



SITRANS LR560

78 GHz Radar Level Transmitter

Product scope

- Two-wire 78 GHz FMCW radar level transmitter.
- Supports continuous non-contact measurement to 100 m under applicable conditions.
- Available with HART or PROFIBUS PA electronics by configuration.
- Order-code review is required for flange, housing and approvals.

Manufacturer source

Siemens SITRANS LR560 Compact Operating Instructions A5E39693895-AC

Selected manufacturer pages cover identity, safety, construction, environmental limits, communications and technical data.

Request a fast quote	Product reference	
Email: info@apterpower.com Phone: +86 18106909650 apter.com/inquiry.php	SITRANS LR560	

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Radar transmitters SITRANS LR560

Compact Operating Instructions

<u>Introduction</u>	1
<u>Safety notes</u>	2
<u>Installing/mounting</u>	3
<u>Connecting</u>	4
<u>Commissioning</u>	5
<u>Remote operation</u>	6
<u>Service and maintenance</u>	7
<u>Technical data</u>	8
<u>Product documentation and support</u>	A

02/2022
A5E39693895-AC

Technical data

8

Note

Device specifications

Siemens makes every attempt to ensure the accuracy of these specifications but reserves the right to change them at any time.

8.1 Performance

Measurement Accuracy¹⁾ (measured in accordance with IEC 60770-1)

Maximum measured error	5 mm (0.2") including hysteresis and non-repeatability ²⁾	
Frequency	78 to 79 GHz FMCW	
Maximum measurement range ³⁾	40 m version	40 m (131 ft)
	100 m version	100 m (328 ft)
Minimum detectable distance	400 mm (15.7") from sensor reference point ⁴⁾	
Update time ⁵⁾	maximum 10 seconds, depending on setting for RESPONSE RATE	
Influence of ambient temperature	< 0.003%/K (average over full temperature range, referenced to maximum range)	
Long-term stability	<0.1%/24 months	
Dielectric constant of material measured	for ranges up to 20 m (65.6 ft)	minimum dK = 1.6
	for ranges up to 100 m (328 ft)	minimum dK = 2.5
Memory	non-volatile EEPROM	
	no battery required	

¹⁾ Reference conditions: POSITION DETECT set to Center and ALGORITHM set to True First Echo.

²⁾ Under severe EMI/EMC environments per IEC61326-1 or NAMUR NE21, the device error may increase to a maximum of 25mm (1").

³⁾ From sensor reference point.

⁴⁾ See Dimension drawings in full operating instructions.

⁵⁾ Reference conditions: RESPONSE RATE set to **FAST**.

Technical data

8.2 Power

8.2 Power

HART

Nominal 24 V DC at 550 Ohm. For other configurations, refer the chart under "Loop power" in the full operating instructions.

PROFIBUS PA and FOUNDATION FIELDBUS

Bus powered	9 to 32 V DC, per IEC 61158-2
Current consumed	13.5 mA

8.3 Construction

Process connection:	Universal flat-faced flange ¹⁾	3"/80 mm, 4"/100 mm, 6"/150 mm Material: 316L (1.4404 or 1.4435), or 304 stainless steel
	Aimer flange ¹⁾	3"/80 mm, 4"/100 mm, 6"/150 mm Material: Polyurethane powder-coated cast aluminum
	Universal stamped flange ¹⁾	3"/80 mm, 4"/100 mm, 6"/150 mm Material: 304 stainless steel
Enclosure	Construction	316L/1.4404 stainless steel
	Conduit entry	M20x1.5, or 1/2" NPT
	Conduit entry connector (optional)	M12 connector (shipped with M20 to M12 adaptor) or, 7/8" connector (shipped with 1/2" NPT to 7/8" adaptor)
	Ingress protection	Type 4X, Type 6, IP68
	Lid with window	Polycarbonate (window material)
Lens antenna material	40 m version	PEI
	100 m version	PEEK
Air purge connection	equipped with female 1/8" NPT fitting	
Weight (excluding extensions):	3" stainless steel flange model	3.15 kg (6.94 lb)

¹⁾ Universal flange mates with EN 1092-1 (PN16)/ASME B16.5 (150 lb)/JIS 2220 (10K) bolt hole pattern.

