

LP100

Continuous-line Recorder



FEATURES

- 1 to 4 measuring channels
- Format 144 mm x 144 mm; installed depth 250 mm
- Combined chart unit; roll or folded
- Write width: 100mm
- Measuring channels galvanically separated and ungrounded

ABOUT

The Line Printer LP100 is a microprocessor-controlled continuous-line recorder. It is supplied in versions with 1 to 4 measuring channels.

The recorder is coupled to a transmitter and used to measure process signals.

High electromagnetic compatibility (EMV) and high common-mode and normal-mode rejection features guarantee trouble-free use of the Line Printer LP100, even under rough ambient conditions.

4 DIFFERENT MODELS

- LP101 – One channel
- LP102 – Two channels
- LP103 – Three channels
- LP104 – Four channels

STANDARD

- 95V..240V AC/DC
- Plastic door
- (Top) No scale or 0 to 100
- (Down) No scale

OPTIONS

- 24 V...85 V AC/DC
- Metal door with glass
- Custom demand
- Custom demand



Specifications

Continuous-line Recorder

Power supply

Power supply unit

95 V, -10 % ... 240 V, +10 % UC
 24 V, -25% ... 85 V, +10 % UC
 Frequency range: 47.5...63 Hz
 Power consumption:
 max. complement approx. 20 W / 25 VA

Measuring section

Deviation: Class 0.5 to IEC 484
 Dead zone: 0.25 % of scale span
 Response time (selectable per channel)
 2, 5, 20, 60 s

Measured variable / measuring ranges

Direct current
 0...20 mA; Ri = 40 Ω
 4...20 mA; Ri = 50 Ω
 Direct voltage
 0...10 V, Ri = 500 kΩ

Effects

Temperature
 0.2 % / 10 K
 Supply voltage
 0.1 % for 24 V, -25 % ... 85 V, +10 % UC
 0.1 % for 95 V, -10 % ...240 V, +10 % UC
 Parasitic voltage
 0.5 % of measuring span
 External magnetic field 1 mT
 0.5 % of measuring span
 Mechanical capability
 during and after effect ± 0.5 % of measuring span

Electromagnetic compatibility

The protection objectives of the EMC regulation 2014/30/EU on interference suppression acc. to EN 61326-1:2013 and regarding interference immunity acc. to EN 61326-1:2013 are met

Electromagnetic compatibility: Industrial environment
 Electromagnetic disturbance: Class B

RoHS Directive 2011/65/EU

Applied standards: EN 50581:2012

General and safety data

Environmental capabilities

Climatic category 3K3 acc. to
 DIN IEC 721-3-3

Ambient temperature
 0...25...50 °C

Transport and storage temperature
 -40...+70 °C

Relative humidity (device in operation)
 <75 % annual average, max. 85 %
 Avoid condensation. Pay attention to
 air humidity on recording paper acc.
 to DIN 16 234

