



- Technical Information
- Strain Gauge
- Strain Measurement Instruments
- Applications

Strain Gauge

Product Catalog

ENGLISH

CAS

WE WEIGH THE WORLD™

Since its founding in 1983, CAS Corporation consistently aims at becoming a leader in the international weighing industry. By offering a variety of products and dedicated customer service, CAS rapidly developed its global network system. With a manufacturing facility and Headquarter located in South Korea, CAS has expended its business territory further to United States, India, Russia, Turkey and China including active sale performance in over 120 overseas countries. Our global network and cutting-edge technology will ensure total customer satisfaction.

- | | | | |
|------|---|------|--|
| 1983 | Company established | 2006 | The first CAS Global Business Conference in Korea |
| 1989 | Acquired FCC US Official Standards | 2007 | The second CAS Global Business Conference in Korea
Awarded the Global Star prize
Awarded the Techno CEO prize |
| 1990 | Acquired NSC Australian Measuring Verification Standards
Assigned as a National Verification and Correction Facility(177)
Established CAS USA | 2008 | The third CAS Global Business Conference in Korea
Acquired certificate of quality control system of medical instrument
Selected as a electric scale providing company in Chinese standardized market |
| 1991 | Acquired NBS US Measuring Verification Standards
Approved by NTEP & UL, US Safety Standards | 2009 | Fourth CAS Global Business Conference in Korea
Established CAS Nicaragua |
| 1992 | Developed strain gage Established CAS Turkey
Developed the first label printer in the Korean market | 2010 | Established CAS Bangladesh Chittagong
Service center/office |
| 1993 | Approved by CSA (Canada) | 2011 | Acquired as Self-National verification & correction Facility from Korean Agency for Technology and Standard |
| 1994 | Established CAS Russia
Acquired the first OIML, EU Standards | 2012 | Established Vietnam |
| 1995 | Established CAS China | 2013 | Jiashan factory, China, Completed
Nominated for WC300
Established CAS Chemical
Established CAS E&C |
| 1996 | Established Shanghai factory in China
Acquired the first ISO 9001 in the Korean weighing industry | 2014 | Chosen to execute 1 st year project for the World Class300
Designated as No.1 brand in Global Brand Competency Index(GBCI) |
| 1997 | Established CAS TSC (service center) in Russia | 2015 | Chosen to execute 2 nd year project for the World Class300
Received 2015 Global Excellence Awards |
| 1999 | Established CAS India
Acquired EC Self-Verification Certification | 2016 | Designated as No.1 brand in Global Customer Satisfaction Competency Index(GCSI) |
| 2000 | Awarded the Best Certification Company by ISO9000 | 2018 | Designated as No.1 brand in Global Brand Competency Index(GBCI)
Designated as No.1 brand in Global Customer Satisfaction Competency Index(GCSI) |
| 2001 | Awarded the Best Certification Company by ISO9000 for two consecutive years
Awarded the best prize for Precision technology
Acquired Japanese NMIJ Standards Certification
Established CAS New Zealand | | |
| 2002 | Awarded the Best Global Company by Japanese Management Association
Awarded Russia Golden Balance 2002 | | |
| 2003 | CAS Europe Tour | | |
| 2004 | Established CAS Poland | | |
| 2005 | Granted 30 million dollar export Tower from the government
Established CAS Deutschland Established Bangladesh | | |



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Strain Measurements Instrument

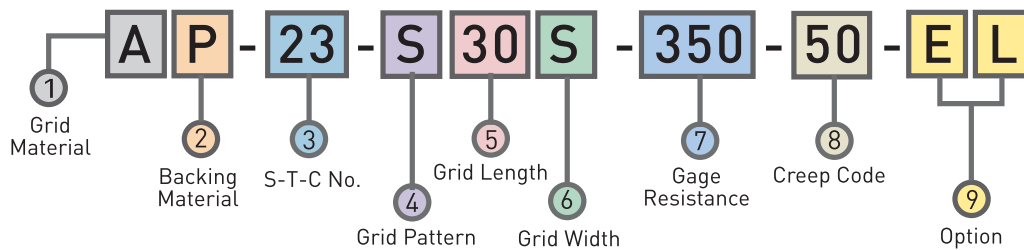
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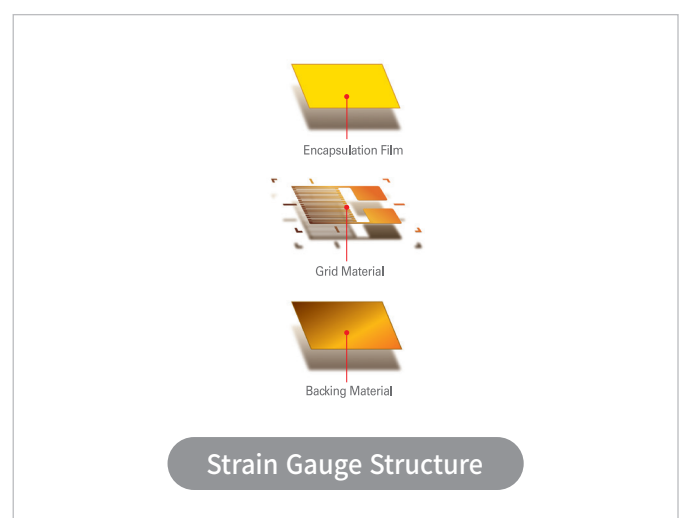
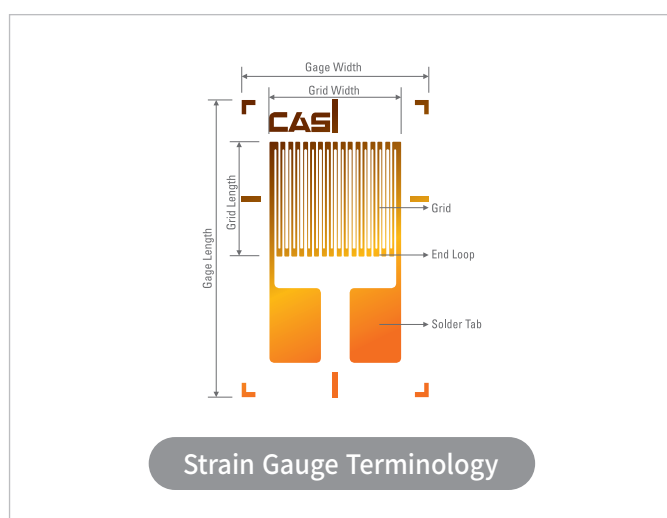
Coding System

CAS Strain gauge is being manufactured by the standard, NAS942, OIML, ASTM which are authorized internationally. And each manufacturer is applying the separate coding system to classify the shape, purpose, quality and resistance of strain gauge on the basis of the regulation.

