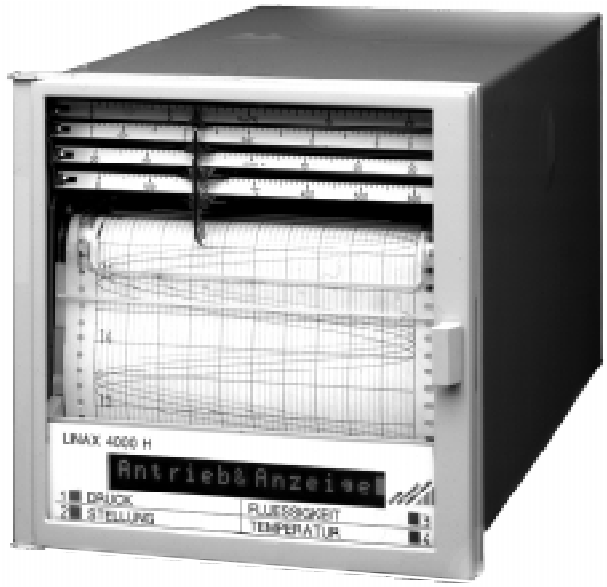
LINAX 4000H
Continuous line recorder

Applications

The configurable continuous-line recorder LINAX 4000H serves to record changing measured quantities. DC current, DC voltage, thermocouples and resistance thermometers (Pt 100) can be connected directly.
A balancing function allows for the LINAX 4000H to be used as minimum, maximum and average recorder.
In addition to the recording, alphanumeric texts can be printed out on the 64 m long recording chart. Thereby, the printer channel also operates as dotted-line channel for the measured values.
The recorder is meant for panel mounting.



Essential features

- 1 to 4 line channels
- 1 to 3 line channels and a printer channel for recording of measured values and text printing
- Format 144 mm x 144 mm, mounting depth 300 mm
- Analog scales and digital display
- Free assignment of measurement inputs to recording system
- 64 m roll chart
- Automatic paper take-up
- RS-485 interface
- Measuring channels electrically isolated
- 3 limits per measuring channel; for monitoring of absolute value and gradient up to 3% / h
- 4 pulse inputs (counter inputs)
- 4 virtual channels for mathematical functions
- Balancing with minimum and maximum calculation and averaging
- Standby with/without storage of the measured values
- 4 event markers

Description

The LINAX 4000H is a microprocessor-controlled continuous-line recorder. Depending upon the version of the measuring systems, it is available in two different versions.
– 1 to 4 line channels
– 1 to 3 line channels and a printer channel

The printer channel permits analog recording of a measured value with equidistant dot spacings and text printouts.

The recorder is connected to transducers and/or directly to sensors such as thermocouples or resistance thermometers. Standard temperature sensor curves are stored in the firmware of the recorder and linearized with great accuracy.

Matching of the recorder to the measuring task is made via the internal keyboard or via the serial RS-232C interface.

Virtual channels allow for the mathematical linking of input channels. Status corrections an the generation of complex measurement magnitudes are thus made possible.

Additional functions such as text printout, scaling line, balancing and event markers increase the information content of the process quantities for which a protocol can be established. Standby function, alarm message and remote control make the LINAX 4000H a unit for versatile use.

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Applied rules and standards

A) international standards

IEC 484	Potentiometric recorders
IEC 1010-1	Electrical safety (test voltages)
IEC 664	Overvoltage category, degree of pollution
IEC 66-2-6	Mechanical stress (vibrations)
IEC 68-2-27	Mechanical stress (shock)
IEC 529	Degrees of protection provided by enclosures
IEC 801, EN 60801	Immunity to interference of electromagnetic influences
IEC 654	Line failures
EN 55011	Radio interference suppression
EN 61010	Safety requirements of measurement and control equipment
IEC 721-3-3	Climatic environmental conditions

B) German standards

DIN 43802	Scales
DIN 16234	Recording paper
DIN 43831	Cases
DIN 43834	Device fasteners
DIN VDE 0551-1	Transformers and safety transformers
DIN VDE 0100-410	Protection against shock currents
DIN VDE 0106-101	Basic requirements for protective separation

Symbols and their meaning

Symbol	Meaning
X1n / X1	Lower range limit nominal range / lower range limit
X2n / X2	Upper range limit nominal range / upper range limit
X2n – X1n / X2 – X1	Range span nominal range / range span

Technical data

Analog inputs

Standard version

DC current	0 ... 20 mA; Ri = 50 Ω 4 ... 20 mA; Ri = 50 Ω
DC voltage	0 ... 10 V; Ri > 1 MΩ

