

Level Measurement

Continuous level measurement – Radar transmitters

SITRANS LR260

Overview



SITRANS LR260 is a 2-wire 25 GHz pulse radar level transmitter for continuous monitoring of solids and liquids in storage vessels including extreme levels of dust and high temperatures, to a range of 30 m (98.4 ft).

Benefits

- Graphical local user interface (LUI) makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard
- LUI displays echo profiles for diagnostic support
- 25 GHz high frequency allows for small horn antennas mounted easily in nozzles
- Communication using HART or PROFIBUS PA
- Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions
- Programming using infrared Intrinsically Safe handheld programmer or SIMATIC PDM

Application

SITRANS LR260 includes a graphical local user interface (LUI) that improves setup and operation using an intuitive Quick Start Wizard, and echo profile displays for diagnostic support. Startup is easy using the Quick Start wizard with a few parameters required for basic operation.

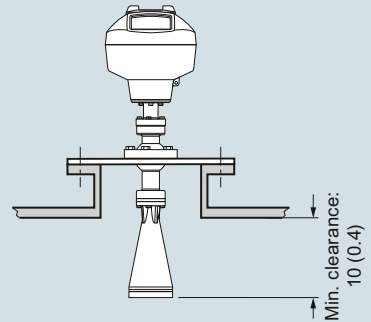
SITRANS LR260's unique design allows safe and simple programming using the Intrinsically Safe handheld programmer without having to open the instrument's lid.

SITRANS LR260 measures virtually any solids material to a range of 30 m (98.4 ft).

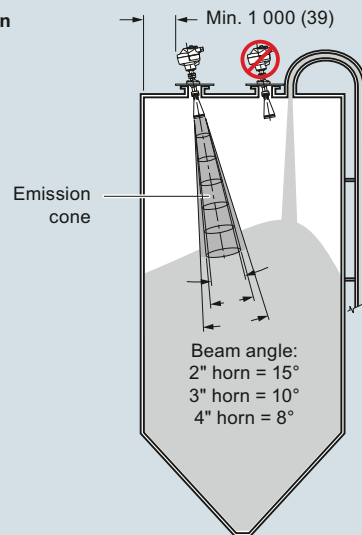
- Key Applications: cement powder, plastic powder/pellets, grain, flour, coal, solids and liquids bulk storage vessels, and other applications.

Configuration

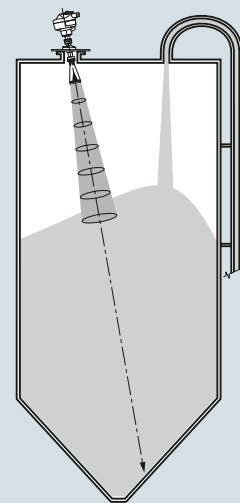
Mounting on a nozzle



Installation



Positioning with easy Aimer



SITRANS LR260 installation, dimensions in mm (inch)