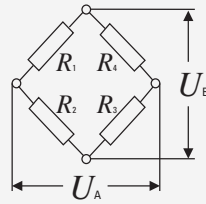


No	Code	Infomation
1	A	Grid Material A : Constantan, K : Karma
2	P	Backing Material P : Polyimide film
3	23	S-T-C No. 11 : Steel, 23 : Aluminum
4	S	Grid Pattern S : Single Linear, T : Tee Rosette, D : Diaphragm, R : 3 elements rosette, Q-Shear
5	30	Grid Length 10(1mm) ~ 900(90mm)
6	S	Grid Width N : Narrow, S : Same, W : Wide (width-length ratio)
7	350	Gage Resistance 120, 350, 700, 1000, 2000, 3000
8	50	Creep Code 05 ~ 11 (end loop-grid ratio)
9	EL	Option E : Encapsulated, L : Lead wire attached, C : Cable attached

Strain Gauge Structure



Wheatstone Bridge & Signal Output



$$\frac{U_A}{U_B} = \frac{1}{4} \left(\frac{\Delta R_1}{R_1} - \frac{\Delta R_2}{R_2} + \frac{\Delta R_3}{R_3} - \frac{\Delta R_4}{R_4} \right)$$

$$\frac{\Delta R}{R} = k \cdot \epsilon$$

$$\frac{U_A}{U_B} = \frac{k}{4} \cdot (\epsilon_1 - \epsilon_2 + \epsilon_3 - \epsilon_4)$$

BRIDGE/STRAIN	DESCRIPTION	OUTPUT EQUATION- E_0/E	BRIDGE/STRAIN	DESCRIPTION	OUTPUT EQUATION- E_0/E
		$\frac{E_0}{E} = \frac{F\epsilon \times 10^{-3}}{4 + 2F\epsilon \times 10^{-6}}$			$\frac{E_0}{E} = \frac{F\epsilon \times 10^{-3}}{2 + F\epsilon \times 10^{-6}}$
		$\frac{E_0}{E} = \frac{F\epsilon(1+\nu) \times 10^{-3}}{4 + 2F\epsilon(1-\nu) \times 10^{-6}}$			$\frac{E_0}{E} = \frac{F\epsilon(1+\nu) \times 10^{-3}}{2 + F\epsilon(1-\nu) \times 10^{-6}}$
		$\frac{E_0}{E} = \frac{F\epsilon}{2} \times 10^{-3}$			$\frac{E_0}{E} = \frac{F\epsilon(1+\nu) \times 10^{-3}}{2}$
		$\frac{E_0}{E} = \frac{F\epsilon}{2} \times 10^{-3}$			$\frac{E_0}{E} = F\epsilon \times 10^{-3}$

Strain Gauge Installation



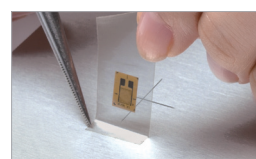
1 Abrading the application



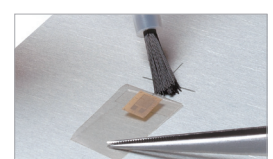
2 Marking the application



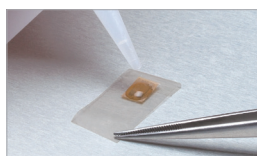
3 Cleaning the application



4 Aligning the strain gauge



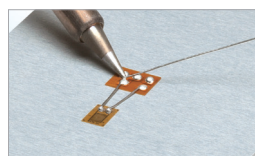
5 Applying the catalyst



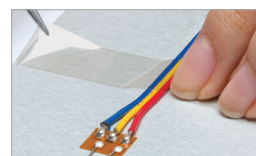
6 Dropping the adhesive



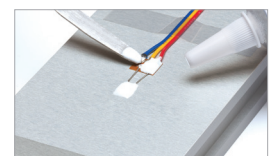
7 Pressing the strain gauge



8 Soldering leading-wires of strain gauge to the application



9 Soldering and loking the cables

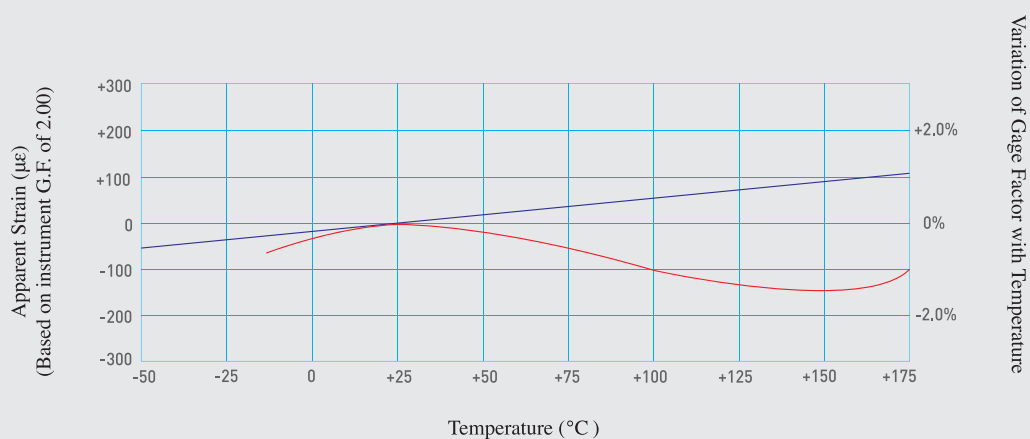


10 Coating the application

Technical Property

Item		Unit	AP series
Grid	Material	μm	Constantan
	Thickness	μm	2.5, 5
Backing	Material	μm	Polyimide
	Thickness	μm	25
Resistance	Value	Ω	120, 350, 700, 1000
	Tolerance	%	± 0.2
Gauge factor			2.0 (Approx.)
Gauge factor variation with Temp.			1.2 (Approx.)
Transverse Sensitivity			1.7±0.2
Avaialble temperature range		°C	-30~+80
S-T-C no.			Steel:11
			Stainless steel:16
			Alumium:23

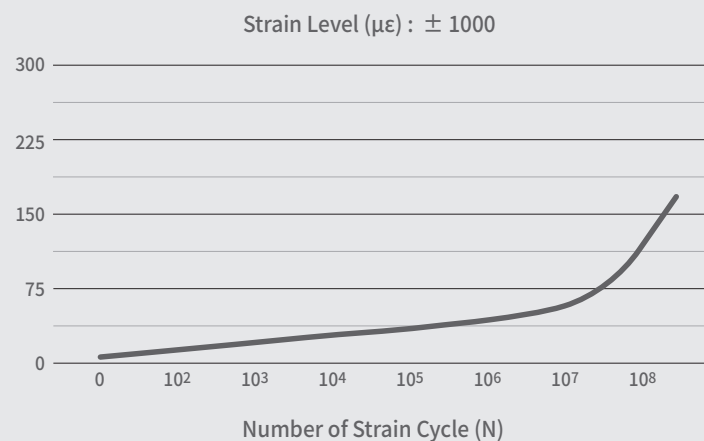
Thermal Output



Fatigue life

A Foil Strain gage that is loaded multiple times in a fatigue test have a correlation between number of load cycle and strain level (load amplitude). The fatigue life is depend on strain level, cycle and various factor of the installation method.

