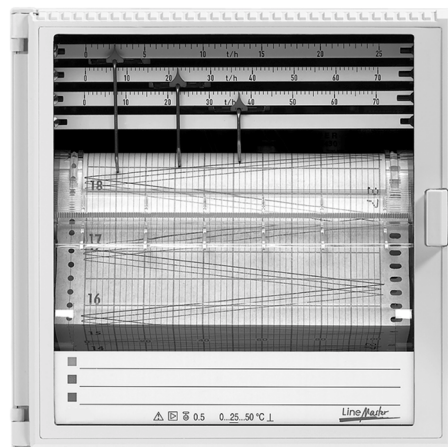


10/43-1.10 EN



- 1 to 4 measuring channels
- Format 144 mm x 144 mm; installed depth 250 mm
- Combined chart unit for roll chart (32 m) or folded chart paper (16 m)
- Measuring channels galvanically separated and ungrounded

The LineMaster 100 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 LineMaster 100, even under rough ambient conditions.

Technical data

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; $R_i = 40 \Omega$
 4...20 mA; $R_i = 50 \Omega$
 Direct voltage
 0...10 V, $R_i = 500 k\Omega$

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

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

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:
 at max. complement approx. 20 W / 25 VA

General and safety data

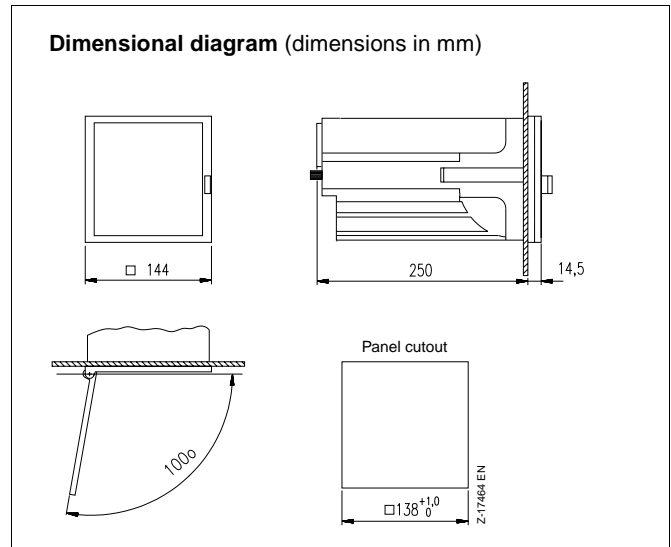
Environmental capabilities
 Climatic category 3K3 acc. to DIN IEC 721-3-3
 Ambient temperature
 0...25...50 °C
 Transport and storage temperature
 -40...+70 °C
 Relative humidity (device in operation)
 ≤ 75 % annual average, max. 85 %
 Avoid condensation. Pay attention to air humidity
 on recording paper acc. to DIN 16 234

Mechanical capabilities

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

Electromagnetic compatibility

The protection objectives of the EMC regulation 89/336/EWG
 on interference suppression acc. to EN 55 011 and regarding
 interference immunity acc. to EN 50 082-2 are met.
 Radio interference suppression acc. to EN 55 011
 Alarm value class B
 Postal Office Directive 243/92



Technical data

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

	Permissible parasitic voltage
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

Tested acc. to UL 3111-1 and CAN/CSA-C.22.2 No.1010.1

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 (H&B design)
or grey-white to RAL 9002 (ABB design)

Case door

Moulding material
Option: metal frame door with glass (H&B design)
or metal frame door with plastic window (ABB design)

Case mounting

with 2 fasteners (optionally for panel or mosaic panel
mounting) for max. mosaic grid width of 40 mm,
centering bracket required for mosaic panel mounting,
see Code-No. 605

Mounting orientation

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

Mounting distance

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

Weight approx. 3 kg

Basic standards

A) 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 (Shoc)
IEC 529		Degree of protection
IEC 801	DIN VDE 0843	Immunity to electro- magnetic interference
EN 60 801		Environmental capabilities
IEC 721-3-3	DIN IEC 721-3-3	VDE 0551 classification
IEC 742	DIN EN 60 742	Safety transformer

B) US standards

UL 3111-1 Process Control Equipment

C) Canadian standards

CAN/CSA C22.2 Safety Requirements for Electrical
No.1010.1 Equipment

D) German standards

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

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
- Additionally, according to order:
Centering brackets for mosaic panel field mounting,
reading rule(s)