Universal version

DC current	0 ... 20 mA; Ri = 50 Ω 4 ... 20 mA; Ri = 50 Ω –2.5 ... +2,5 mA; Ri = 50 Ω –5 ... +5 mA; Ri = 50 Ω –20 ... +20 mA; Ri = 50 Ω
DC voltage	0 ... 25 mV; Ri > 2 MΩ –25 ... +25 mV; Ri > 2 MΩ –100 ... +100 mV; Ri > 2 MΩ 0 ... 2,5 V; Ri > 200 kΩ –2.5 ... +2,5 V; Ri > 200 kΩ 0 ... 10 V; Ri > 200 kΩ –20 ... +20 V; Ri > 200 kΩ
Thermocouples, Ri ≥ 200 MΩ	Type T –270 ... +400 °C Type U –200 ... +600 °C Type L –200 ... +900 °C Type E –270 ... +1000 °C Type J –210 ... +1200 °C Type N –270 ... +1300 °C Type K –270 ... +1372 °C Type S –50 ... +1769 °C Type R –50 ... +1769 °C Type B 0 ... 1820 °C Cold junct. compens. internally or externally parameterize.
Resistance thermometer Pt 100 With 2-wire connection With 3-wire connection	–200 ... +850 °C; –50 ... 150 °C Lead resistance 40 Ω max. Lead resistance 80 Ω max.

Lower range limit: parameterizable from X1n ... X1n + 0.8 (X2n – X1n) and
range span: parameterizable from 0.2(X2n – X1n) ... (X2n – X1n)
Deadband: 0.25 % of range span
Setting time: 1 s
Attenuation of the meas. value: with low-pass filter of 1st order
Time constant: 0 ... 60 s per measuring channel, can be parameterized
Root-extract. funct.: can be parameterized with DC current and DC voltage measuring ranges
Linearization of user-specific waveforms for DC current and DC voltage measuring ranges can be parameterized

Reference conditions

Ambient temperature / relative humidity	25 °C ± 1 K / 45 ... 75 %
Auxiliary voltage	Hn ± 2 %, nominal frequency ± 2 %
Mounting position	Front upright ± 2°
Warm-up time	30 min

Accuracy

Deviation for line channels acc. to IEC 484	Class 0.5 referred to range span
Deviation for data recording with printer system according to IEC 484	Class 1 referred to range span
With displacement of lower range limit and/or upper range limit additionally	$\pm (0.1\ \% \times \frac{X2n - X1n}{X2 - X1} - 0.1)$
With internal cold junction compensation	± 4 K, additionally

Variations

Temperature	≤ 0.2 % / 10 K, additionally ≤ 0.1 % / 10 K with conn. to thermocouple
Humidity	Note infl. on rec. paper acc. to DIN 16234
Voltage supply	≤ 0.1 % at 24 V ± 20 % ≤ 0.1 % at 230 V – 15 %, + 10 % ≤ 0.2 % for other voltages up to 110 V – 15 %
AC interference voltages (see perm. interference voltages)	≤ 0.5 % of range span
Magnetic field of ext. origin 1 mT	≤ 0.5 % of range span
Mechanical stress according to DIN IEC 68-2-6/27 Transport Impact: 30 g/18 ms Vibration.: 2 g/5...150 Hz in funct. Vibration: 0.5 g/± 0.04 mm/ 5...150 Hz/3 × 2 cycles	During and after the effect ± 0.5 % of range span

Pulse inputs (binary inputs)

Number	4 (speed 2, speed off, DI 1, DI 2)
Auxiliary voltage	DC 20 ... 24 ...30 V
Input current	6 mA
H signal	20 ... 30 V
L signal	0 ... 1.3 V

Relay outputs

Six potential-free relay contacts

Contact load:	Umax	30 V
	Imax	100 mA
	Pmax	3 W, cosφ = 1

Real-time clock

Function maintained in the case of power failure

Standard:	5 days with capacitor
Optionally:	4 years with lithium battery (code P01)

Options (code H01)

External speed change

It is possible to switch between speed 1 and 2 (terminals 901-902) and to switch the speed off (terminals 903-904).

External speed control

The speed is pulse-controlled (24 V DC, 6 mA).
Pulse frequency: 0...80 Hz.
Length of step: 0.025; 0.05; 0.1; 0.2 mm

Event markers

Only for the version with printer channel
4 markers possible
Recording at 2 %, 5 %, 95 % and 98 % of the recording width

Measured value storage

The measuring systems can be held on the last measured value. Control is via freely selectable binary inputs.

Standby function

The standby function is activated via a freely selectable binary input.

Balancing

Balancing can be selected for each measuring channel. The external control of the balancing interval is via a freely selectable binary input.

End-of-paper signalling

With speeds of ≥120 mm/h, 2 hours before the paper runs out. With speeds of < 120 mm/h, at least 8 hours before the paper runs out. Signalling is via a relay contact which can be freely assigned. Output: potential-free contact. When changing the recording paper, enter the length of the chart roll into the recorder.

Limit monitoring

2 limits per channel for monitoring of the absolute value.
2 limits per channel for monitoring of the gradient.
Gradient monitoring adjustable from 3% / 3 s to 3% / 3600 s.
6 internal relays can be freely assigned to the limits.