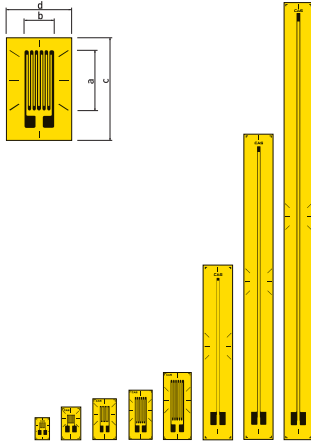
The graphic below shows Strain gauges tested for fatigue life in CAS are cyclically loaded in tension and compression. (Using AP Series AP-11-S64N-350-E). Our uses NAS942 test rig with the cantilever beam. On “Technical property” section in this catalogue, fatigue life is the maximum value with the specified strain level.



Fatigue life Tester

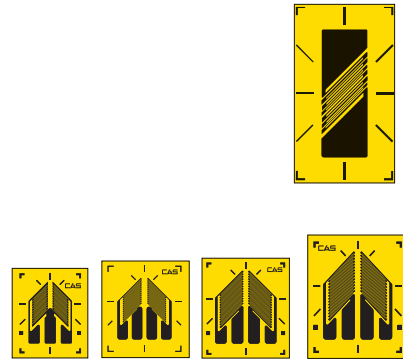
Classification by Grid Pattern

Single Linear Grid Pattern



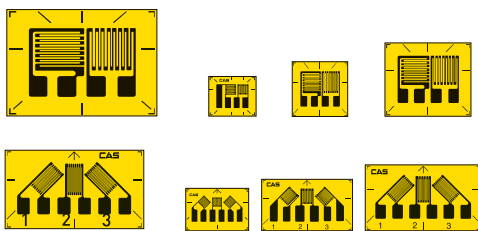
- Widely used general purpose Linear type strain gauge (S series strain gauge)
- Bending application
- Grid size: 1~90 mm
- Resistance: 120~2000Ω
- Similar geometry pattern available

Shear & Double shear Grid Pattern



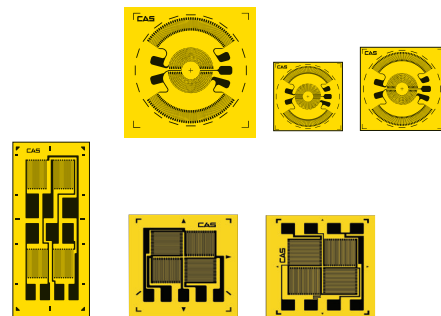
- Widely used general purpose Linear type strain gauge (S series strain gauge)
- Bending application
- Grid size: 1~90 mm
- Resistance: 120~2000Ω
- Similar geometry pattern available

T&3 - Element Rosette Pattern



- Widely used general purpose Linear type strain gauge (S series strain gauge)
- Bending application
- Grid size: 1~90 mm
- Resistance: 120~2000Ω
- Similar geometry pattern available

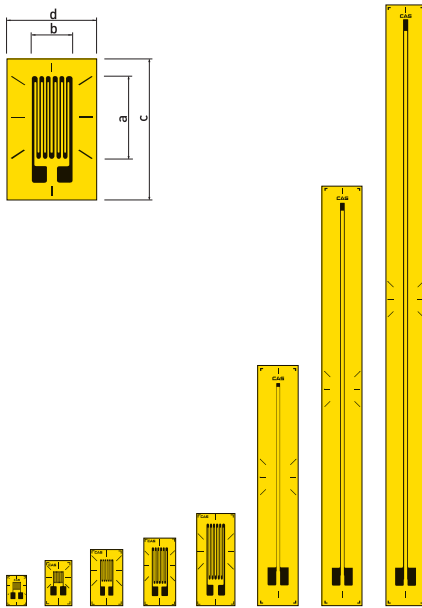
Diaphragm & Special Grid Pattern



- Widely used general purpose Linear type strain gauge (S series strain gauge)
- Bending application
- Grid size: 1~90 mm
- Resistance: 120~2000Ω
- Similar geometry pattern available

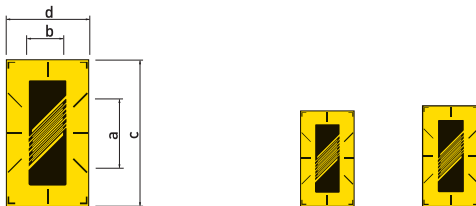
120Ω Strain Gauge (Cable Attached Option)

LINEAR



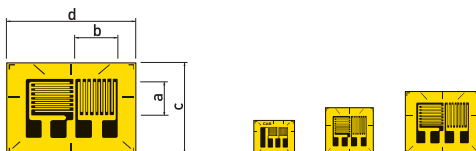
Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-S10S - 120	1	1	5	3.2
AP-XX-S15S - 120	1.5	1.5	7	4
AP-XX-S30N - 120	3	2.1	9	5
AP-XX-S50N - 120	5	2.6	11	5
AP-XX-S80N - 120	8	3	15	6
AP-XX-S300N - 120	30	0.6	40	6
AP-XX-S600N - 120	60	0.8	70	6
AP-XX-S900N - 120	90	0.9	100	6

SHEAR

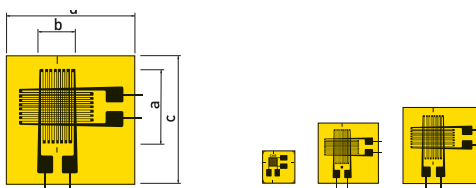


Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-Q15S - 120	1.5	1.5	8	4
AP-XX-Q30S - 120	2.6	2.6	10.5	5.6

TEE ROSETTE



Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-T10S - 120	1	1	5.3	6
AP-XX-T15S - 120	1.5	1.5	6.5	7
AP-XX-T30S - 120	3	3	9	11



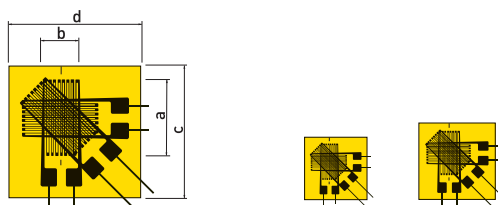
Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-TS10S - 120	1	1	5	5
AP-XX-TS30N - 120	3	2.1	9	9
AP-XX-TS50N - 120	5	2.6	11	11

3-ELEMENT ROSETTE



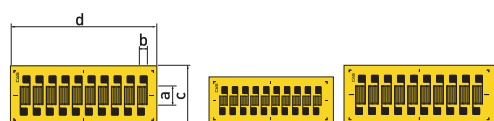
Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-R10S - 120	1	1	6	9
AP-XX-R15S - 120	1.5	1.5	7	12
AP-XX-R30N - 120	3	2.1	9	16

