-channel strain gauge and it is equipped with SD data memory and touchable screen checking and saving date without PC connection. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer or RTD are available. Also, built-in USB memory port in front part facilitates data transfer to PC.



Feature

- 4 channel static and dynamic data logger
- Multi-functions with touchable screen and data memory
- Not need a separate bridge box due to built-in 120 Ω /350 Ω bridge circuit
- Noise removal by low pass filter circuit
- Automatic zero point adjustment by Autozero button
- Able to connect with 1-gauge, 3-wire, 2-gauge or 4-gauge for each channel
- Two-way one-touch circular connector (Tajimi Connector)
- Compact, light weight, USB interface

Specification

Model	GTDL-152
Number of Channel	4 Channels
Display & Data Memory	5.6" TFT Touch LCD 4G SD Data Memory , USB Memory Stick Port (EXT)
Measure Hz	1,000 Hz
Connector for sensor	5p Screw connector & TAJIMI
Input Sensor	- 1Gage & 2Gage : 120 Ω , 350 Ω - 4 Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10 V
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, Pass
Interface	USB
Program	Multiscan S/W & Multiload S/W
Demension	140(W)*190(H)*270(D)mm
Power	AC 220 V, 50~60 Hz

PC Connected Data Logger | GTDL-350 | GTDL-360

This product is a PC-connected Data Logger and saving data and displaying graphs through PC connection. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer, RTD, thermocouple or voltage are available.