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Technical specifications

Mode of operation		Design	
Measuring principle	Pulse radar level measurement	Enclosure	Aluminum, polyester powder-coated 2 x M20x1.5 or 2 x ½" NPT Type 4X/NEMA 4X, Type 6/NEMA 6, IP67, IP68 < 8.14 kg (17.9 lb) including 4" flange and standard Easy Aimer with 4" horn antenna Graphic LCD, with bar graph representing level
Frequency	K-band (25.0 GHz)	• Construction	
Minimum detectable distance	0.05 m (2 inch) from end of horn	• Conduit entry	
Maximum measuring range ¹⁾		Degree of protection	
• Solids	<ul style="list-style-type: none"> • 2" horn: 10 m (32.8 ft) • 3" horn: 20 m (65.6 ft) • 4" horn: 30 m (98.4 ft) 	Weight	
• Liquids	<ul style="list-style-type: none"> • 2" horn: 20 m (65.6 ft) • 3" horn: 30 m (98.4 ft) • 4" horn: 30 m (98.4 ft) 	Display (local)	
Output - HART		Flange and horn (easy aimer model)	
Power	<ul style="list-style-type: none"> • 4 ... 20 mA (±0.02 mA accuracy) • Nominal 24 V DC (max. 30 V DC) 	• Material	
Fail signal Load	3.6 mA ... 23 mA; or last value 230 ... 600 Ω	• Horn antenna	
Output - PROFIBUS PA		Process connections	
	<ul style="list-style-type: none"> • Per IEC 61158-2 • 15.0 mA • Profile version 3.01, Class B 	• Universal flanges ²⁾	
Performance (according to reference conditions IEC60770-1)		Mechanical (Threaded Connection model)	
Maximum measured error (including hysteresis and non-repeatability)	<ul style="list-style-type: none"> • 25 mm (1 inch) from minimum detectable distance to 300 mm (11.8 inch) • Remainder of range = 10 mm (0.39 inch) or 0.1% of span (whichever is greater) 	• Threaded connection	
Rated operating conditions		• Materials	
Installation conditions	Indoor/outdoor	Certificates and approvals	
• Location			
Ambient conditions (enclosure)	-40 ... +80 °C (-40 ... +176 °F) I 4	General	
• Ambient temperature		Radio	
• Installation category		Hazardous	
• Pollution degree			
Medium conditions			
Dielectric constant ϵ_r	$\epsilon_r > 1.6$, antenna and application dependent		
Process temperature	-40 ... +200 °C (-40 ... +392 °F)		
Process pressure	<ul style="list-style-type: none"> • 0.5 bar g (7.25 psi g) maximum • 3 bar g (43.5 psi g) optional with 80 °C (176 °F) temperature max 		
		Programming	
		Intrinsically Safe Siemens handheld programmer	
		• Approvals for handheld programmer	
		Handheld communicator	
		PC	
		Display (local)	

¹⁾ From sensor reference point

²⁾ Universal flange mates with EN 1092-1 (PN 16)/ASME B16.5 (150 lb)/JIS 2220 (10K) bolt hole pattern