Display

Scale

One division per measuring system
Width of scale sheet/height of characters for
LINAX 4000H C01 5.0 mm/2 mm
LINAX 4000H C02 7.5 mm/3 mm
LINAX 4000H C03 13.4 mm/5 mm

Display panel

16-digit dot matrix display, height of numerals 3 x 5 mm. In operating mode, it serves to display the measured values of the channels, message texts, limit violations, etc.
In parameter mode, the display panel supports the parameter entry.

Operating panel

8 keys with 2 level assignment.
First level: operation
Second level: parameterization

Recording

Arrangement of measuring systems and color correlation

Version without printer channel

		1	2	3	4	No. of line channels
▲	green			×	×	3rd channel
▲	red		×	×	×	2nd channel
▲	blue	×	×	×	×	1st channel
▲	violet				×	4th channel

Version with printer channel

			2			No. of line channels
▲	green					
▲	red					
▲	blue		×			1st channel
Printer channel	violet		×			2nd channel

				3		No. of line channels
▲	green					
▲	red			×		2nd channel
▲	blue			×		1st channel
Printer channel	violet			×		3rd channel

					4	No. of line channels
▲	green				×	3rd channel
▲	red				×	2nd channel
▲	blue				×	1st channel
Printer channel	violet				×	4th channel

1. Line recording
   Fiber recording pen with ink-well of approximately 1.4 ml, line length approximately 1300 m,
   distance between the tips of the fiber recording pens 2 mm.

2. Printing
   A printer system for printing of texts can be installed in place of the lower measuring system. Distance between blue fiber pen and print head 6 mm.
   In addition to the text printout, a measured value can be recorded with the printer system.
   Recording of the measured value is made in the form of a dotted line with equidistant dot spacing.
   Color supply of the print head approx. 1.5×10^6 dots.

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Text printout for:

1. Ten text lines of 32 characters each.
   or 30 characters and time
   or 24 characters with time and date.

2. Printout of chart speed, date and time.
   Initiation with recorder ON and with a change in chart speed.

3. Printout of time and date.
   Cyclic initiation, in parameterizable time intervals or event-depending by external stimulation.

4. Printout of actual measured values
   Cyclic initiation, in parameterizable time intervals or event-depending by internal/external stimulation.

5. Printout of double lines correlated with the individual measuring points.
   First line: Scaling line with channel designation and printout of the unit.
   Second line: Text specific to the measuring point, max. 32 characters.

6. Printout of the balancing table, consisting of:
   Annotation line
   Start and stop time of the balancing interval
   Min./Max. value during the balancing interval
   Average and summation value of the balancing interval
   Initiation: cyclic and external.

7. Printout of 4 message blocks
   Text lines, time and date line, lines of measured values can be combined to message blocks. Initiation is event-depending. Fixed correlation between message block 1 and binary input 1, etc.

8. Listing of all active parameters
   Manual initiation in parameterizing mode.

Text printout/recording

Maximum possible chart speed with printer channel, in place of fiber pen	300 mm/h
Size of characters	1,5 × 2 mm
Chart speed	2 speeds parameterizable from 0 to 7200 mm/h, can be switched over and disconnected externally (option "limits + binary inputs" required), or externally controllable by pulses 0...80 Hz (option "limits + binary inputs" required)
Recording chart	64 m roll chart
Visible chart length	60 mm
Recording width	100 mm (chart width 120 mm, DIN 16230)
Chart intake (with roll chart)	Via automatic paper take-up device (daily tear-off or wind-up possible)

Auxiliary voltage

18 ... 53 V AC / ... 75 V DC
85 ... 265 V AC / ... 375 V DC
Frequency range for AC 47.5 ... 63 Hz
Power consumption with max. fitting approx. 18 W, 25 VA

Climatic suitability

Ambient temperature	0 ... 25 ... 50 °C
Transport and storage temperature	–40 ... +70 °C
Relative humidity	≤ 75 % annual average max. RH ≤ 85 % in function
Climatic class	3K3 acc. to IEC 721-3-3

Electrical safety

Test according to IEC 348
Protection class I
Overvoltage category III at mains input
II at inputs and outputs
Degree of pollution 2
Test voltage
3.75 kV measuring channels to energy supply
2.2 kV protective conductor to energy supply
0.5 kV measuring channel to measuring channel

Functional extra low voltage with protective isolation (PELV according to DIN EN 60950)

Between power input – measuring channels, control leads, interface cables acc. to VDE 0100 part 410 and VDE 0106 part 101.

Electromagnetic compatibility

The protection goals of the EMC directive 89/336/EWG as to radio interference suppression according to EN 55011 and as to immunity to interference according to EN 50082-2 are complied with.

Radio interference suppression
Limit class B according to EN 55011 and/or
Post Office decree 243/92.