▲ GTDL-350



▲ GTDL-360

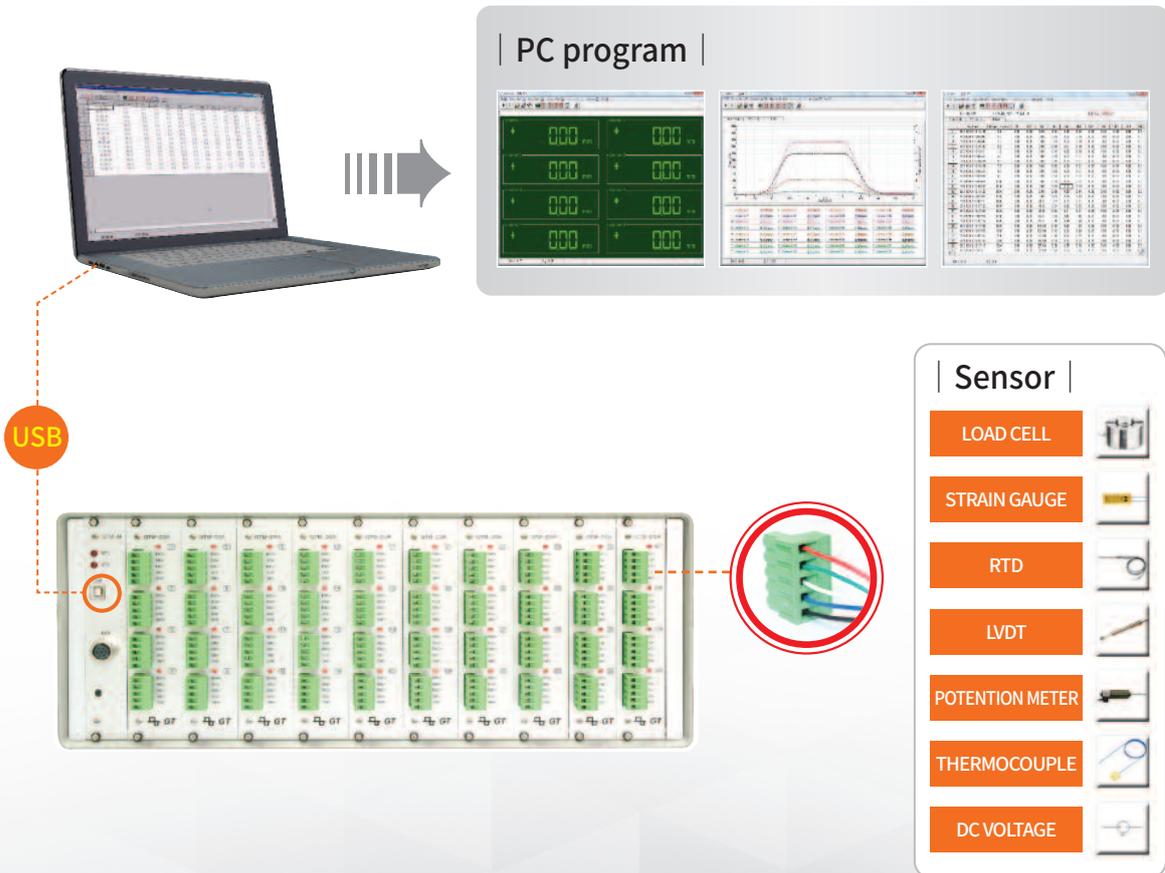
Feature |

- Multi-channel/PC-connected dynamic data logger
- Real-time measurement using USB port
- Built channel in slot type, 4-channel per slot
- 350(max.16 Channel), 360(max. 40 Channel), expansion(128 Channel)
- 1 KHz measurement per channel
- Not need a separate bridge box due to built-in 120Ω/350Ω bridge circuit
- Able to connect with 1-gauge, 3-wire, 2-gauge or 4-gauge for each channel
- Able to select one-touch circular connector (Tajimi Connector)

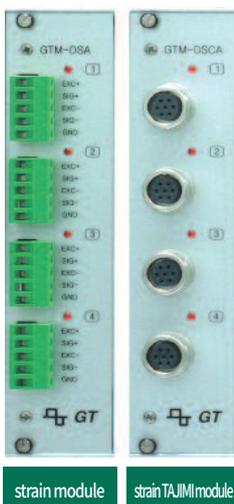
Specification |

Model	GTDL-350	GTDL-360
Number of Channel	4, 8, 12, 16 channel	4, 8, 12, 16, 20, 24, 28, 32 channel
Measure Hz	1,000 Hz	
Connector for sensor	5p Screw connector or TAJIMI	
Input Sensor	- 1Gage & 2Gage : 120 Ω, 350 Ω - 4 Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor , thermo couple temperature sensor J, K, T, E, R, S - Voltage : 10V	
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain	
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, Pass Program Selectable	
Interface	USB	
Program	Multiscan S/W & Multiload S/W	
Demension	270(W)*190(H)*270(D)mm	360(W)*190(H)*270(D)mm
Power	AC 220 V, 50~60 Hz	

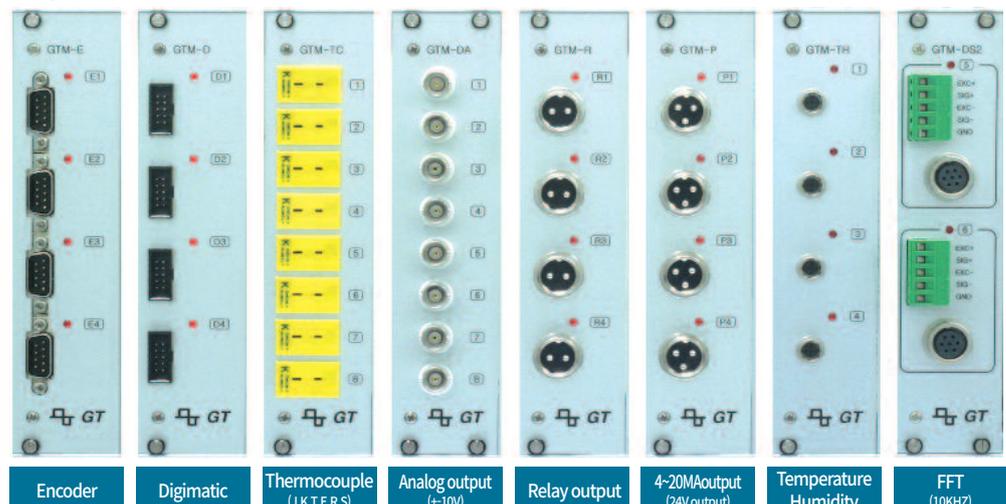
LAYOUT



Module



Option



4 Channel & On-site Data Logger | GTDL-253

This product is a 4-channel strain gauge and it is equipped with SD data memory and touchable screen checking and saving data without PC connection. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer or RTD are available. Also, built-in USB memory port in front part facilitates data transfer to PC.



