

CHINO LE Series Hybrid Recorders (Dot-printing Type)

The LE (LE1000, LE2000) series 250mm intelligent recorders accept multi-range inputs.

They feature

- High accuracy, 0.05%
- High-speed scanning, 30 points per second
- High-speed recording, 1 line in 2 seconds.

Operation is simple with front panel keys while setting-up can be executed from a personal computer or with an IC memory card.



Features

- High-speed scanning at 30 points/second; high-speed recording**
 A large volume of process data such as test and experimental data, even when it changes rapidly, can be scanned at 30 points per second while printing can be done one line per 2 seconds, for an excellent real-time performance. 10 colors can be specified for different channels for easy identification.
- High accuracy of 0.05%**
 The accuracy is 0.05% and the resolution is 1 μ V or 0.1 $^{\circ}$ C
- Simultaneous measurement of various industrial units with range selection**
 A total of 47 input ranges including 37 temperature ranges and 10DC voltage ranges are available. Different combinations of input ranges including arbitrary mixed inputs can be used. Current inputs are also acceptable.
- Easy to operate**
 Both operation keys for normal operations and engineering keys for more complex settings are provided and the operation keys are laid out functionally. The complex operation of other sophisticated instruments has been eliminated. Setting using a personal computer or an IC memory card is also possible.
- IC memory card**
 Setting of operation parameters such as ranges and scales can be performed with an IC memory card. Up to 4 sets of setting conditions can be stored in a card.
- Exclusive engineering port**
 A personal computer used as an engineering tool can be connected, allowing parameters to be set using the computer and settings confirmed on the screen, together with maintenance and inspection.
- Anti-noise countermeasures**
 High effective anti-noise countermeasures are taken; suppressing induced noise by 130 dB or more in the common mode while 50dB or more is achieved in the series mode. Effective countermeasures are taken against pulse noise.
- Four types of communications interfaces (option)**
 The communications interface of GP-IB, RS-232C, RS-422A or RS-485 is available.

Models

Types		Input signals	
		Thermocouples/ DC voltage	Thermocouples/ Resistance thermometers/DC voltage
Hybrid recorders	Sealed door type	LE115□□ NNN	LE117□□ NNN
	Front panel operation type	LE125□□ NNN	LE127□□ NNN
Intelligent recorders	Sealed door type	LE215□□ NNN	LE217□□ NNN
	Front panel operation type	LE225□□ NNN	LE227□□ NNN

□□: 10, 20, 30

Distributed Worldwide By
McGoff-Bethune, Inc.
+1-770-840-9811
www.mcgoff-bethune.com
email: sales@mcgoff-bethune.com