Immunity to interference: Test according to IEC 801/EN 60801

Type of test	Test severity	Variation	Severity level
ESD (1/30 ns)	6 kV	≤ 1 %	3
HF field 25 MHz ... 1 GHz [1]	10 V/m	≤ 1 %	3
Burst (5/50 ns) on			
Power line	2 kV	≤ 1 %	3
Test lead	1 kV	≤ 1 %	3
Surge (1,2/50 µs) on			
Power line common	2 kV	≤ 1 %	3
differential	1 kV	≤ 1 %	2
1 MHz pulse on			
Power line common	2 kV	≤ 1 %	3
differential	1 kV	≤ 1 %	3

[1] Test frequency deviating from NAMUR

The NAMUR ind. standard EMC is met (Interface cables shielded)

Permissible interference voltages

Perm. interference voltage	Standard version	Universal version
Series mode interference voltage peak-to-peak	≤ 0,3 × meas. span max. 3 V	≤ 20 × meas. span max. 3 V
Push-pull rejection	35 dB	72 dB
Common mode interference voltage	60 V DC/42 V AC	60 V DC/42 V AC
Common mode rejection	75 dB	121 dB

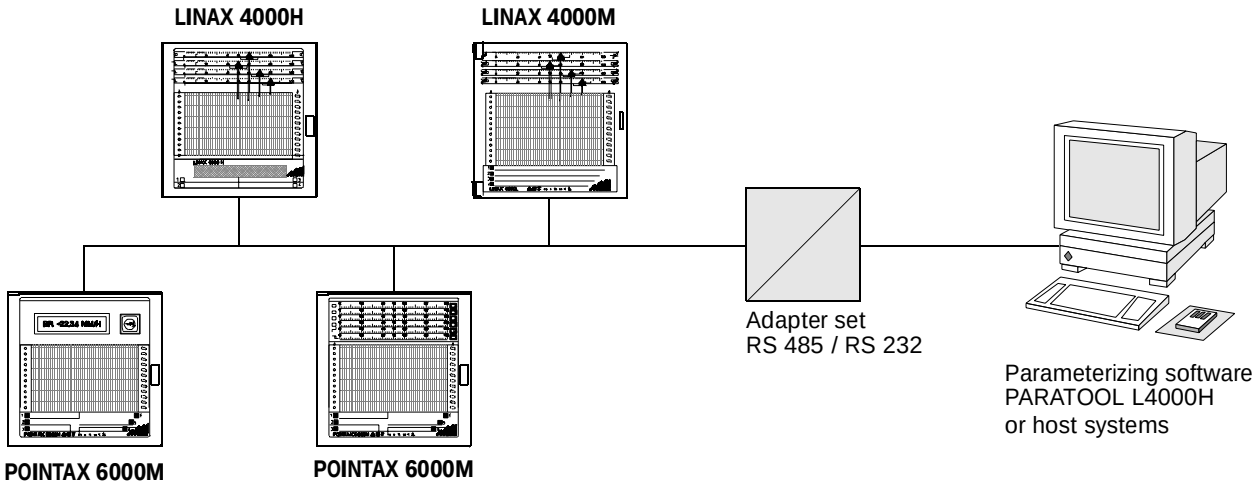
Default parameter setting (code E00)

If individual parameter setting is not specified when ordering a recorder, the LINAX 4000H is delivered with the following default parameter setting:

- All meas. channels with meas. range 0 ... 20 mA
- Response time for all measuring systems 1 s
- Chart speed 1: 20 mm/h
- Chart speed 2: 120 mm/h
- Limits are set to 0
- Zoom, printer and limit functions are switched off
- No password entered.

This default parameter setting can be re-initialized independent of the actually set parameters.

Example of interlinking



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Scope of delivery

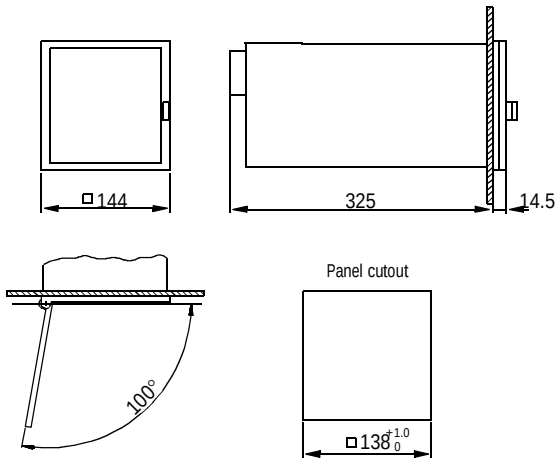
1 copy of operating instructions
2 fasteners
1 chart roll
1 fiber recording pen per measuring channel
1 printer insert (for recorder version with printer channel)