FEATURE

- 4 channel static and dynamic data logger
- Multi-functions with touchable screen and data memory
- Not need a separate bridge box due to built-in 120Ω/350Ω bridge circuit
- Noise removal by low pass filter circuit
- Automatic zero point adjustment by Autozero button
- Able to connect with 1-gauge, 3-wire, 2-gauge or 4-gauge for each channel
- Two-way one-touch circular connector (Tajimi Connector)
- Compact, light weight, USB interface

SPECIFICATION

Model	GTDL-253
Number of Channel	4 channel
Display & data memory	7" Touchable LCD SCREEN 4G SD Data Memory , USB Memory Stick Port (EXT)
Measure Hz	1,000 Hz
Connector for sensor	Military Circular Connector
Input Sensor	- 1Gage & 2Gage : 120 Ω , 350 Ω - 4Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10 V
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, Pass
Interface	USB
Program	Multiscan S/W & Multiload S/W
Dimension	340(W)*300(D)*150(H)mm
Power	Lithium-ion battery and DC 12 V

Static load test Data Logger | GTDL-253S

This product is a 4-channel strain gauge and it is equipped with SD data memory and touchable screen checking and saving date without PC connection. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer or RTD are available. Also, built-in USB memory port in front part facilitates data transfer to PC.



FEATURE

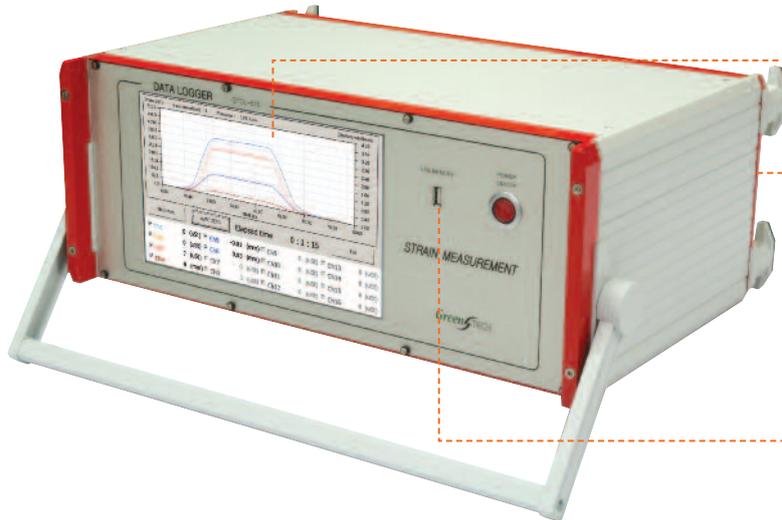
- 4 channel static data logger
- Multi-functions with touchable screen and data memory
- Not need a separate bridge box due to built-in 120Ω/350Ω bridge circuit
- Noise removal by low pass filter circuit
- Automatic zero point adjustment by Autozero button
- Able to connect with 1-gauge, 3-wire, 2-gauge or 4-gauge for each channel
- Two-way one-touch circular connector (Tajimi Connector)
- Compact, light weight, USB interface

SPECIFICATION

Model	GTDL-253S
Number of Channel	4,5,6,7,8 channel
Display & data memory	7" Touchable LCD SCREEN 4G SD Data Memory , USB Memory Stick Port (EXT)
Measure Hz	1Hz
Connector for sensor	Military Circular Connector
Input Sensor	- 1Gage & 2Gage : 120 Ω , 350 Ω - 4Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10 V
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, Pass
Interface	USB
Program	Multiscan S/W & Multiload S/W
Dimension	340(W)*300(D)*150(H)mm
Power	Lithium-ion battery and DC 12 V

Touchable PC type Data Logger | GTDL-610

This product is a multi-channel Data Logger equipped with SD data memory and touchable screen setting sensors, displaying graphs and saving data without PC connection. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer, RTD, thermocouple or voltage are available. Also, built-in USB memory port in front part facilitates data transfer to PC.