3-ELEMENT ROSETTE



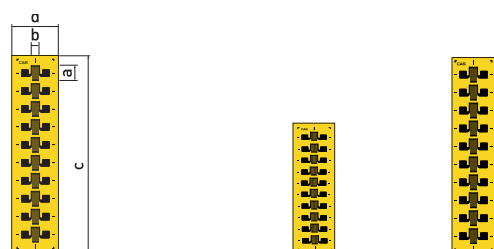
Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-RS30S - 120	3	2.1	9	9
AP-XX-RS50N - 120	5	2.6	11	11

STRIP GAUGE



Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-SH15S - 120	1.5	1.5	7	23
AP-XX-SH30N - 120	3	2	10	29

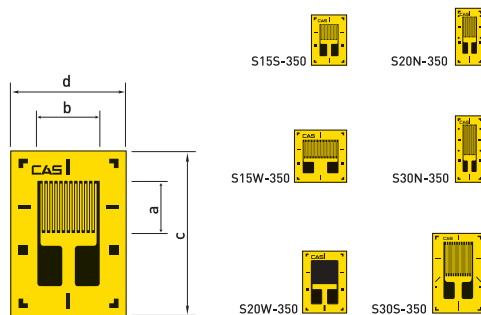
STRIP GAUGE



Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-SV15S - 120	1.5	1.5	27	7
AP-XX-SV30N - 120	3	2.1	44.5	8

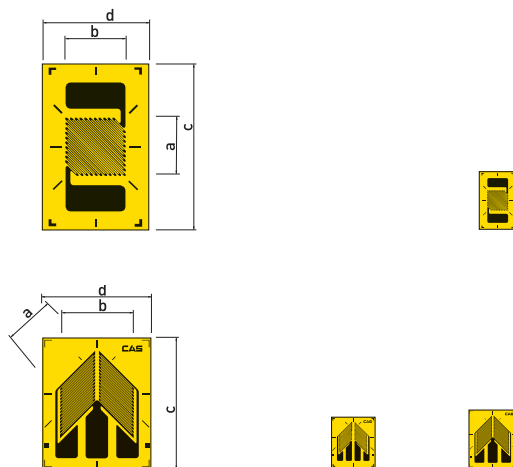
350Ω Strain Gauge

LINEAR



Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-S15S - 350	1.5	1.7	4.8	3.2
AP-XX-S15W - 350	1.5	3.5	5.0	5.0
AP-XX-S20W - 350	2	2.8	6	4
AP-XX-S20N - 350	2.0	1.3	5.5	2.5
AP-XX-S30N - 350	3.0	1.2	6.5	2.5
AP-XX-S30S - 350	3	3	7.9	4.9

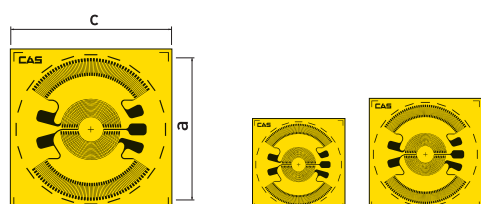
SHEAR



Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-Q30S - 350	1	1	5.3	6

Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-T25N - 350	2.5	4	7.5	6.4
AP-XX-T30N - 350	2.5	4	8.5	7

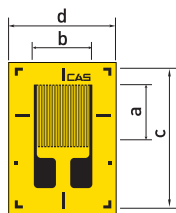
DIAPHRAGM



Order#	Dimension (unit : mm)	
Model	a	c
AP-XX-D100 - 350	9	10
AP-XX-D130 - 350	12	13

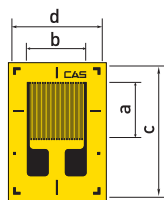
High Resistance Strain Gauge

LINEAR-1 kΩ



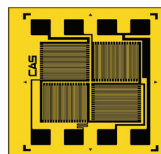
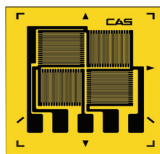
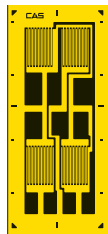
Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-S30-1000	3	3	7	4.8

LINEAR-2 kΩ



Order#	Dimension (unit : mm)			
Model	a	b	c	d
AP-XX-S40-2000	4	4	8	5.5
AP-XX-S40-2000	4	4	8	5.5

SPECIAL ORDER



Concrete Strain Gauge






Item	Specification
Type	Embedment
Active grid length	10 mm
Resistance	120Ω
Gage factor	2.0 Approx.
Operation temp. range	-20°C ~ 70°C
Thermal expansion	11 ppm/°C
Cable material	Polyethylene sheathed leadwire
Cable length	3m (standard)

Strain Gauge Accessories



SPECIFICATIONS

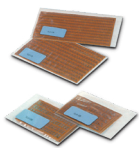
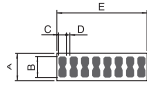
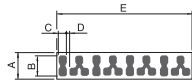
	Order#		Item	Package
Solvent Cleaners	SC-1 SC-2 SC-3		IPA MEK ACETONE	500ml 500ml 500ml
Water-Based Cleaners	ST-1 ST-2		Conditioner Neutralizer	500ml 500ml
Surface Abrasion Materials	SA-1 SA-2		Sand Paper 320 Sand Paper 400	100pcs 100pcs
Tapes	TP-1 TP-2 TP-3		Mylar Tape Kapton Tape Teflon Tape	13mm x 66mm 13mm x 66mm 25mm x 15mm
Adhesives	Bond-1 Bond-2		Cold curing adhesive Hot curing adhesive	30ml 30ml

Strain Gauge Accessories



SPECIFICATIONS

	Order#		Item	Package
Wires & Cables	WR-1 WR-2 WR-3		Enamel coated wire 2 Wire flat cable 3 Wire flat cable	150m 50m 50m
Wires & Cables	PC-1 PC-2 PC-3		Silicone Liquid Butyl Rudder Butyl Rudder Tape	100g 100g 38mm x 15m
Solder & Flux	SD-1 FX-1		Solder Flux	100g
Soldering Station	SS-1		-	Ø 0.5 X 2kg

Order#		DRAWING	Item					Package
			A	B	C	D	E	
	TL1-13		4.5	3.2	1.3	0.9	17.6	50
	TL1-25		8.4	6.4	2.5	1	28	50
	TL2-13		4.5	3.2	1.3	0.9	26.4	50
	TL2-25		8.4	6.4	2.5	1	44	50

KRYPTON ST03 Strain Amplifier



FEATURE

- Possible to measure a variety of strain-gauge type sensor
- Bridge excitation Programmable selection(DC 1 V~ 15V)
KRYPTON ST3 provides a more accurate and stable output signal by
- Simple Design & Easy operating
- Programmable low-pass filters
- Wide frequency response(20KHz/ch.)
- All bridge sensors can be used(1/4,1/2,Full Bridge)
- Standard Analysis Software