Mechanical capabilities

Tested acc. to DIN IEC 68-2-27 and
 DIN IEC 68-2-6 during transportation

Shock 30 g/18 ms
 Vibrations 2 g/5...150 Hz

In operation
 Vibrations 0.5 g / ± 0.04 mm / 5...150 Hz / 3
 x 2 cycles

Specifications

Continuous-line Recorder

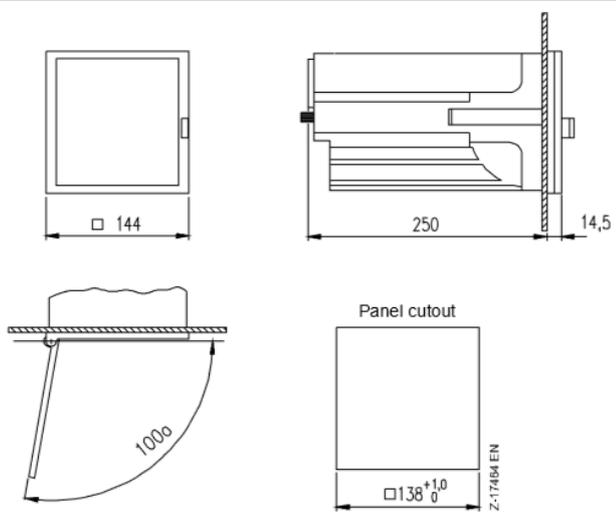
International standards

IEC 484	DIN 43 782	Compensation recorders
IEC 1010-1	DIN EN 61 010-1	Electrical Safety (Test voltages)
IEC 664	VDE 0110	Insulation class
IEC 68-2-6	DIN IEC 68-2-6	Mechanical capabilities (Vibrations)
IEC 68-2-27	DIN IEC 68-2-27	Mechanical capabilities (Shock)
IEC 529		Degree of protection
IEC 801	DIN VDE 0843	Immunity of electromagnetic interference
EN 60 801		
IEC 721-3-3	DIN IEC 721-3-3	Environmental capabilities
IEC 742	DIN EN 60 742	VDE 0551 classification Safety transformer

German standards

DIN 16 230	Recording chart paper
DIN 43 802	Scales
DIN 43 831	Cases

Dimensional diagram (dimensions in mm)



Recording

Scale

One graduation depending on measuring system
Scale plate width: 5 mm
Character size: 2 mm

Recording

Fibre-tip pen with ink reservoir
Content approx. 1.4 ml, trace length approx. 1300 m
Space between fibre pen tips 2 mm

Arrangement of measuring elements and colour assignment:

	LinePrinter LS100			
	Number of line channels			
	1	2	3	4
Green			X	X
Red		X	X	X
Blue	X	X	X	X
Violet				X

Chart Speed

Speeds 1/5/10/20/60/120/300 and 600 mm/h selectable on display panel

Charts

32 m chart roll or 16 m fouled paper

Visible Diagram length

60 mm

Recording width

100 mm (chart width 120 mm, DIN 16 230)

Chart feed-in (for chart roll)

automatic paper intake by the take-up reel (daily diagram outline or unwinding of 32 m possible)

Initial equipment

(part of delivery scope)

- 1 Operating Manual; 2 fasteners
- 1 Rolled or folded chart paper, laid in the unit
- 1 Fibre-tip recording pen per measuring channel

Van Renesse Supplies B.V. reserve the right to alter specifications of the equipment described in this documentation without prior notice

Specifications

Continuous-line Recorder

Interference immunity: Tested acc. to IEC 801

Type of test	Test intensity	Effect	Severity
Burst (5/50 ns) on mains line measuring line	2 kV	≤ 1 %	3
	1 kV	≤ 1 %	3
Surge (1,2/50 μs) on mains line common differential	2 kV	≤ 1 %	3
	1 kV	≤ 1 %	2
HF field radiated 80 MHz...1 GHz conducted 0.15...80 MHz	10 V/m	≤ 1 %	3
	10 V	≤ 1 %	3
1 MHz pulse on mains line common differential	2 kV	≤ 1 %	3
	1 kV	≤ 1 %	3
ESD (1/30 ns)	6 kV	≤ 1 %	3

The NAMUR industrial standard RMC are met.
(Interface lines shielded)

Permissible parasitic voltages

Serial parasitic voltage peak to peak	< 0.3 x measuring span max. 3 V
Normal mode rejection	75 dB
Common mode parasitic voltage	60 V DC / 250 V AC
Common mode suppression	83 dB for DC 96 dB for AC

Electrical safety

Tested acc. to DIN EN 61 010-1
(classification VDE 0411) or IEC 1010-1

Protection class I

Overvoltage category
III at mains input
II at inputs and outputs

Degree of pollution
2 within the unit and at the connection terminals

Test voltage
3.75 kV measuring channels to power supply
2.20 kV protection cable to power supply

Functional extra-low voltage (PELV)
between mains input – measuring channels,
control lines, interface lines
to VDE 0100 part 410 and VDE 0106 part 101