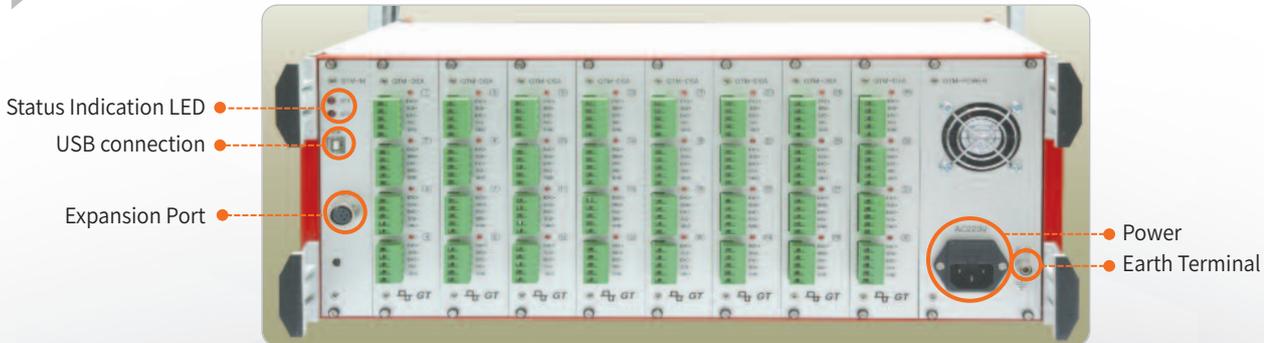
Feature |

- Multi-channel/multi-function static and dynamic data logger
- Built channel in slot type, 4-channel per slot
- Built-in data logger expansion port
- 10.2" big-sized touchable screen, 16G SD data memory
- Noise removal by low pass filter circuit
- Automatic zero point adjustment by Autozero button
- Able to select sensor type, power supply, amplification ratio of amplifier or filter frequency
- USB interface, real-time measurement by connecting multiscan software

Specification |

Model	GTDL-610
Number of Channel	4, 8, 12, 16, 20, 24, 28, 32 channel
Display & data memory	10.2" TFT Touchable LCD 16G SD Data Memory, USB Memory Stick Port(EXT)
Measure frequency	1,000 Hz
Connector for sensor	5p Screw connector or TAJIMI
Input Sensor	- 1Gage & 2Gage : 120 Ω, 350 Ω - 4 Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor , thermo couple temperature sensor J, K, T, E, R, S - Voltage : 10V
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, Pass Program Selectable
Bridge excitation	DC 2 V, 5 V, 10 V Program Selectable
Interface	USB
Program	Multiscan S/W & Multiload S/W
Demension	450(W)*180(H)*310(D)mm
Power	AC 220 V, 50~60 Hz

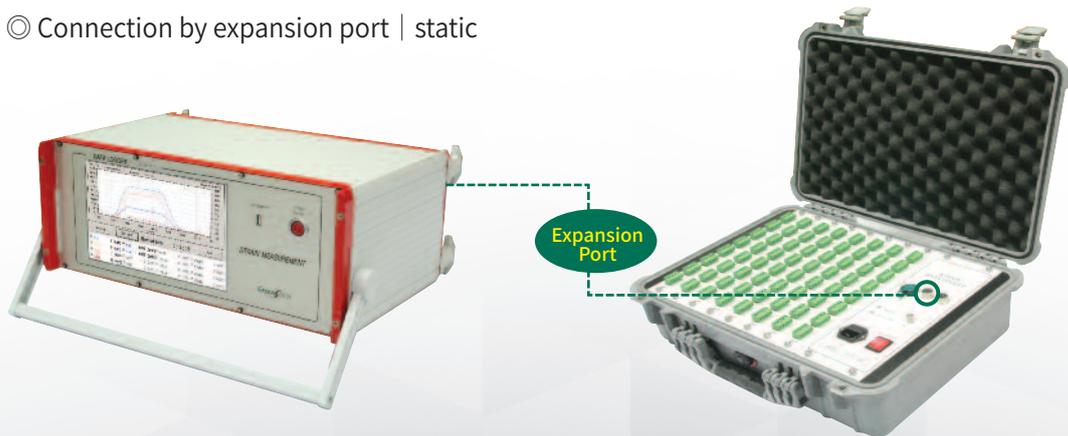
| Back Side |



4 channel * 8 slot = 32 channel

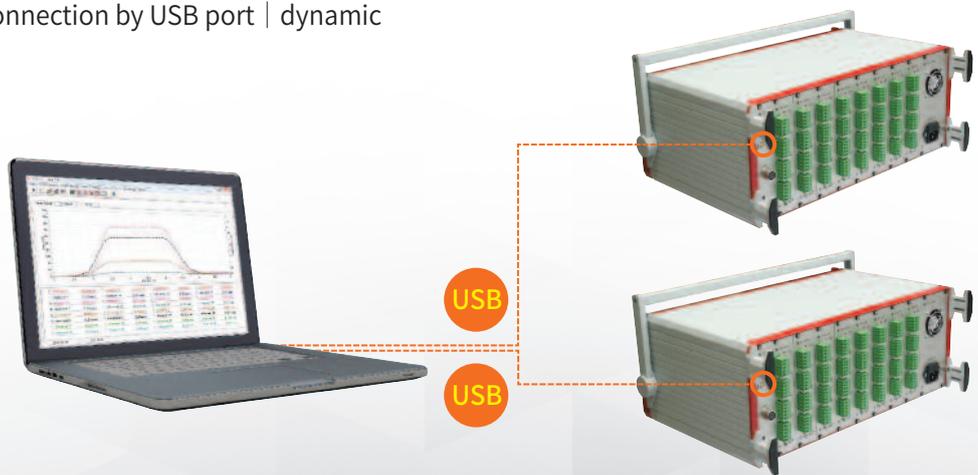
| Connecting method for a couple of Data Logger |