APPLICATION

- Dynamic measurement Strain, Force, Pressure, displacement and high level voltage signal, thermocouple etc...
- Lab test equipment with various physical sensors
- Multi Axis loadcell force measurement

SPECIFICATIONS

Analog inputs	
Input channels	3 differential voltage or strain
Input signals	Voltage: 10V, 1V, 100mV or 10mV / Strain: 2..1000mV/V programmable, Full, Half, Quarter 120/350Ω 3 wire Excitation: 1.. 15V programmable, max. 0.4 W/ch
ADC type	24 bit
Sampling rate	Max 20 kHz per channel(software selectable)
Isolation voltage	Differential input
Input coupling	DC
Input impedance	10 MΩ
Accuracy	±0.03% of reading ±0.02% of range ±0.1mV
Gain drift over temperature	typ. 10ppm/k(max. 40ppm/k)
Offset drift over temperature	typical 0.3 μV/k + 5ppm of range/k
Noise	up to 100 dB
Programmable Shunt (default Values)	100k Ohm
IEPE/ICP Sensors	MSI adapter
Resistance	MSI adapter
Temp. (PT100 to PT2000)	MSI adapter
Temp. (Thermocouple)	MSI adapter
Potentiometer	YES
LVDT	MSI adapter
Charge	MSI adapter
Current	External Shunt
TEDS interface	YES
Advanced functions	Low power, Sensor and Amplifier balance
Connector type	DB9, L1B1of
General specs	
Interface	LEMO 1T EtherCAT Hybrid cable (Power & Data in one cable)
Power supply voltage	6 to 50V DC
Power consumption	2.4W(4W 120R @ 5V load)
Dimensions	202 x 54 x 38 mm
Weight	Typically 650g
Environmental rating	IP67
Shock & Vibration Rating	> 100g
Temperature range	-40 .. 85 deg. C
Supported Software & Hardware Platforms	Software: DEWESoft X / Hardware: KRYPTON modules synchronise with all other DEWESoft Hardware

LCT PRO Strain Amplifier



FEATURE

- Available for All bridge sensors (1/4,1/2,Full Bridge)
- Gain adjustment range from 1 to 11,000
- Single shunt calibration
- built-in Low-pass filter for signal conditioning
- Wide frequency response (10kHz, -0.5dB)
- Selectable excitation voltage (DC 2 V, 5V, 10V)
- Excitation remote sense installed
- Various output signal type
 - Current Output(0~40mA), Digital Output(RS232C),
 - Voltage output(0~/-10V)

SPECIFICATIONS

Voltage output		Current ouptut(Optional)	Digital output(Optional)	Bridge module(Optional)
Input	Full Bridge Transducer			• Straingages 1/4, half, full(50Ω ~ 1KΩ) • Transducer Foil, Piezoresistive Straingage types, Potentiometer, Dcdt, Displacement transducer • High level : voltage(mV,V)
Output	0 ~ +/-10V	0~40mA	0 ~ +/-10V, RS232C	
Power	DC +18 ~ +24V			
Gain	x1, x10, x100, x1000, x1 ~ x11 (Fine Volume) (Loadcell 0.1mV/V~100mV/V)			
Filter	Low-pass filter 1Hz,10Hz,100Hz,1kHz, 10kHz selectable			
Input Impedance	≤10 ¹⁰ Ω			
Excitation voltage	2V,5V,10V selectable (Remote Sense)			
Zero Balance	±100% (R.O)			
Span Balance	±10% (R.O)			
Linearity	±0.01% (F.S)			
Accuracy	±0.01% (F.S)			
Operating Temp.	-25 ~ +85 , 85%			
Mea. Impedance	1.7 KΩ <	0~500Ω	3~7KΩ	
RS-232C	-	-	9600bps, Stream Mode 16bit, 8Hz sampling Rate	

DA-1602 Dynamic Strain Amplifier System



FEATURE

- Bridge excitation selection (1 V to 10V DC)
- Fully adjustable gain from 1 to 11,000
- All Bridge completion built in, including 120, 350 ohm
- Single shunt calibration
- Selectable cut-off frequency of four low-pass filters
- Wide frequency response (25KHz, -0.5dB)
- Excitation remote sense installed
- DC voltage calibrator built in
- AC/DC Input selector
- 5U(8.75") Plug-in Unit

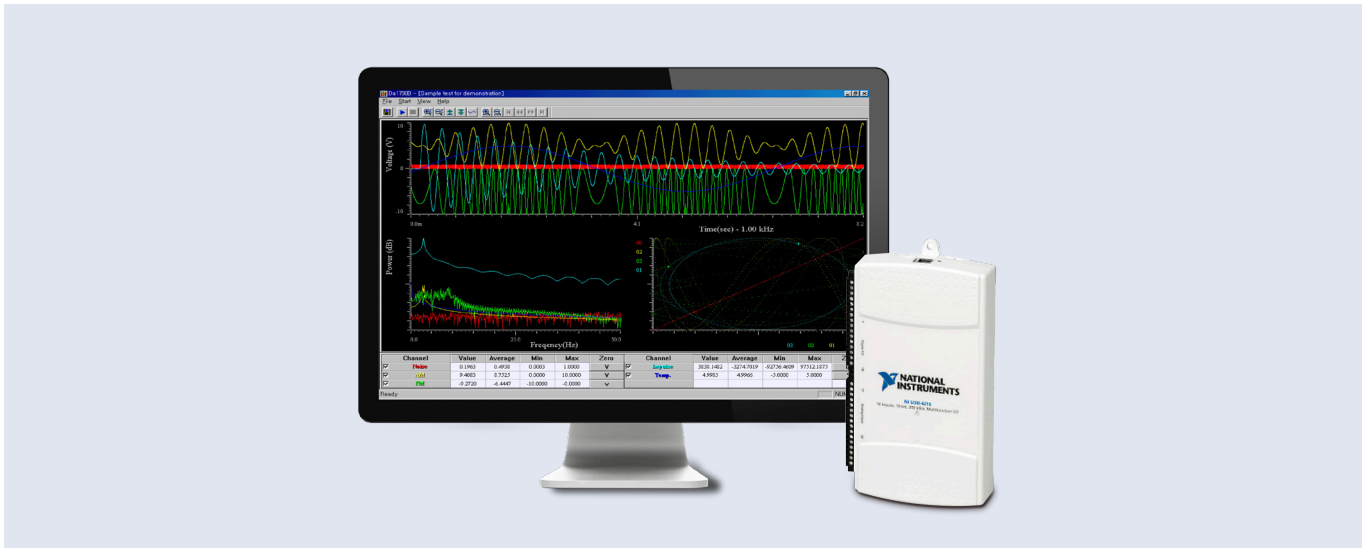
APPLICATION

- Dynamic measurement : Strain, Force, Pressure, DC displacement and High level voltage signal
- Safety diagnosis of structures in civil and architectural engineering