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Selection and Ordering data	Article No.	Selection and Ordering data	Order code
SITRANS LR260 2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of solids to a range of 30 m (98.4 ft).	7ML5427- 0 ■ ■ ■ 0 - ■ ■ ■ ■ ■	Further designs Please add "-Z" to Article No. and specify Order code(s).	
Order handheld programmer separately process connection Universal flat faced flange fits ANSI/DIN/JIS flanges, Easy Aimer with integral (Easy Aimer ball)		Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: Measuring-point number/identification (max. 27 characters); specify in plain text	Y15
2 inch/50 mm	A	Manufacturer's test certificate: M to DIN 55350, Part 18 and to ISO 9000	C11
3 inch/80 mm	B	Inspection Certificate Type 3.1 per EN 10204	C12
4 inch/100 mm	C		
6 inch/150 mm	D		
Threaded connection		Operating Instructions for HART/mA device English German Note: The Operating Instructions should be ordered as a separate line item on the order.	Article No. 7ML1998-5KE31 7ML1998-5KE03
2" NPT (ASME B1.20.1) (tapered thread) ¹⁾²⁾	E	Multi-language Quick Start manual	A5E32106122
R 2" [(BSPT), EN 10226-1] (tapered thread) ¹⁾²⁾	F	This device is shipped with the Siemens Milltronics manual DVD containing the ATEX Quick Start and Operating Instructions library.	
G 2" [(BSPT), EN ISO 228-1] (parallel thread) ¹⁾²⁾	G	Operating Instructions for PROFIBUS PA device English German Note: The Operating Instructions should be ordered as a separate line item on the order.	7ML1998-5KF03 7ML1998-5KF31
Antenna		Multi-language Quick Start manual	A5E32114443
2" Horn antenna, fits 50 mm or 2" nozzles	A	This device is shipped with the Siemens Milltronics manual DVD containing the ATEX Quick Start and Operating Instructions library.	
2" Horn antenna with 100 mm extension	B		
2" Horn antenna with 200 mm extension	C		
2" Horn antenna with 500 mm extension ¹⁾³⁾	D		
2" Horn antenna with 1 000 mm extension ¹⁾³⁾	E		
3" Horn antenna, fits 80 mm or 3" nozzles	F		
3" Horn antenna with 100 mm extension	G		
3" Horn antenna with 200 mm extension	H		
3" Horn antenna with 500 mm extension ¹⁾³⁾	J		
3" Horn antenna with 1 000 mm extension ¹⁾³⁾	K		
4" Horn antenna, fits 100 mm or 4" nozzles	L		
4" Horn antenna with 100 mm extension	M		
4" Horn antenna with 200 mm extension	N		
4" Horn antenna with 500 mm extension ¹⁾³⁾	P		
4" Horn antenna with 1 000 mm extension ¹⁾³⁾	Q		
Purge (self cleaning) connection			
No purge connection	0		
Purge connection	1		
Output/communication			
4 ... 20 mA, HART	0		
PROFIBUS PA	1		
Cable inlet			
2 x M20x1.5	A	Accessories One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), HART	7ML1930-1AP
2 x ½" NPT	B	One metallic cable gland M20x1.5, rated -40 ... +80 °C (-40 ... +176 °F), PROFIBUS PA	7ML1930-1AQ
Note: Polymeric cable glands will be provided with M20 devices.		Handheld programmer, Infrared, Intrinsically Safe	7ML1930-1BK
Approvals		Dust cap, PTFE, for 2 inch/50 mm horn	7ML1930-1DE
General purpose, CSA _{US/C} , FM, Industry Canada, FCC, CE, R&TTE, C-TICK	A	Dust cap, PTFE, for 3 inch/75 mm horn	7ML1930-1BL
CSA/FM Class II, Div. I, Groups E, F, G, Class III, Industry Canada, FCC, C-TICK	B	Dust cap, PTFE, for 4 inch/100 mm horn	7ML1930-1BM
ATEX II 1D, 1/2D, 2D T100 °C, CE, R&TTE, C-TICK; INMETRO	C	HART modem/RS 232 (for use with a PC and SIMATIC PDM)	7MF4997-1DA
Non-incendive, CSA/FM Class I, Div. 2, Groups A, B, C, D, Industry Canada, FCC, C-TICK	D	HART modem/USB (for use with a PC and SIMATIC PDM)	7MF4997-1DB
Intrinsically safe, IECEx/ATEX II 1 GD Ex ia IIC T4, Ex tD A20 IP67 T90C, R&TTE, C-TICK	E	SITRANS RD100 Remote display - see Chapter 7	
Intrinsically safe, CSA/FM Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G, Industry Canada, FCC, C-TICK	F	SITRANS RD200 Remote display - see Chapter 7	
Intrinsically safe, South Africa ARP0108 Ex ia IIC T4 Ga	G	SITRANS RD500 web, datalogging, alarming, ethernet, and modem support for instrumentation - see Chapter 7	7ML5750-1AA00-0
Pressure rating		For applicable back up point level switch - see point level section on page 4/9	
Rating per Pressure/Temperature curves in manual	0	Note: Products shipped with plastic cable gland, rated to -20 °C. If -40 °C rating required, then metallic cable gland is recommended.	
0.5 bar g (7.25 psi g) maximum	1		

¹⁾ Available with purge option 0 only

²⁾ Available with antenna options A, B, F, G, L, and M only

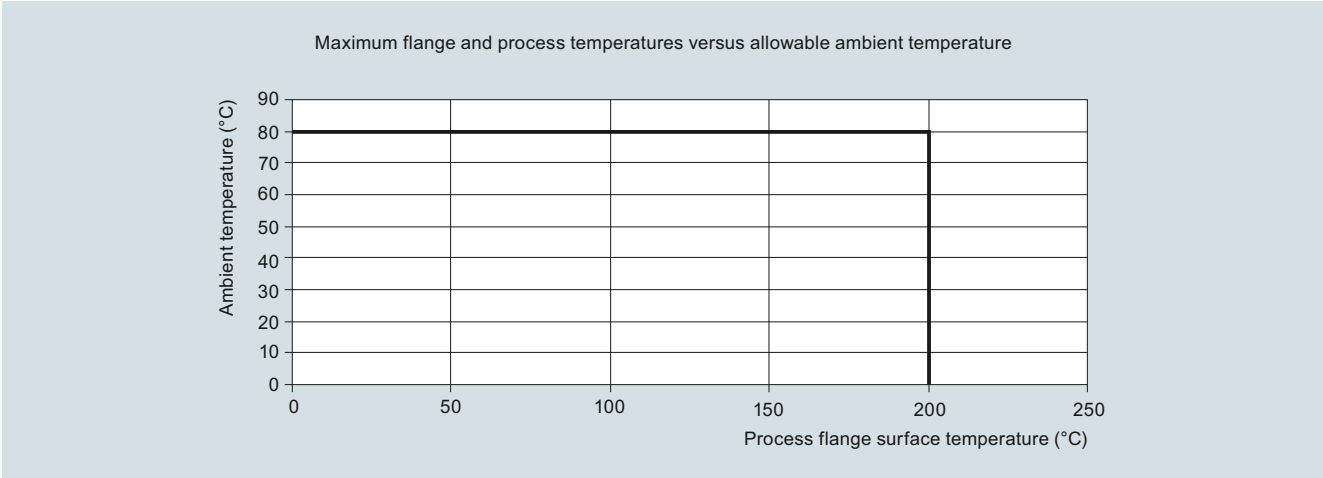
³⁾ Available with pressure option 1 only