© Connection by expansion port | static



GTDL-610 (32 channel) + GTDL-620 (64 channel) = 96 channel

© Connection by USB port | dynamic



GTDL-610 (32 channel) + GTDL-610 (32 channel) = 64 channel

Touchable & On-site type Data Logger | GTDL-600

This product is an on-site type Data Logger equipped with SD data memory and touchable screen setting sensors, displaying graphs and saving data without PC connection. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer, RTD or voltage are available. Also, built-in USB memory port in front part facilitates data transfer to PC.



Feature |

- Field-type multi-function static and dynamic data logger
- Good mobility and solidity in a waterproof case form
- Built channel in slot type, 8-channel per slot
- Able to use 12 volt power (optional)
- Noise removal by low pass filter circuit
- Automatic zero point adjustment by Autozero button
- Able to select one-touch circular connector (Tajimi Connector)
- Static data logger (GTDL-600-S)

Specification |

Model	GTDL-600	GTDL-600-S (static)
Number of Channel	8, 16, 24, 32, 40, 48, 56 channel	
Display & data memory	7" TFT Touchable LCD 16G SD Data Memory , USB Memory Stick Port (EXT)	
Measure Hz	1,000 Hz	Bridge exciting time : 50 msec
Connector for sensor	5p Screw connector or TAJIMI	
Input Sensor	- 1Gage & 2Gage : 120 Ω, 350 Ω - 4 Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10 V	
Strain Input Range	10,000,100,000,1,000,000X10 ⁻⁶ strain	
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, Pass Program Selectable	
Interface	USB	
Program	Multiscan S/W & Multiload S/W	
Demension	500(W)*190(H)*380(D)mm	
Power	AC 220 V, 50~60 Hz or DC 12 V	

On-site type Data Logger | GTDL-620

This product is a PC-connected Data Logger measuring and saving data, and displaying graphs through PC connection using a PC and USB cable. Also, it is available for data logger expansion. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer, RTD or voltage are available.



Feature |

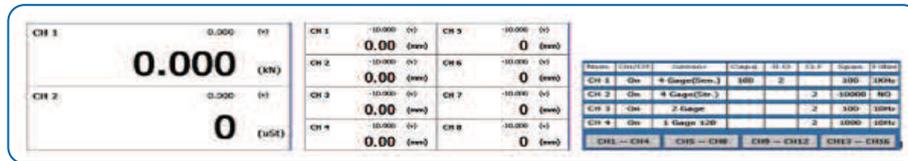
- Field-type dynamic and static data logger
- Equipped with USB port and data logger expansion port
- Built channel in slot type, 8-channel per slot
- Able to use 12 volt power (optional)
- Noise removal by low pass filter circuit
- Able to connect with 1-gauge, 3-wire, 2-gauge or 4-gauge for each channel
- Able to select one-touch circular connector (Tajimi Connector)
- Static data logger(GTDL-620-S)

Specification |

Model	GTDL-620	GTDL-620-S (static)
Number of Channel	8, 16, 24, 32, 40, 48, 56, 64 channel	
Measure Hz	1,000 Hz	Bridge exciting time : 50 msec
Connector for sensor	5p Screw connector or TAJIMI	
Input Sensor	- 1Gage & 2Gage : 120 Ω, 350 Ω - 4 Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10 V	
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain	
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, Pass Program Selectable	
Interface	USB	
Program	Multiscan S/W & Multiload S/W	
Demension	500(W)*190(H)*380(D)mm	
Power	AC 220 V, 50~60 Hz or DC 12 V	

Strain Amplifier | GTSA-16

This product is a Strain Amplifier displaying $\pm 10V$ analogue signals on LCD screen by calculating various sensor's input signals. This has the functions of strain measurement and analogue output and more functions than existing universal amplifier.