Connection, case and installation

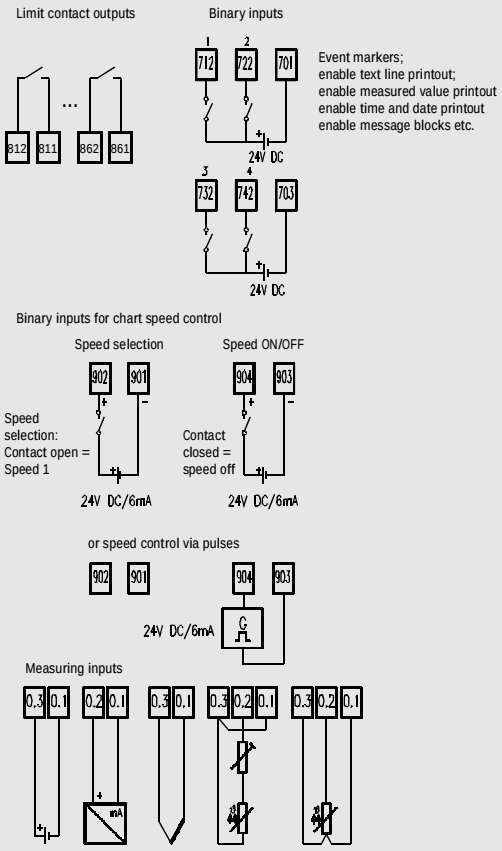
Electrical connections
  Protection type IP 20
  Screw-plug terminals for signal inputs, control inputs and outputs.
  Max. wire cross section 2×1 mm^2
  Screw terminals for line connection
  Max. wire cross section 1×4.0 mm^2 or 2×1.5 mm^2
Case
  Molded material for installation in panels or mechanical grids (see dimensional drawing for dimensions)
Protection type of case according to IEC 529
  Front, including door IP 54
Color of case
  Silica-gray according to RAL 7032
Door of case
  Metal frame (RAL 7032) with mineral glass, anti-glare, or molded material
Fastening of case
  With 2 fasteners (optionally for install. in panel or mech. grid) according to DIN 43834/11.82, centering angle brackets are required for installation in mechanical grids, (access. A416A)

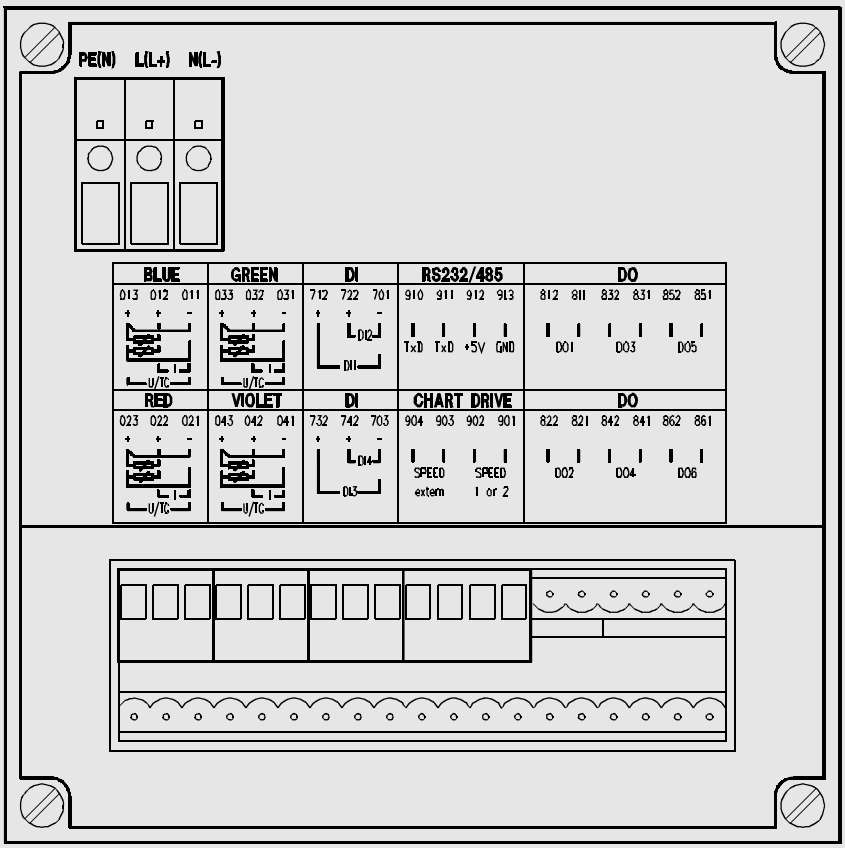
Position of use
  Inclined to the side [–30° ... 0 ... +30°]
  Inclined to the rear 20°,
  Inclined to the front 20°
Mounting distance
  Horizontal or vertical 0 mm, it must be possible to open the door of the case through 100°
Weight 5 kg approx.