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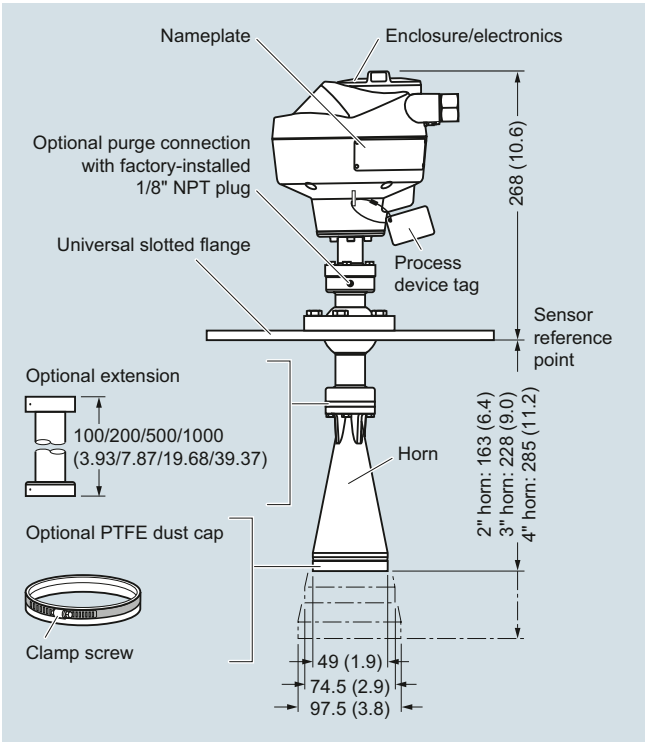
SITRANS LR260