Feature |

- Simultaneously verifying real data values and output voltage values
- Setting the type of sensor, sensor specification, decimal places or units on touchable screen
- Not need a separate bridge box due to built-in 120 Ω /350 Ω bridge circuit
- Can be mounted in 19" rack (3U)
- D/A offset and D/A span value adjustment
- Able to select sensor type, power supply, amplification ratio of amplifier or filter frequency
- Built channel in slot type, 2-channel per slot
- Two-way circular connector and 5-pin green connector

Specification |

Model	GTSA-6	GTSA-16
Number of Channel	2, 4, 6 channel	2, 4, 6, 8, 10, 12, 14, 16 channel
Display	5.6 inch TFT Touchable LCD	
Measure Hz	10 KHz	
Analog Output Hz	10 KHz	
Input Sensor	- 1Gage & 2Gage : 120 Ω , 350 Ω - 4 Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Voltage : 10 V	
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain	
Low Pass Filter	10 Hz, 100 Hz, 1 KHz, 10 KHz	
Bridge EXC Voltage	2V, 5V, 10V	
A/D Conversion	16 Bit 10,000 times/sec	
D/A Conversion	16 Bit 10,000 times/sec	
Demension	255(W)*160(H)*270(D)mm	450(W)*132(H)*280(D)mm
Power	AC 220 V, 50~60 Hz	

CDMA Data Logger | GTDL-M130 | GTDL-M120

This product is a compact wall mounted type CDMA Data Logger and it is easy to install at on-site. DC 12 V is used for power. Data checking is available at on-site with LCD screen. Saved data in self-memory is copyable to USB memory. And, also, automatic message (the state of on-site or the presence of alarm) transfer to mobile phone is provided with. By connecting the strain gauge, the measurement of strain rate and measurement sensors for load cell, LVDT, pressure, torque, accelerometer, potentiometer, RTD or voltage are available.



GTDL-M130 (DYNAMIC)



GTDL-M120 (STATIC)



Feature |

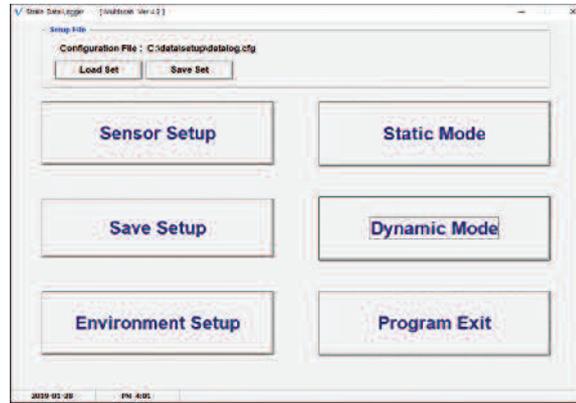
- CDMA static / dynamic data logger
- With wall type easy to install at fields
- Using DC12V power, compact size
- Support SMS
- Support TCP/IP access and modem to modem access

Specification |

Model	GTDL-M130	GTDL-M120
Number of Channel	4, 8, 12, 16 Channel	4 Channels
Measure frequency	200 Hz	1 Hz
Connector for sensor	5p Screw connector or TAJIMI	5p Screw connector
Display & Data Memory	4.3" TFT LCD with touch panel	
	16G SD data memory, USB Memory Stick Port (EXT.)	
Input Sensor	<ul style="list-style-type: none"> - 1Gage & 2Gage : 120 Ω , 350 Ω - 4Gage Bridge Sensor : 0.5 mV/V ~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10 V 	
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strain	
Program	Multiscan S/W & Multiload S/W	
Demension	315(W)*136(H)*177(D)mm	
Power	DC 12V	

Data Logger Software for GTDL Series

Multiscan program is a dedicated software connecting PC and data logger via USB communications. Multiload program is a data analyzing software. Without additional devices, real-time measurement is available with only USB cable connection. Also, it is convenient and available for data logger setting and simultaneous 128-channel measurement.