Ordering information									
		Catalog No				Code			
Continuous-line Recorder LineMaster 100 Standard colour RAL 7032 (pebble grey)		V43012A-				0	0		
Version									
LineMaster 101	1 measuring channel	1							
LineMaster 102	2 measuring channels	2							
LineMaster 103	3 measuring channels	3							
LineMaster 104	4 measuring channels	4							
Measuring range (same for all channels)									
Special range ¹⁾ (on request)		0							
0...20 mA / 0...1 V (adjustable to 4...20 mA)		1							
4...20 mA (adjustable to 0...20 mA / 0...10 V)		2							
Power supply									
95 V...240 V AC/DC		5							
24 V...85 V AC/DC		6							
Recording									
on rolled chart paper (32 m)		1							
on folded chart paper (16 m)		2							
Case²⁾									
RAL 7032 with moulded door, H&B design		1							
RAL 7032 with metal frame door (glass window), H&B design		3							
RAL 9002 with metal frame door (plastic window), ABB design		4							
Create the required Code No. for each channel									
Line channel									
blue		3							
red		4							
green		5							
violet		6							
Scale (without ruler) numeral height 2 mm; scale height 5 mm									
without					4	0			
0...100					4	1			
as specified (clear text)					4	2			
Ruler									
Graduation as scale deviation					4	9			

*) The three-digit Code Numbers should be appended to the Catalog Number - separated by a slash

¹⁾ Not listed version, please use separate NL-application

²⁾ H&B design with CE-Approval, ABB design with additional UL/CSA-Approval

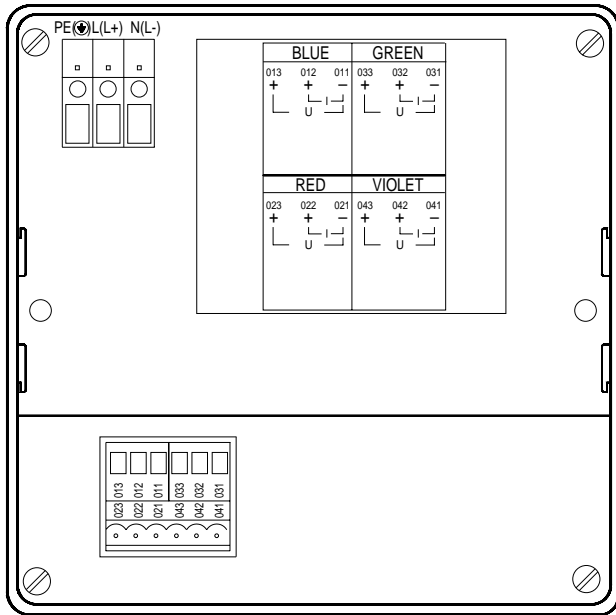
Additional Ordering information				
	Code			
Labelling of the tag name plate				
Character height 3 mm (max.64 characters per tag)				
for channel blue (clear text)	5	7	2	
for channel red (clear text)	5	7	5	
for channel green (clear text)	5	7	8	
for channel violet (clear text)	5	8	1	
Case colour (for H&B design only)				
RAL 7037 (pebble grey)	6	1	1	
RAL 9005 (black)	6	1	2	
Design				
prepared for upgrade to 4 measuring systems	6	1	8	
with compact connector for main and measuring lines	6	2	0	
Accessories				
4 centering brackets (for rack mounting)	6	0	5	
Surface mounting console for wall mounting	6	0	1	
Case version				
Portable version:				
type of protection IP 54	6	2	4	
type of protection IP 20 (with 2 m connection cable for power supply)	6	2	5	
neutral version	6	9	5	
Operating Manual¹⁾				
German (pieces)	Z	2	D	
English (pieces)	Z	2	E	
French (pieces)	Z	2	F	
Certificates				
Constructor's test certificate M acc. to DIN 55350-18-4.2.2 and inspection certificate B acc. to EN 10204-3.1B	6	9	9	

¹⁾ The three-digit Code Numbers should be appended to the Catalog Number - separated by a slash

¹⁾ 1 copy on german included in scope of delivery; No. specific order required; a charge will be made for additional copies of the Operating Manual (please specify number required)

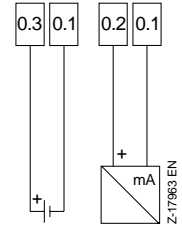
Consumables				
	Bestellnummer			
Fibre tip insert				
for measuring channel violet	43482-0319134			
for measuring channel blue	43482-0319133			
for measuring channel red	43482-0319132			
for measuring channel green	43482-0319131			
Roll chart (only supplied in packs of 10)				
with hourly time imprint for 20 mm/h	40920-3000505			
Fanfold chart (only supplied in packs of 10)				
without time imprint, with baselines	40926-3000502			

Connection diagrams



Z-17962

Signal inputs



ABB