Characteristic curves



SITRANS LR260 Ambient/Process Flange Surface Temperature Curve

Dimensional drawings



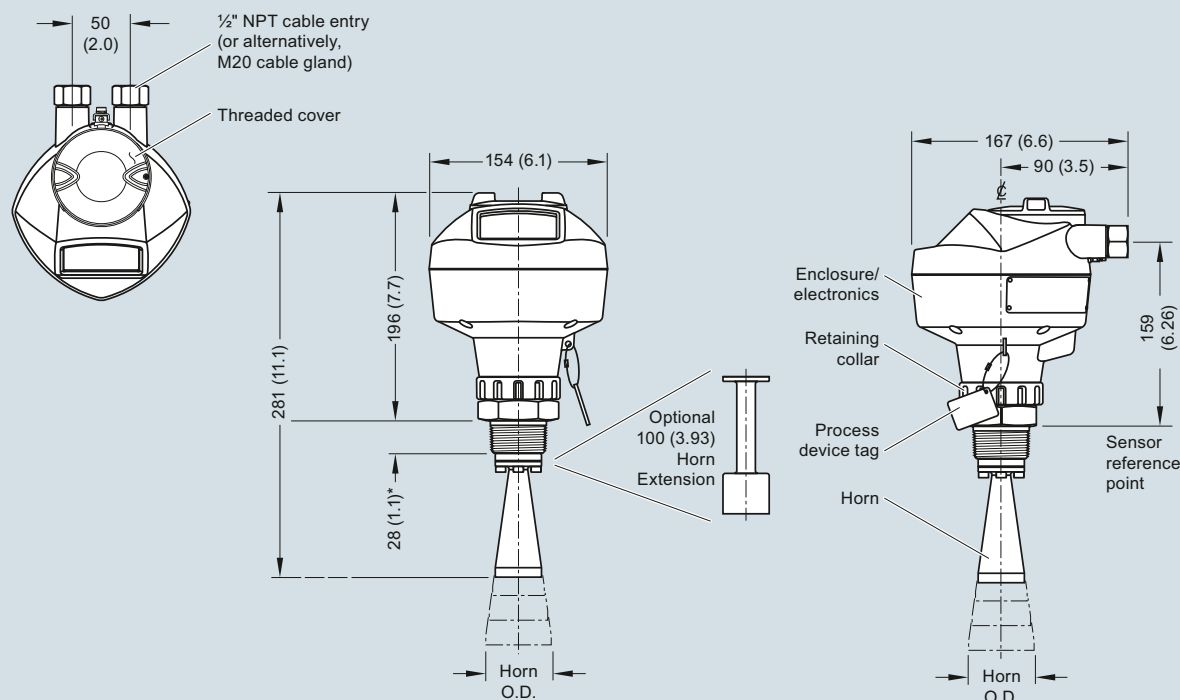
SITRANS LR260, dimensions in mm (inch)

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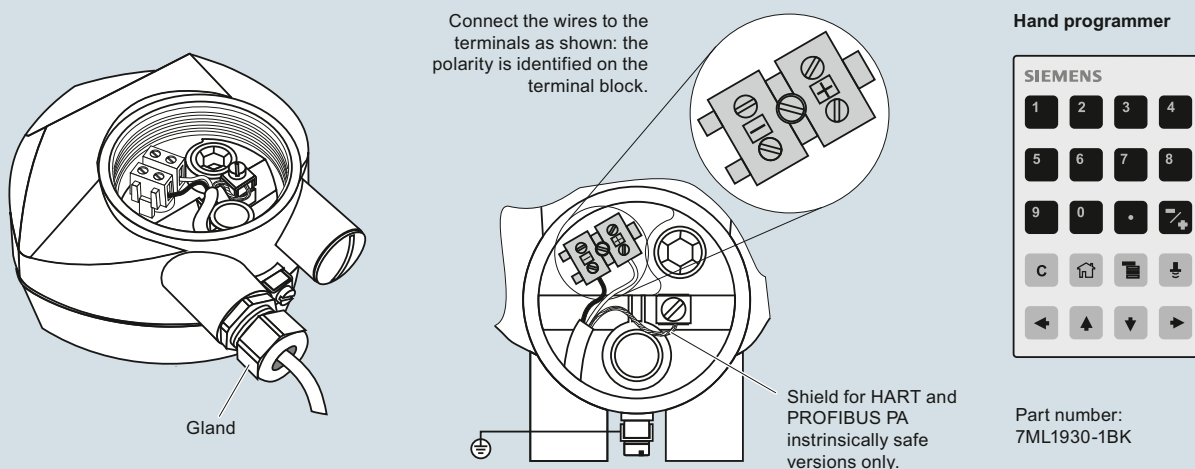
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Antenna Type	Antenna O.D.	Height to sensor reference point			Beam angle	Measurement range
		1-1/2" threaded connection	2" threaded connection	3" threaded connection		
2" horn	47.8 (1.88)	N/A	166 (6.55)	180 (7.09)	15 degrees	20 m (65.6 ft)
3" horn	74.8 (2.94)	N/A	199 (7.85)	213 (8.39)	10 degrees	20 m (65.6 ft)
4" horn	94.8 (3.73)	N/A	254 (10)	268 (10.55)	8 degrees	20 m (65.6 ft)

SITRANS LR260, dimensions in mm (inch)

Schematics



Notes:


1. DC terminal shall be supplied from a source providing electrical isolation between the input and output, to meet the applicable safety requirements of IEC 61010-1.
2. All field wiring must have insulation suitable for rated input voltages.
3. Use shielded twisted pair cable (14 ... 22 AWG) for HART version.
4. Separate cables and conduit may be required to conform to standard instrumentation wiring practices or electrical codes.