Multiscan & Multiload

Easy system and channel configuration
multipoint data logger
USB 2.0



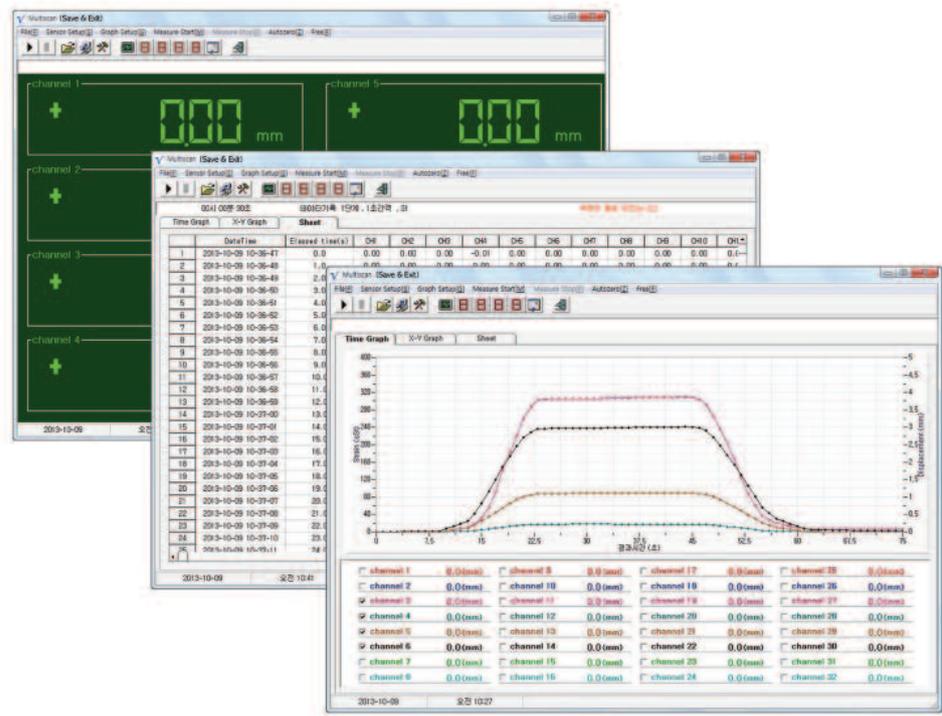
Specification

Model	Multiscan & Multiload
Channel	128 Channel simultaneous monitoring
Interface	USB
Display	Text, TimeGraph, X-Y Graph, Spread Sheet, Numeric LED
Graph	Realtime Time Plot 32 channel Realtime X-Y Plot 4 channel AutoScale & Manual Scale, Zoom Selecting the graph by the sensor type (strain, load, displacement, pressure, temperature, acce., volt)
Analysis	FFT, Average, Min, Max, P-P, digital filtering, N point average
Save Format	CSV text file
Save Method	Supporting 5 steps of saving files, Supporting dividing files (time, date, counting)
Print	Graph & TEXT Print, Clipboard Copy
OS	Windows 98 이상, 32Bit & 64Bit Support USB 2.0 Intel Core Duo 2Ghz, 1G RAM 이상
Support	All GTDL-Series Data Logger

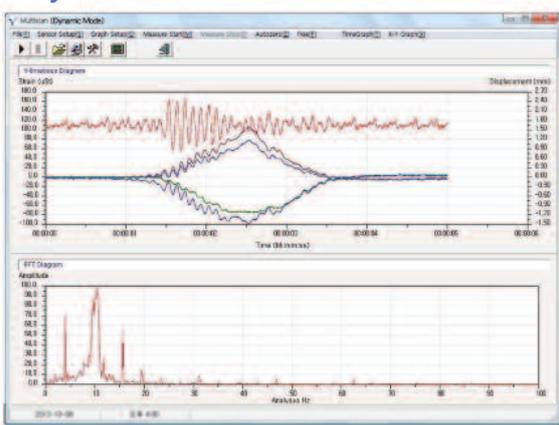
sensor setting

Chan	Information	Status	Sensor type	Dec.point	Unit	Mode	Capacity	R.O (mv/v)	G.F	Graph Axis	L.P.Filter	Adj.A	Adj.B
01	channel 1	ON	4Gage (Sensor)	000.00	kN	Measure	50	2		Load	10Hz	1	0
02	channel 2	ON	4Gage (Sensor)	000.00	kN	Measure	50	2		Load	10Hz	1	0
03	channel 3	ON	4Gage (Sensor)	000.00	kN	Measure	50	2		Load	10Hz	1	0
04	channel 4	ON	4Gage (Sensor)	000.00	kN	Measure	50	2		Load	10Hz	1	0
05	channel 5	ON	4Gage (Sensor)	000.00	kN	Measure	50	2		Load	10Hz	1	0
06	Strain 1	ON	1Gage 120Ω	00000	uSt	Measure			2	Strain	10Hz	1	0
07	Strain 2	ON	1Gage 120Ω	00000	uSt	Measure			2	Strain	10Hz	1	0
08	Strain 3	ON	1Gage 120Ω	00000	uSt	Measure			2	Strain	10Hz	1	0
09	Strain 4	ON	1Gage 120Ω	00000	uSt	Measure			2	Strain	10Hz	1	0
10	Strain 5	ON	1Gage 120Ω	00000	uSt	Measure			2	Strain	10Hz	1	0
11	DISP 1	ON	4Gage (Sensor)	000.00	mm	Measure	50	5		Displacement	10Hz	1	0
12	DISP 2	ON	4Gage (Sensor)	000.00	mm	Measure	50	5		Displacement	10Hz	1	0
13	DISP 3	ON	4Gage (Sensor)	000.00	mm	Measure	50	5		Displacement	10Hz	1	0
14	DISP 4	ON	4Gage (Sensor)	00.0000	mm	Measure	10	5		Displacement	10Hz	1	0
15	DISP 5	ON	4Gage (Sensor)	00.0000	mm	Measure	5	5		Displacement	10Hz	1	0
16	TEMP	ON	Pt 100	0000.0	°C	Measure				Temperature	10Hz	1	0