SPECIFICATIONS

Model	DA-1620
Inputs	straingages : 1/4, half, full(50Ω ~ 1KΩ), dummy bridge resistor(120Ω,350Ω)built in transducer : foil, piezoresistive straining types, potentiometer, dcdt, displacement transducer etc. high level : voltage(mV,V)
Bridge excitation	voltage : DC 1, 2, 6, 10V ($\pm 0.1\%$), remote sense (0.0005%/Ω,at load resistor 350Ω), current : 0 ~ 100mA,max
Bridge balance	counter_emf injection method, ranges : $\pm 5000\mu\epsilon$ 2.5mV/V(5% unbalance), auto balance reset time : 2sec. manual balance : $\pm 50\mu\epsilon$ (gain depend.), balance data back-up : 3years
Shunt calibration (built-in)	standard resistor built-in : 1000 $\mu\epsilon$ (for strainingage 120Ω,350Ω G.F=2), 0.5mV/V (for transducer 350Ω)
Internal calibration	precision power built-in, voltage : 10mV, 100mV, 1V($\pm 0.01\%$)
Amplifier	differential, common mode amplifier, input impedance : > 100 MΩ gain : x1, x10, x100, x1000 rotary sw(err: $\pm 1\%$), x1 ~ x11 continuously variable knob(err: $\pm 0.5\%$), ten-turn volume, total gain : x1 ~ x11000 frequency response(two output) ; dc coupled : dc to 65KHz, -3dB max.(30% output), ac coupled : ac 5Hz to 25KHz, -0.5dB max, common mode input : ± 10 V stability : 2uV/°C, max referred to input(gain over x100), noise : 0.01 to 10Hz : 1uV p-p referred to input, 0.5 to 50KHz : 5uV rms, max referred to input
Filter	low-pass active 4pole butterworth filter (bessel filter) frequency : 10Hz, 100Hz, 1KHz, 10KHz or wide band, ac signal on/off (dc remove)
Amplifier outputs	standard output : ± 10 V 5mA,min, monitor output : ± 10 V 5mA,min
Amplifier indicators	led indicators : power, +bal, -bal, over, cal,autobal
Power	ac220V 50/60Hz(switch selected) $\pm 10\%$
Size	217 x 71 x 296 (H x W x D)mm
Weight	2Kg

DA-1800B Realtime Dynamic Signal analytic Tool



SOFTWARE FEATURE

- Easy operating application software in Windows7 /10
- Channel information setting
- Data acquisition, save, load and print
- On line strip view(up to 8channels)
- X-T, X-Y, and spectrum view
- Zooming and tracking
- Static analysis (mean, max, min, avg, Variances, STD, Peak to Peak)
- Digital filters
- Binary to ASCII conversion
- Static and dynamic signal analysis

A/D BOARD FEATURE

- National Instrument DAQ series(USB-6210)
- Analog inputs 16 channel
- Resolution 16bit
- Max sampling rate 250 ks/s
- Digital I/O 4 channel

GTDL-253/GTDL-253S 4Channel & On-site Data logger



DESCRIPTION

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

SPECIFICATIONS

Model	GTDL-235
Number of Channer	4 channel
Display & data memory	7" inch 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	- 1 Gauge & 2 Gauge : 120 Ω, 350 Ω - 4 Gauge Bridge Sensor : 0.5 mV/V~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10V
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strai
Low Pass Filter	10Hz, 100Hz, 1 kHz, Pass
Interface	USB
Program	Multiscans S/W & Multiload S/W
Dimension	340(W)*300(D)*150(H)mm
Power	Lithium-ion battery and DC 12V

Model	GTDL-235S
Number of Channer	4,5,6,7,8 channel
Display & data memory	7" inch Touchable LCD SCREEN 4G SD Data Memory, USB Memory Stick Port(EXT)
Measure Hz	1 Hz
Connector for sensor	Military Circular Connector
Input Sensor	- 1 Gauge & 2 Gauge : 120 Ω, 350 Ω - 4 Gauge Bridge Sensor : 0.5 mV/V~ 100 mV/V - Potentiometer Sensor - Pt100 temperature sensor - Voltage : 10V
Strain Input Range	10,000, 100,000, 1,000,000 X 10 ⁻⁶ strai
Low Pass Filter	10Hz, 100Hz, 1 kHz, Pass
Interface	USB
Program	Multiscans S/W & Multiload S/W
Dimension	340(W)*300(D)*150(H)mm
Power	Lithium-ion battery and DC 12V

GTDL-H20 Portable Data Logger



DESCRIPTION

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

SPECIFICATIONS

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	$\pm 30,000$ ($\mu\epsilon$)
A/D Conversion	24 Bit
A/D Conversion Speed	10 times/sec
Data Save	320 Point Save
Data Download	USB
Program	Multiscan S/W & Multiload S/W
Demension	98(W)*200(H)*35(D)mm

GTDL-152 4 Channel Data Logger



DESCRIPTION

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

SPECIFICATIONS

Model	GTDL-152
Number of Channer	4 channel
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	Multiscans S/W & Multiload S/W
Dimension	140(W)*190(H)*270(D)mm
Power	AC 220 V, 50~60 Hz

GTDL-350/GTDL-360 PC Connected Data Logger



GTDL-350

GTDL-360

DESCRIPTION

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.

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 120 Ω /350 Ω 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)

SPECIFICATIONS

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	

GTDL-610 Touchable PC type Data Logger



DESCRIPTION

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

SPECIFICATIONS

Model	GTDL-610
Number of Channer	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 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
Bridge excitation	DC 2 V, 5 V, 10 V Program Selectable
Interface	USB
Program	Multiscans S/W & Multiload S/W
Dimension	450(W)*180(H)*310(D)mm
Power	AC 220 V, 50-60 Hz

GTDL-600 Touchable & On-site type Data Logger



DESCRIPTION

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.