Dimensional drawing (dimensions in mm)



Wiring diagrams





Order code

Description			Ident number				
Continuous-line recorder LINAX 4000H with RS 485 1-channel			A4170				
Continuous-line recorder LINAX 4000H with RS 485 2-channel				A4171			
Continuous-line recorder LINAX 4000H with RS 485 3-channel					A4172		
Continuous-line recorder LINAX 4000H with RS 485 4-channel						A4173	
Last channel as printer channel (measured value line and text printer), instead of fiber pen		no (standard)	B01	B01	B01	B01	
		yes	–	B02	B02	B02	
Scale height		5.0 mm	C01	C01	C01	C01	
		7.5 mm	C02	C02	C02	–	
		13.4 mm	C03	C03	–	–	
Measuring range card							
Standard: 0/4 ... 20 mA and 0 ... 10 V, as version standard (see on page 2)			D01	D01	D01	D01	
Universal: DC current, DC voltage, thermocouples, Pt 100 2- and 3-wire, as version universal (see on page 2)			D02				
				D02			
					D02		
						D02	
Parameterizing							
Default parameter setting see on page 5	Lower range limit X1	Upper range limit X2					
the same for all channels	X1 = 0 mA	X2 = 20 mA	XE00	XE00	XE00	XE00	
Parameterization only in connection with Standard measuring range D01							
Parameterization deviating from data sheet							
Meas. ranges (the same for all channels), limits, texts, time, scaling line ... (with code B02, and/or H01)		only in connection with D01	XE91	XE91	XE91	XE91	
Parameterization only in connection with Universal measuring range D02							
Parameterization deviating from data sheet							
Meas. ranges, limits, texts, time, scaling line ... (with code B02, and/or H01)		only in connection with D02	XE92	XE92	XE92	XE92	

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Order code (cont'd)

Description					Ident number				
					A4170	A4171	A4172	A4173	
Measuring range 1st channel			XAnnn only in connection with D02 and XE92						
Nominal range	X1n	X2n	Lower range limit X1	Upper range limit X2					
DC current	0	20 mA	0.0 ≤ X1 ≤ 16.0 mA	X1 + 4.0 ≤ X2 ≤ 20 mA	XA901	XA901	XA901	XA901	
	4	20 mA	4.0 ≤ X1 ≤ 16.8 mA	X1 + 3.2 ≤ X2 ≤ 20 mA	XA902	XA902	XA902	XA902	
	–2.5	2.5 mA	–2.5 ≤ X1 ≤ 1.5 mA	X1 + 1.0 ≤ X2 ≤ 2.5 mA	XA903	XA903	XA903	XA903	
	–5	5 mA	–5.0 ≤ X1 ≤ 3.0 mA	X1 + 2.0 ≤ X2 ≤ 5.0 mA	XA904	XA904	XA904	XA904	
	–20	20 mA	–20.0 ≤ X1 ≤ 12 mA	X1 + 8.0 ≤ X2 ≤ 20 mA	XA905	XA905	XA905	XA905	
DC voltage	0	25 mV	0 ≤ X1 ≤ 20 mV	X1 + 5 ≤ X2 ≤ 25 mV	XA906	XA906	XA906	XA906	
	–25	25 mV	–25 ≤ X1 ≤ 15 mV	X1 + 10 ≤ X2 ≤ 25 mV	XA907	XA907	XA907	XA907	
	–100	100 mV	–100 ≤ X1 ≤ 60 mV	X1 + 40 ≤ X2 ≤ 100 mV	XA908	XA908	XA908	XA908	
	0	2.5 V	0 ≤ X1 ≤ 2 V	X1 + 0.5 ≤ X2 ≤ 2.5 V	XA909	XA909	XA909	XA909	
	–2.5	2.5 V	–2.5 ≤ X1 ≤ 1.5 V	X1 + 1.0 ≤ X2 ≤ 2.5 V	XA910	XA910	XA910	XA910	
	0	10 V	0 ≤ X1 ≤ 8 V	X1 + 2.0 ≤ X2 ≤ 10 V	XA911	XA911	XA911	XA911	
	–20	20 V	–20 ≤ X1 ≤ 12 V	X1 + 8.0 ≤ X2 ≤ 20 V	XA912	XA912	XA912	XA912	
Thermocouple type B	0	1820 °C	0 ≤ X1 ≤ 1456 °C	X1 + 364 ≤ X2 ≤ 1820 °C	XA913	XA913	XA913	XA913	
Thermocouple type E	–270	1000 °C	–270 ≤ X1 ≤ 746 °C	X1 + 254 ≤ X2 ≤ 1000 °C	XA914	XA914	XA914	XA914	
Thermocouple type J	–210	1200 °C	–210 ≤ X1 ≤ 918 °C	X1 + 282 ≤ X2 ≤ 1200 °C	XA915	XA915	XA915	XA915	
Thermocouple type K	–270	1372 °C	–270 ≤ X1 ≤ 1043 °C	X1 + 328 ≤ X2 ≤ 1372 °C	XA916	XA916	XA916	XA916	
Thermocouple type L	–200	900 °C	–200 ≤ X1 ≤ 680 °C	X1 + 220 ≤ X2 ≤ 900 °C	XA917	XA917	XA917	XA917	
Thermocouple type N	–270	1300 °C	–270 ≤ X1 ≤ 986 °C	X1 + 314 ≤ X2 ≤ 1300 °C	XA918	XA918	XA918	XA918	
Thermocouple type R	–50	1769 °C	–50 ≤ X1 ≤ 1405 °C	X1 + 364 ≤ X2 ≤ 1769 °C	XA919	XA919	XA919	XA919	
Thermocouple type S	–50	1769 °C	–50 ≤ X1 ≤ 1405 °C	X1 + 364 ≤ X2 ≤ 1769 °C	XA920	XA920	XA920	XA920	
Thermocouple type T	–270	400 °C	–270 ≤ X1 ≤ 266 °C	X1 + 134 ≤ X2 ≤ 400 °C	XA921	XA921	XA921	XA921	
Thermocouple type U	–200	600 °C	–200 ≤ X1 ≤ 440 °C	X1 + 160 ≤ X2 ≤ 600 °C	XA922	XA922	XA922	XA922	
Resist. thermometer 2-wire	–200	850 °C	–200 ≤ X1 ≤ 640 °C	X1 + 210 ≤ X2 ≤ 850 °C	XA923	XA923	XA923	XA923	
Resist. thermometer 2-wire	–50	150 °C	–50 ≤ X1 ≤ 110 °C	X1 + 40 ≤ X2 ≤ 150 °C	XA924	XA924	XA924	XA924	
Resist. thermometer 3-wire	–200	850 °C	–200 ≤ X1 ≤ 640 °C	X1 + 210 ≤ X2 ≤ 850 °C	XA925	XA925	XA925	XA925	
Resist. thermometer 3-wire	–50	150 °C	–50 ≤ X1 ≤ 110 °C	X1 + 40 ≤ X2 ≤ 150 °C	XA926	XA926	XA926	XA926	
Scale 1st channel			without graduation		FA01	FA01	FA01	FA01	
			same as measuring range		FA02	FA02	FA02	FA02	
			0 ... 100		FA03	FA03	FA03	FA03	
			as per request		FA90	FA90	FA90	FA90	
Reading ruler 1st channel			without reading ruler		GA01	GA01	GA01	GA01	
			same as scale		GA02	GA02	GA02	GA02	
			0 ... 100		GA03	GA03	GA03	GA03	
			as per request		GA90	GA90	GA90	GA90	