Specifications

Measuring points	10 points, 20 points, 30 points															
Input signals	Universal Input															
Range setup	Program input signals and measuring ranges using keys															
Scale setup	Program maximum values, minimum values and engineering units using keys															
Accuracy rating	$\pm 0.1\%$ of measuring range ± 1 digit (DC voltage input)															
Measuring cycle	About 5 seconds/6-point															
Reference junction compensation accuracy	K, E, J, T, N, Platinel..... Maximum $\pm 0.5^{\circ}\text{C}$ R, S, Ni-NiMo, AuFe-Cr, WRe5-26, WRe0-26, U, LMaximum $\pm 0.1^{\circ}\text{C}$															
Burnout	With a function to detect input signal disconnection for thermocouple inputs and resistance thermometer inputs (Up-scale burnout, down-scale burnout or burnout disabled)															
Terminal board	Data cable type, removable on wiring															
Printing interval	About 5 seconds/channel															
Printing system	Wire-dotting system 6-color ribbon															
Trace printing colors	<table border="1"> <tr> <td>Channel No.</td> <td>1, 7, 13, 19</td> <td>12, 8, 14, 20</td> <td>3, 9, 15, 21</td> <td>4, 10, 16, 22</td> <td>5, 11, 17, 23</td> <td>6, 12, 18, 24</td> </tr> <tr> <td>Colors</td> <td>Red</td> <td>Black</td> <td>Blue</td> <td>Green</td> <td>Brown</td> <td>Purple</td> </tr> </table>		Channel No.	1, 7, 13, 19	12, 8, 14, 20	3, 9, 15, 21	4, 10, 16, 22	5, 11, 17, 23	6, 12, 18, 24	Colors	Red	Black	Blue	Green	Brown	Purple
Channel No.	1, 7, 13, 19	12, 8, 14, 20	3, 9, 15, 21	4, 10, 16, 22	5, 11, 17, 23	6, 12, 18, 24										
Colors	Red	Black	Blue	Green	Brown	Purple										
Chart	Fan-fold type, effective width 180mm, total width 200mm, total length 20m															
Chart speed	1 to 1500mm/h (Default chart speed - 25mm/h)															
Periodic data printing	Digital printing of time, channel numbers and measured values on trace printing Programming range of interval (hours, minute) depends on chart speed															
Digital data printing	Digital printing of time and measured values by interrupting trace printing on demand															
Alarm printing	<table border="0"> <tr> <td>Alarm -activation</td> <td>Time, channel number, alarm type and alarm number in right side of chart</td> </tr> <tr> <td>Alarm -reset</td> <td>Time, channel number and alarm number in right side of chart</td> </tr> <tr> <td>Memory capacity</td> <td>Maximum 48 data</td> </tr> </table>		Alarm -activation	Time, channel number, alarm type and alarm number in right side of chart	Alarm -reset	Time, channel number and alarm number in right side of chart	Memory capacity	Maximum 48 data								
Alarm -activation	Time, channel number, alarm type and alarm number in right side of chart															
Alarm -reset	Time, channel number and alarm number in right side of chart															
Memory capacity	Maximum 48 data															
Programming change mark	Mark in right side of chart whenever programming changes.															
List printing	Printing of year, month, day, parameters of each channel and other parameters.															
Subtract printing	Printing of difference of measured values of one channel and another channel (or reference value)															
Fixed-time printing	Printing of month, day, time, time line, ranges, tags and engineering units at every fixed-time															
Skip function	No display or printings of channels															
Display items	Multi-point simultaneous display (LCD): Simultaneous display of 6 or 12-channel measured values, or time (year/month/day/hour/minute), alarm-on channels and chart speed															
Status display	Multi-point simultaneous display: Printing status and key lock															
Alarm display	Multi-point simultaneous display: "ALARM" illumination and flashing alarm-activation channels															
Alarm type	Absolute value alarm, differential alarm, change-of-ratio alarm															
Alarm programming	Individual programming each channel, Maximum 4 levels/channel															
Alarm printing	Alarm-activation....Time, channel number, alarm type and alarm point number in right side of chart															
Alarm deadband	0.1 to 9.9% of scale programming range (Default: 0.1%)															
Rated power voltage	100 to 240VAC 50/60Hz															
Power consumption	Maximum 45VA															
Environmental conditions	<table border="0"> <tr> <td>Reference operation condition</td> <td>Ambient temperature/humidity range: 21 to 25$^{\circ}\text{C}$/45 to 65%RH Power voltage: 100VAC $\pm 1\%$, 50/60Hz $\pm 0.5\%$ Attitude: L/R 0 deg, forward tilt 0 deg, backward tilting 0 deg Warm-up time: More than 30 minutes</td> </tr> <tr> <td>Normal operation condition</td> <td>Ambient temperature/humidity range: 0 to 40$^{\circ}\text{C}$/20 to 80%RH Power voltage: 90 to 264VAC Attitude: L/R 0-10 deg, forward tilt 0 deg, backward tilting 0-30 deg</td> </tr> </table>		Reference operation condition	Ambient temperature/humidity range: 21 to 25 $^{\circ}\text{C}$ /45 to 65%RH Power voltage: 100VAC $\pm 1\%$, 50/60Hz $\pm 0.5\%$ Attitude: L/R 0 deg, forward tilt 0 deg, backward tilting 0 deg Warm-up time: More than 30 minutes	Normal operation condition	Ambient temperature/humidity range: 0 to 40 $^{\circ}\text{C}$ /20 to 80%RH Power voltage: 90 to 264VAC Attitude: L/R 0-10 deg, forward tilt 0 deg, backward tilting 0-30 deg										
Reference operation condition	Ambient temperature/humidity range: 21 to 25 $^{\circ}\text{C}$ /45 to 65%RH Power voltage: 100VAC $\pm 1\%$, 50/60Hz $\pm 0.5\%$ Attitude: L/R 0 deg, forward tilt 0 deg, backward tilting 0 deg Warm-up time: More than 30 minutes															
Normal operation condition	Ambient temperature/humidity range: 0 to 40 $^{\circ}\text{C}$ /20 to 80%RH Power voltage: 90 to 264VAC Attitude: L/R 0-10 deg, forward tilt 0 deg, backward tilting 0-30 deg															
Power failure protection	Programmed parameters stored into EEPROM memory Clock circuit sustained for minimum 10 years by a lithium battery (At the operation more than 8 hours/day)															
Mounting	Panel mounting															
Weight	About 8.5 kg (full options)															
Standards	<table border="0"> <tr> <td>CE-marking</td> <td>EN55011 Group 1 Class A, EN50082-2, EN61010-1 + A2</td> </tr> <tr> <td>UL</td> <td>UL3111-1 (Approval pending)</td> </tr> <tr> <td>CSA</td> <td>C22.2, No. 1010 (Approval pending)</td> </tr> <tr> <td>IP</td> <td>IEC529 IP54 (Front part)</td> </tr> </table>		CE-marking	EN55011 Group 1 Class A, EN50082-2, EN61010-1 + A2	UL	UL3111-1 (Approval pending)	CSA	C22.2, No. 1010 (Approval pending)	IP	IEC529 IP54 (Front part)						
CE-marking	EN55011 Group 1 Class A, EN50082-2, EN61010-1 + A2															
UL	UL3111-1 (Approval pending)															
CSA	C22.2, No. 1010 (Approval pending)															
IP	IEC529 IP54 (Front part)															