Technical data

8.4 Operating conditions

8.4 Operating conditions

Note

- For the specific configuration you are about to use or install, check transmitter nameplate and see Approvals (Page 56).
- Use appropriate conduit seals to maintain IP or NEMA rating.

Location	indoor/outdoor
Altitude	5000 m (16,404 ft) max.
Ambient temperature	–40 to +80 °C (–40 to +176 °F)
Storage temperature	–40 to +80 °C (–40 to +176 °F)
Relative humidity	suitable for outdoor use Type 4X, Type 6, IP68 enclosure (see note above)
Installation category	I
Pollution degree	4

Reference operating conditions according to IEC 60770-1

Ambient temperature	15 to 25 °C (59 to 77 °F)
Humidity	45 to 75% relative humidity
Ambient pressure	860 to 1060 mbar a (86000 to 106000 N/m ² g)

Technical data

8.5 Process

8.5 Process

Temperature and pressure¹⁾

Note

Pressure

Universal stamped flanges are to be used for 0.5 bar max pressure only.

Version	Stainless steel flange	Aimer flange 0.5 bar max.	Aimer flange 3.0 bar max
40 m	–40 to +100 °C (–40 to +212 °F)	–40 to +100 °C (–40 to +212 °F)	–40 to +100 °C (–40 to +212 °F)
100 m	–40 to +200 °C (–40 to +392 °F)	–40 to +200 °C (–40 to +392 °F)	–40 to +120 °C (–40 to +248 °F)

¹⁾ Maximum and minimum temperatures are dependent on the process connection, antenna and O-ring materials. Use of the Easy Aimer limits maximum temperature.

For more detail, refer to the complete operating instructions.

Technical data

8.6 Approvals

8.6 Approvals

Note

Approvals

The device label lists the approvals that apply to your device.

General			cCSAus, FM, CE, UKCA, RCM
Radio			Europe (RED), FCC, Industry Canada
Hazardous	Non-sparking/Energy Limited	Europe	ATEX II 3G Ex ec/II IIC T4 Gc
		UK	UKEX II 3G Ex ec/II IIC T4 Gc
		International	Ex ec/II IIC T4 Gc IECEX SIR 09.0149X
		Brazil	INMETRO: DNV 12.0085 X Ex ec IIC T4 Gc -40 °C ≤ Ta ≤ +80 °C Un = 32 Vcc
		China	Ex nA IIC T4 Gc
	Dust Ignition Proof	Europe	ATEX II 1D, 1/2D, 2D Ex ta IIIC T139°C Da
		UK	UKEX II 1D, 1/2D, 2D Ex ta IIIC T139°C Da
		International	Ex ta IIIC T139°C Da IP68 IECEX SIR 09.0149X
		Brazil	INMETRO: DNV 12.0085 X Ex ta IIIC T139 °C Da IP68 -40 °C ≤ Ta ≤ +80 °C
		China	Ex tD A20 IP68 T139°C
	Dust Ignition Proof	US/Canada	FM/CSA: Class II, Div. 1, Groups E, F, G Class III T4
	Non-incendive	US/Canada	FM/CSA Class I, Div. 2, Groups A, B, C, D, T4

CE Electromagnetic Compatibility (EMC) conformity	
Emission	EN 55011 / CISPR-11
Immunity	EN/IEC 61326-1 (Industry) NAMUR NE 21

Technical data
8.7 Communication

8.7 Communication

HART

Protocol	HART ²⁾ , Version 6.0
Load	230 to 550 Ω , 230 to 500 Ω when connecting a coupling module
Max line length¹⁾	multi-wire: 1500 m (4921 ft)
¹⁾ Max. length depends on wire type. See www.hartcomm.org (www.hartcomm.org) for more details.	
²⁾ HART is a registered trademark of HART Communication Foundation.	

PROFIBUS PA

Profibus PA 3.01

FOUNDATION FIELDBUS

ITK version 5	• Blocks supported: RESOURCE, LTB, AIFB1, AIFB2, LCD, DIAG • Block execution time: AIFB - 30 ms
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