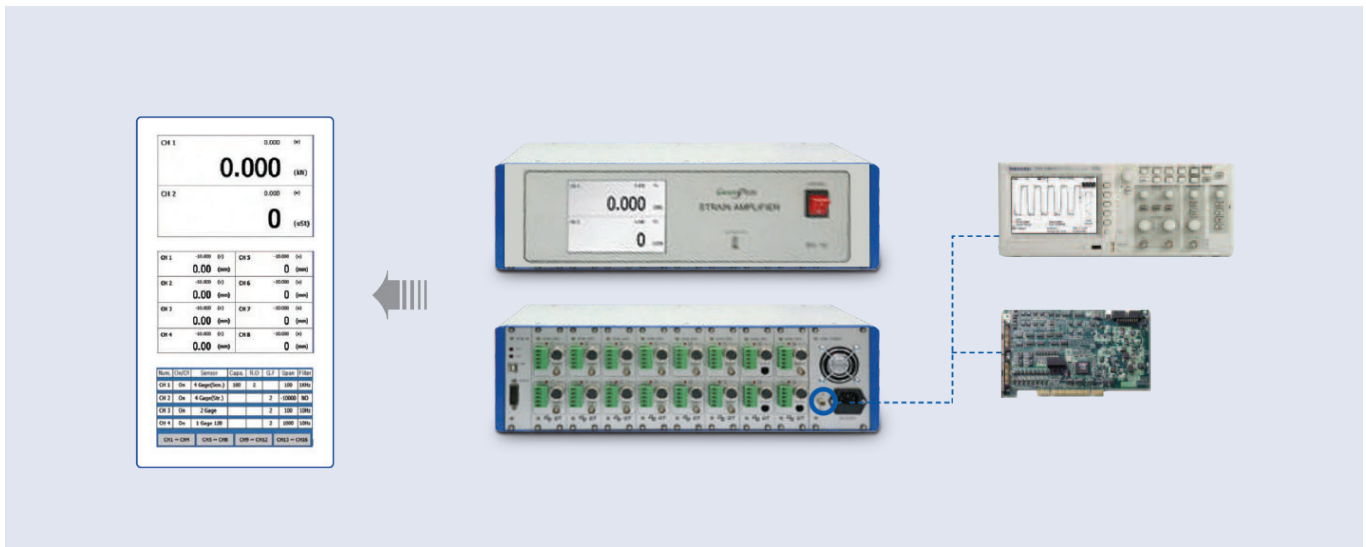
FEATURE

- 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)

SPECIFICATIONS

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, 1,000,000 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	

GTSA-16 Strain Amplifier



DESCRIPTION

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

SPECIFICATIONS

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	

GTDL-M130/GTDL-M120 CDMA Data Logger



DESCRIPTION

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.

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

SPECIFICATIONS

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	- 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	

GTDL Series Data Logger Software



DESCRIPTION

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.

SPECIFICATIONS

Model	Multiscan & Multiload
Channel	128 Channel simultaneous monitoring
Interface	USB
Display	Text, TimeGraph, X-Y Graph, Spread Sheet, Numeric LED
Graph	4.3" TFT LCD with touch panel
	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 7/10, 32Bit & 64Bit Support
	USB 2.0 Intel Core Duo 2Ghz, 1G RAM 이상
Support	All GTDL-Series Data Logger

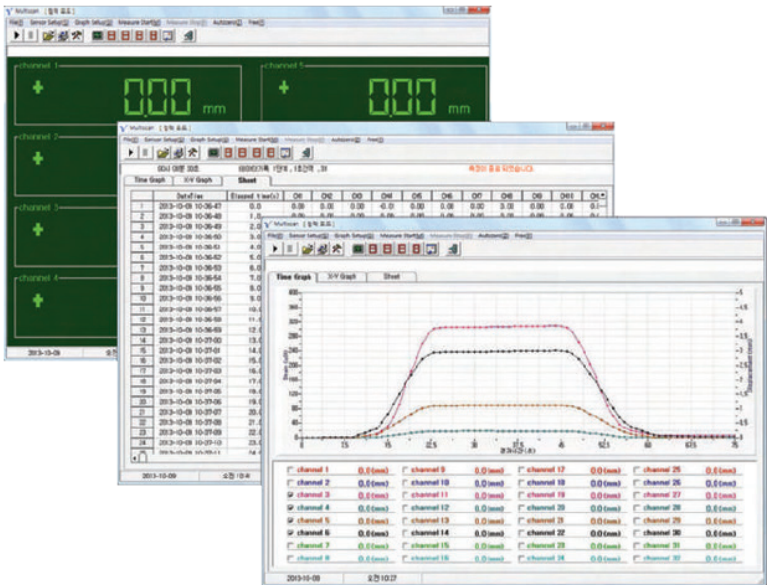
Sensor setting

Channel Setup

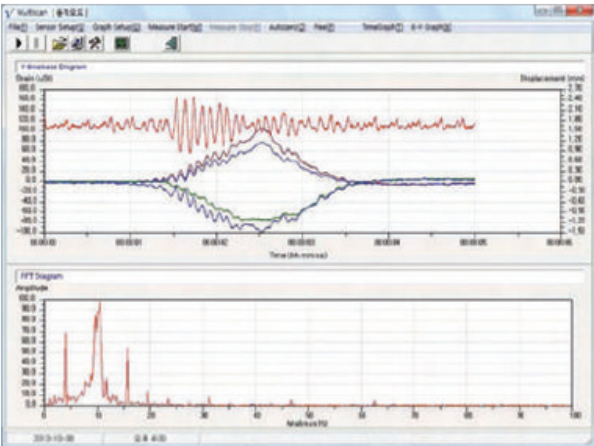
Chan	Information	Status	Sensor type	Dist. point	Unit	Mode	Capacity	R.O (mm/s)	G.F	Graph Axis	L.P Filter	A.G.A	A.G.B
01	channel 1	ON	40Age (Sensor)	000.00	mm	Measure	50	2		Load	10Hz	1	0
02	channel 2	ON	40Age (Sensor)	000.00	mm	Measure	50	2		Load	10Hz	1	0
03	channel 3	ON	40Age (Sensor)	000.00	mm	Measure	50	2		Load	10Hz	1	0
04	channel 4	ON	40Age (Sensor)	000.00	mm	Measure	50	2		Load	10Hz	1	0
05	channel 5	ON	40Age (Sensor)	000.00	mm	Measure	50	2		Load	10Hz	1	0
06	Strain 1	ON	10Age 1210	00000	μStr	Measure			2	Strain	10Hz	1	0
07	Strain 2	ON	10Age 1210	00000	μStr	Measure			2	Strain	10Hz	1	0
08	Strain 3	ON	10Age 1210	00000	μStr	Measure			2	Strain	10Hz	1	0
09	Strain 4	ON	10Age 1210	00000	μStr	Measure			2	Strain	10Hz	1	0
10	Strain 5	ON	10Age 1210	00000	μStr	Measure			2	Strain	10Hz	1	0
11	DSP 1	ON	40Age (Sensor)	000.00	mm	Measure	50	5		Displacement	10Hz	1	0
12	DSP 2	ON	40Age (Sensor)	000.00	mm	Measure	50	5		Displacement	10Hz	1	0
13	DSP 3	ON	40Age (Sensor)	000.00	mm	Measure	50	5		Displacement	10Hz	1	0
14	DSP 4	ON	40Age (Sensor)	00.000	mm	Measure	10	5		Displacement	10Hz	1	0
15	DSP 5	ON	40Age (Sensor)	00.000	mm	Measure	5	5		Displacement	10Hz	1	0
16	TEMP	ON	Pt 100	0000.0	°C	Measure				Temperature	10Hz	1	0