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Order code (cont'd)

Description			Ident number				
			A4170	A4171	A4172	A4173	
Meas. range 2nd channel	same as meas. range 1st channel, but markings XB...	only in connection with D02 and XE92		XBnnn	XBnnn	XBnnn	
Scale 2nd channel	same as scale 1st channel, but markings FB...			FBnnn	FBnnn	FBnnn	
Read. ruler 2nd channel	same as 1st channel, but markings GB...			GBnnn	GBnnn	GBnnn	
Meas. range 3rd channel	same as meas. range 1st channel, but markings XC...	only in connection with D02 and XE92			XCnnn	XCnnn	
Scale 3rd channel	same as scale 1st channel, but markings FC...				FCnnn	FCnnn	
Read. ruler 3rd channel	same as 1st channel, but markings GC...				GCnnn	GCnnn	
Meas. range 4th channel	same as meas. range 1st channel, but markings XD...	only in connection with D02 and XE92				XDnnn	
Scale 4th channel	same as scale 1st channel, but markings FD...					FDnnn	
Read. ruler 4th channel	same as 1st channel, but markings GD...					GDnnn	
Options (binary inputs / binary outputs, limits, see page 3)		No	H00	H00	H00	H00	
		Yes	H01	H01	H01	H01	
Auxiliary voltage	110 ... 230 V AC, + 10 %, – 15 %		J01	J01	J01	J01	
	24 V DC / AC ± 20 %		J02	J02	J02	J02	
Puffering of date and time	by means of supercap. 5 days, approx. (standard)		P00	P00	P00	P00	
	by means of lithium battery 4 years, approx.		P01	P01	P01	P01	
Front door	Plastic		K01	K01	K01	K01	
	Metal		K02	K02	K02	K02	
Label for measuring point	Blank with GOSSEN-METRAWATT logo		L00	L00	L00	L00	
	Blank without logo		L01	L01	L01	L01	
	With inscription as per request, 1 line/meas. point with max. 31 characters		L90	L90	L90	L90	
Test protocol	None		M00	M00	M00	M00	
	With factory certificate according to DIN 50049		M01	M01	M01	M01	
Operating instructions	German		N00	N00	N00	N00	
	None		N01	N01	N01	N01	
	English		N02	N02	N02	N02	
	French		N03	N03	N03	N03	
	Italian		N04	N04	N04	N04	