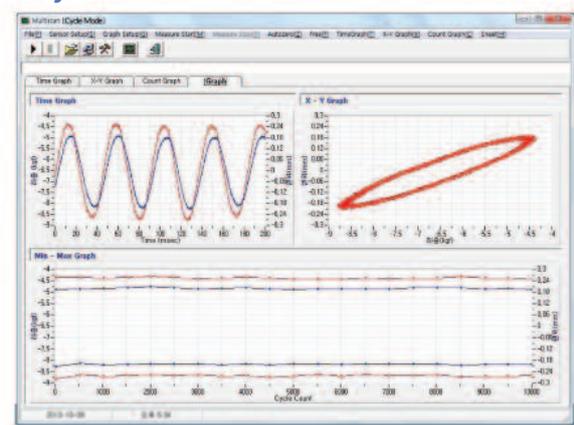
Static mode test



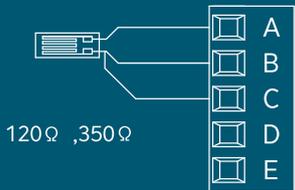
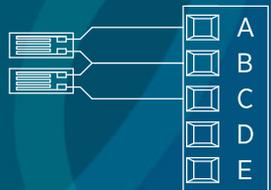
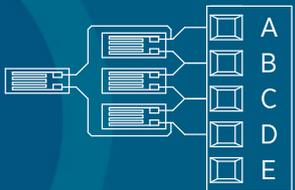
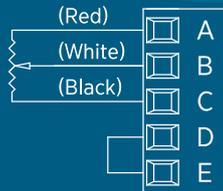
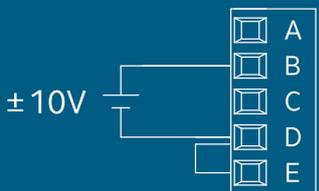
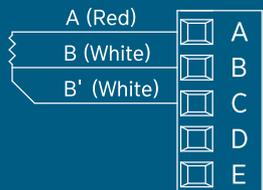
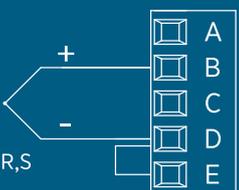
Dynamic mode test



Cycle mode test



wiring

<p>1 GAGE 3WIRE</p>  <p>120 Ω ,350 Ω</p>	<p>2 GAGE</p> 	<p>4 GAGE(STRAIN)</p> 															
<p>4 GAGE(SENSOR)</p> <table border="1" data-bbox="231 1209 534 1400"> <tr> <td>Loadcell</td> <td>EXC+</td> <td>A</td> </tr> <tr> <td></td> <td>SIG+</td> <td>B</td> </tr> <tr> <td>Lvdt</td> <td>EXC-</td> <td>C</td> </tr> <tr> <td>Pressure</td> <td>SIG-</td> <td>D</td> </tr> <tr> <td>Acce.meter</td> <td>SHD.</td> <td>E</td> </tr> </table>	Loadcell	EXC+	A		SIG+	B	Lvdt	EXC-	C	Pressure	SIG-	D	Acce.meter	SHD.	E	<p>POTENTION METER</p> 	<p>DC VOLT</p>  <p>± 10V</p>
Loadcell	EXC+	A															
	SIG+	B															
Lvdt	EXC-	C															
Pressure	SIG-	D															
Acce.meter	SHD.	E															
<p>Pt 100 RTD</p> 	<p>4~20mA Output Sensor</p>  <p>DC 24V POWER SUPPLY</p>	<p>Thermocouple</p>  <p>J,K,T,E,R,S TYPE</p>															



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