그룹 설정 변경 채널별 설정 변경 저장 후 종료

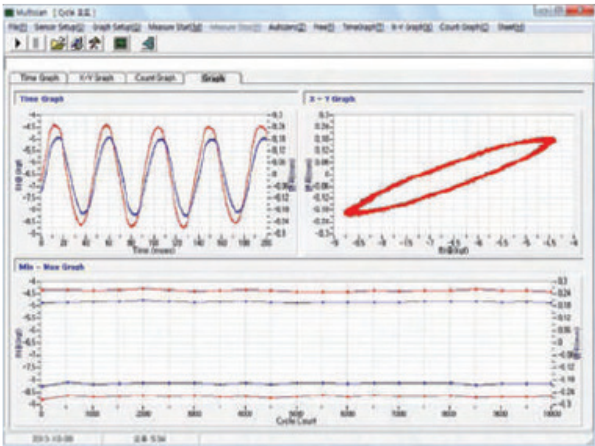
Static mode test



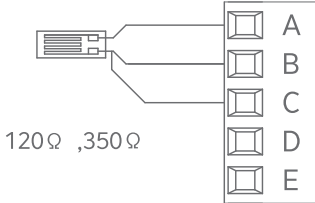
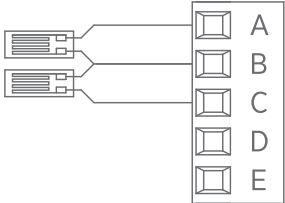
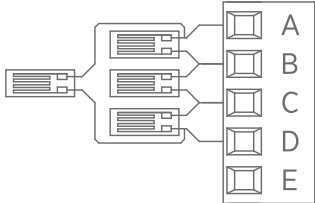
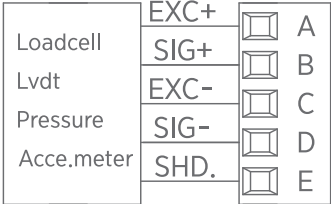
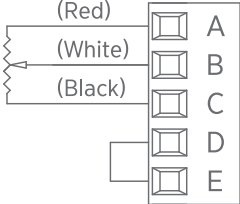
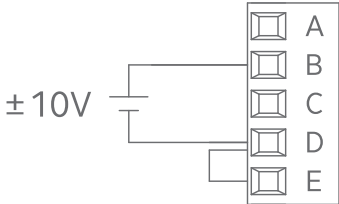
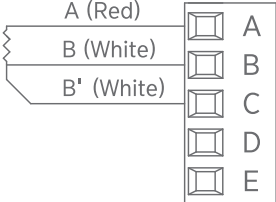
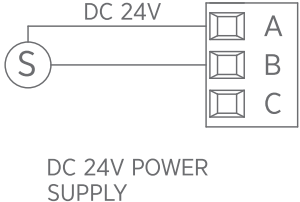
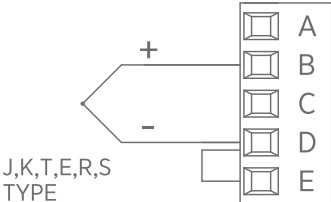
Dynamic mode test



Cycle mode test



Wiring

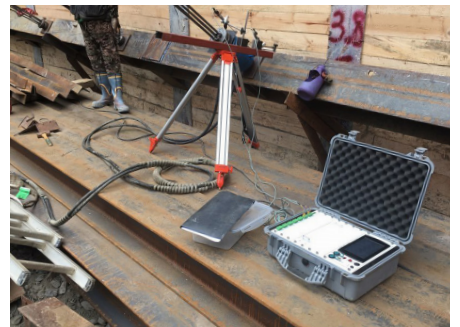
1 GAGE 3WIRE	2 GAGE	4 GAGE(STRAIN)
 <p>120Ω ,350Ω</p>		
4 GAGE (SENSOR)	POTENTION METER	DC VOLT
		
Pt 100 RTD	4~20mA Output Sensor	Thermocouple
	 <p>DC 24V POWER SUPPLY</p>	 <p>J,K,T,E,R,S TYPE</p>

Applications

Architecture_Civil



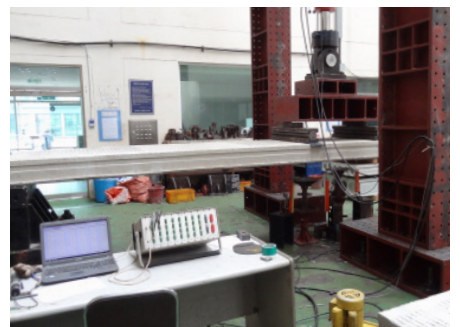
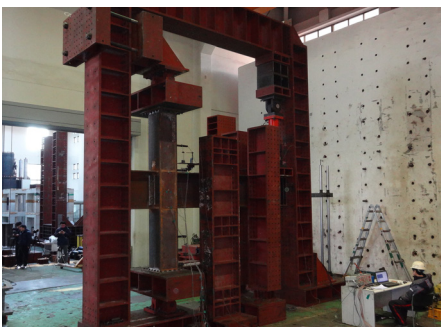
Architecture_Civil



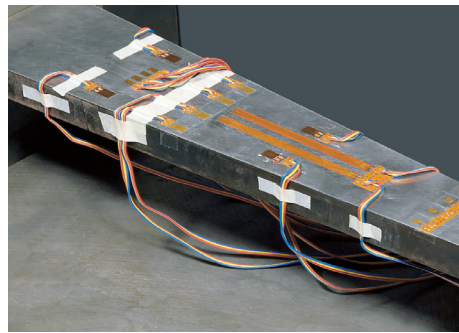
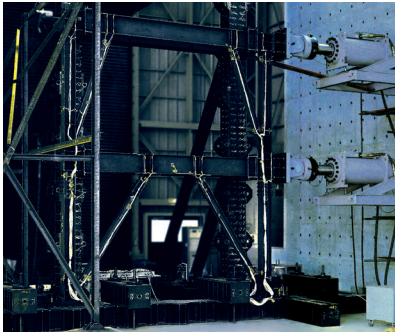
Architecture_Civil



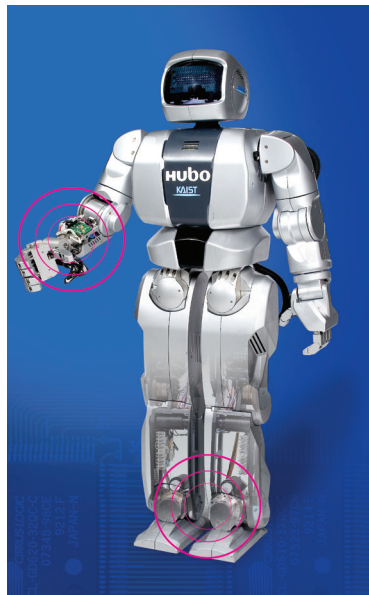
Architecture_Civil



Material test



The Emille Bell / Robot Engineering / Crane&Hopper Scale



Mechanical





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* Specifications are subject to change without notice improvement.

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