LINAX 4000H
Continuous line recorder

Ordering example

Clear text			Ordering code
Continuous-line recorder LINAX 4000H with RS 485 3-channel			A4172
With printer channel			B02
Scale height	5.0 mm		C01
Measuring range card universal			D02
Parameterization deviating from data sheet			XE92
1st channel (blue)	Pt100 2-wire connection	0 ... 100 °C	XA924 0 ... 100 °C
2nd channel (red)	Pt100 2-wire connection	0 ... 300 °C	XB923 0 ... 300 °C
3rd channel (violet)	DC	0 ... 20 mA	XC901 0 ... 20 mA
Scale channel blue	same as meas. range		FA02
Scale channel red	same as meas. range		FB02
Scale channel violet		0 ... 50 l/s	FC90
Without reading rulers			GA01
			GB01
			GC01
With options			H01
Auxiliary voltage		230 VAC	J01
Front door	Metal		K02

Ordering code: A4172 / B02 / C01 / D02 / XE92 / XA924 0 ... 100 °C / XB923 0 ... 300 °C / XC901 0 ... 20 mA / FA02 / FB02 / FC90 0 ... 50 l/s / GA01 / GB01 / GC01 / H01 / J01 / K02

Accessories

Ident numbers ending with a letter are completed and need not to be commented.
Ident numbers ending with a numeral must be commented with the following texts.

Description		Ident number
PARATOOL L4000H 1	Parameterizing software for LINAX 4000H 1	A402D
Adapter set RS 232 / RS 485	incl. power pack and 3 m connector cable with plugs at both ends and 9 / 25 pole adapter plug	A403A
Scales with scale height 5.0 mm	Scale without graduation, beginning and end marked	A410A
	Scale, graduation as per request	A4130
	Graduation:	AA900
Scales with scale height 7.5 mm	Scale without graduation, beginning and end marked	A423A
	Scale, graduation as per request	A4240
	Graduation:	AA900
Scales with scale height 13.4 mm	Scale without graduation, beginning and end marked	A423B
	Scale, graduation as per request	A4241
	Graduation:	AA900
Reading ruler	Graduation as per request	A4120
	Graduation:	AA900

Cont'd on next page

Accessories (cont'd)

Ident numbers ending with a letter are completed and need not to be commented.
Ident numbers ending with a numeral must be commented with the following texts.

Description		Ident number										
Label for measuring point for LINAX 4000H								A4180				
	with GOSSEN-METRAWATT logo							AA000				
	without GOSSEN-METRAWATT logo							AA001				
	Channel green without inscription							BA001				
	Channel green with inscription							BA900				
	Channel red without inscription							BB001				
	Channel red with inscription							BB900				
	Channel blue without inscription							BC001				
	Channel blue with inscription							BC900				
	Channel violet without inscription							BD001				
	Channel violet with inscription							BD900				
Screw terminal	with 3 connectors								A404B			
	with 4 connectors								A419A			
	with 6 connectors								A419B			
Centering angle	4 each (with installation in grid)									A416A		
Bus termination resistors	Package with 2 × 390 Ohm and 1 × 150 Ohm										A409A	
Z-diode combination	for unipolar/bipolar inputs (4 each)	A421A										

Consumable items

Ident numbers ending with a letter are completed and need not to be commented.
Ident numbers ending with a numeral must be commented with the following texts.

Description			Ident number										
Chart roll 64 m	Graduation 0...100, min. ordering quantity 10 rolls												
	Time graduat./speed	None	A401F										
		10 mm/h	A401G										
		20 mm/h	A401H										
		60 mm/h	A401J										
		120 mm/h	A401K										
Chart roll 64 m	Graduation 0...100, min. ordering quantity 25 rolls			A4072									
	Time graduat./speed	as per request		CA900									
Chart roll 64 m	Min. ordering quantity 25 rolls				A4073								
	Calibrated graduation	as per request			AA900								
	Inscription	as per request			BA900								
	Time graduat./speed	as per request			CA900								

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LINAX 4000H
Continuous line recorder

Consumable items (cont'd)

Ident numbers ending with a letter are completed and need not to be commented.
Ident numbers ending with a numeral must be commented with the following texts.

Description		Ident number
Recording/printing styli with ***5 mm*** scale height, 1...4 channels with or without printer channel	Recording stylus for channel green	A406B
	Recording stylus for channel red	A406A
	Recording stylus for channel blue	A406C
	Recording stylus for channel violet as line channel	A406D
	Recording stylus for channel violet as printer channel	A406E
Recording/printing styli with ***7.5 mm*** scale height, 1...3 channels without printer channel	Recording stylus for channel green	A414D
	Recording stylus for channel red	A414C
	Recording stylus for channel blue	A414A
Recording/printing styli with ***7.5 mm*** scale height, 1...3 channels with printer channel	Recording stylus for channel red	A414F
	Recording stylus for channel blue	A414E
	Recording stylus for channel violet as printer channel	A406E
Recording/printing styli with ***13.4 mm*** scale height, 1-2 channels without printer channel	Recording stylus for channel red	A414B
	Recording stylus for channel blue	A414A
Recording/printing styli with ***13.4 mm*** scale height, 1-2 channels with printer channel	Recording stylus for channel blue	A414G
	Recording stylus for channel violet as printer channel	A406E

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