Connection, housing and mounting

Electrical connections
Degree of protection IP 20
Screw-on connector terminals for measuring inputs
Max. wire cross-section 2 x 1 mm²
Screw-on terminals for mains connection
Max. wire cross-section 1 x 4 mm²

Housing
Moulding material for panel and mosaic
panel mounting
(dimensions see dimensional diagram)

Type of case protection acc. to IEC 529
Front panel IP 54; Rear IP 20

Case colour
Pebble grey to RAL 7032
or grey-white to RAL 9002

Case door
Moulding material
option: metal frame door with glass

Mounting orientation
lateral (-30°...0...+30°), inclination towards
the back 20°, towards the front 20°

Mounting distance
horizontal or vertical 0mm, case door
must open at 100°

Weight approx. 3kg

Ordering information

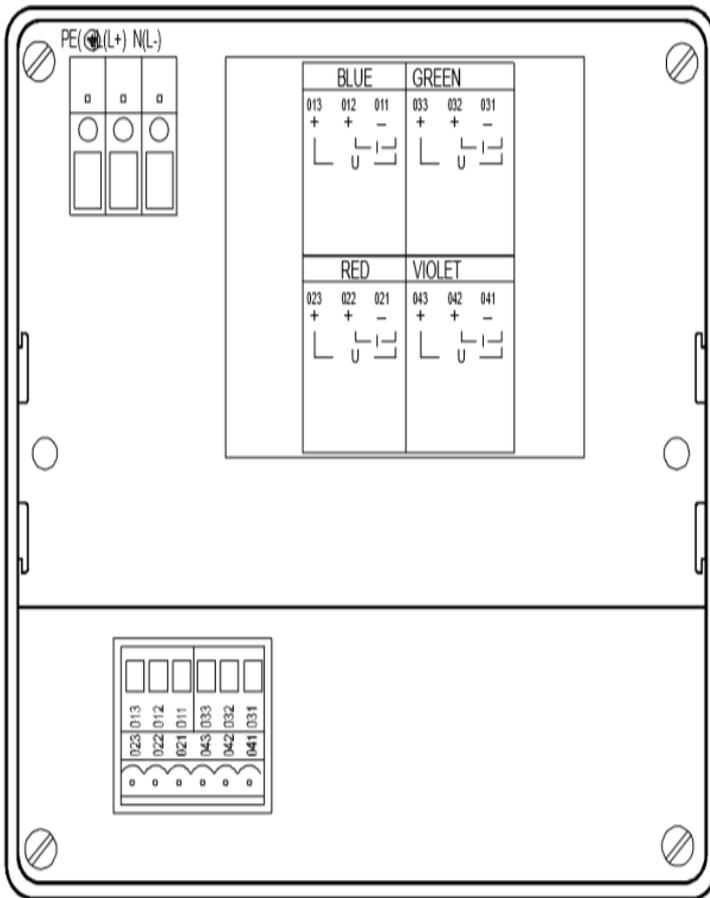
Continuous-line Recorder

Items - No.	80061 -								
<i>LinePrinter LS100</i>									
Version									
1 measuring channel	M1								
2 measuring channels	M2								
3 measuring channels	M3								
4 measuring channels	M4								
Measuring range (same for all channels)									
0...20 mA, 0...10 V DC	A1								
4...20 mA	A2								
Power supply									
95 V...240 V AC/DC				E5					
24 V...85 V AC/DC				E6					
Recording									
on rolled chart paper (32 m)					R1				
on folded chart paper (16 m)					R2				
Case									
RAL 7032 with moulded door						T1			
RAL 9002 with metal frame door						T3			
Create the required Code No. for each channel									
Line channel									
1 measuring channel						S3			
2 measuring channels						S4			
3 measuring channels						S5			
4 measuring channels						S6			
Scale: (without ruler) numeral height 2 mm; scale height 5 mm									
without							4	0	
0...100							4	1	
as specified (clear text)							4	2	
Measuring point label									
without						V5	0	0	
with label (height 3 mm, max. 31 character/channel) (clear text)						V5	7	7	

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Connection diagrams

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Z-17962

Signal inputs