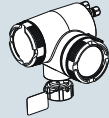
SITRANS LR260 connections

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SITRANS LR260/LR460 Specials

SITRANS LR260/LR460 Specials	Article No.
Process connection part kits - non-pressure-rated	
LR260/LR460, 100 mm extension for horn antenna, no purge ¹⁾	A5E01087872
LR260/LR460, 200 mm extension for horn antenna, no purge ¹⁾	A5E01091262
LR260/LR460, 100 mm extension for horn antenna with purge ¹⁾	A5E01261979
LR260/LR460, 200 mm extension for horn antenna with purge ¹⁾	A5E01261981
LR260/LR460, horn 2", no purge, no emitter ¹⁾	A5E02083905
LR260/LR460, horn 3", no purge, no emitter ¹⁾	A5E01623511
LR260/LR460, horn 4", no purge, no emitter ¹⁾	A5E01623512
LR260/LR460, horn 2", with purge, no emitter ¹⁾	A5E02083906
LR260/LR460, horn 3", with purge, no emitter ¹⁾	A5E01623513
LR260/LR460, horn 4", with purge, no emitter ¹⁾	A5E01623514
LR260/LR460, 3" universal flat faced flange ¹⁾	A5E02303897
LR260/LR460, 4" universal flat faced flange ¹⁾	A5E01259467
LR260/LR460, 6" universal flat faced flange ¹⁾	A5E01261834
LR260/LR460 O-Rings for Easy Aimer ¹⁾	A5E01261836
Kit, Emitter for LR260/LR460 ¹⁾	A5E02360694
LR260 lid with O-ring	A5E02465410
Purge conversion kit – non-pressure-rated (no flange or extension included)	
LR260/LR460 purge conversion, 2" horn ¹⁾	A5E02083914
LR260/LR460 purge conversion, 3" horn ¹⁾	A5E02083915
LR260/LR460 purge conversion, 4" horn ¹⁾	A5E02083916
Enclosure with electronics	
	
LR260 enclosure with board stack, HART communication, M20 cable inlet, approval option A, no process connection	A5E02203605
LR260 enclosure with board stack, PROFIBUS PA communication, M20 cable inlet, approval option A, no process connection	A5E02213423
LR260 enclosure with board stack, HART communication, NPT cable inlet, approval option A, no process connection	A5E02165924
LR260 enclosure with board stack, PROFIBUS PA communication, NPT cable inlet, approval option A, no process connection	A5E02213428
Sitrans LR260 enclosure with board stack, HART communication, NPT cable inlet, approval option D, no process connection	A5E03934184
Sitrans LR260 enclosure with board stack, HART communication, M20 cable inlet, approval option E, no process connection	A5E03934187
Sitrans LR260 enclosure with board stack, HART communication, M20 cable inlet, approval option F, no process connection	A5E03934191

SITRANS LR260/LR460 Specials	Article No.
Enclosure with electronics (LR460)	
	
LR460 enclosure with board stack, HART communication, AC power, M20 cable inlet, approval option A, no process connection	A5E02182085
LR460 enclosure with board stack, PROFIBUS PA communication, AC power, M20 cable inlet, approval option A, no process connection	A5E02212422
LR460 enclosure with board stack, HART communication, AC power, NPT cable inlet, approval option A, no process connection	A5E02212423
LR460 enclosure with board stack, PROFIBUS PA communication, AC power, NPT cable inlet, approval option A, no process connection	A5E02212424
LR460 enclosure with board stack, HART communication, DC power, M20 cable inlet, approval option A, no process connection	A5E02212425
LR460 enclosure with board stack, PROFIBUS PA communication, DC power, M20 cable inlet, approval option A, no process connection	A5E02212426
LR460 enclosure with board stack, HART communication, DC power, NPT cable inlet, approval option A, no process connection	A5E02212428
LR460 enclosure with board stack, PROFIBUS PA communication, DC power, NPT cable inlet, approval option A, no process connection	A5E02212429

¹⁾ Available with no pressure rating, 0.5 bar g maximum.
Please contact ceg.smpi@siemens.com for special requests.