OPTIFLEX 1300 C

Technical Datasheet

Guided Radar (TDR) Level Transmitter for heavy-duty and interface applications

- Universal device that can measure level of liquids, pastes, granulates, powders, and liquid interface
- Easy to install: on-site calibration is not needed
- Operates up to 300 bar / 4350 psi

Order code

Make a selection from each column to get the full order code. The characters of the order code highlighted in light grey describe the standard.

Ø2 mm / 0.08¨ single cable probe options

VF71	4	OPTIFLEX 1300 C Guided Radar (TDR) level transmitter for heavy-duty and interface applications Ø2 mm (0.08¨) single cable – Standard (STD) / High Temperature (HT) / High Pressure (HP)				
		Approval				
		0	Without			
		1	WHG (overfill protection)			
		2	ATEX II 1 G Ex ia IIC T6 Ga + II 1 D Ex ia IIIC Da			
		3	ATEX II 1/2 G Ex ia/d IIC T6 Ga/Gb + II 1/2 D Ex ia tb IIIC Da/Db			
		4	ATEX II 1 G Ex ia IIC T6 Ga + II 1 D Ex ia IIIC Da + WHG			
		5	ATEX II 1/2 G Ex ia/d IIC T6 Ga/Gb + II 1/2 D Ex ia tb IIIC Da/Db + WHG			
		6	FM IS CL I/II/III DIV 1 GPS A–G + CL I zone 0 Ex ia IIC T6			
		7	FM XP-AIS/DIP/NI CL I/II/III Div 1 GPS A–G + CL I zone 1 / zone 2 Ex d[ia] / Ex nA[ia] IIC T6			
		A	ATEX II 3 G Ex nA IIC T6 Gc (Zone 2)			
		B	INMETRO Ex ia IIC T6 Ga + Ex ia IIIC Da			
		C	INMETRO Ex d[ia Ga] IIC T6 Ga/Gb + Ex tb[ia Da] IIIC Db			
		E	NEPSI Ex ia IIC T6 + DIP A21/A20 ①			
		F	NEPSI Ex d ia IIC T6 + DIP A21/A20 ①			
		H	CSA IS CL I/II/III DIV 1 GPS A–G + CL I zone 0 Ex ia IIC T6			
		K	CSA XP-AIS/DIP/NI CL I/II/III DIV 2 GPS A–G + CL I zone 1 / zone 2 Ex d / Ex nA IIC T6 ①			
		M	IECEx Ex ia IIC T6 Ga + Ex ia IIIC Da			
		N	IECEx Ex ia/d IIC T6 Ga/Gb + Ex ia tb IIIC Da/Db			
		R	KGS Ex ia IIC T6 + Ex iaD 20			
		S	KGS Ex d[ia] IIC T6 + Ex tD[iaD] A21/20			
			Material of Process Connection and Probe / Pressure			
			0	316L (1.4404) / 40 barg (580 psig)		
			1	HASTELLOY® C-22® (2.4602) / 40 barg (580 psig)		
			2	316L (1.4404) / 100 barg (1450 psig)		
			3	HASTELLOY® C-22® (2.4602) / 100 barg (1450 psig)		
			4	316L (1.4404) / HP 300 barg (4351 psig)		
			5	HASTELLOY® C-22® (2.4602) / HP 300 barg (4351 psig)		
				Probe type		
				6	Single cable Ø2 mm (0.08¨) max. 35 m (114.83 ft) – liquid only	
				G	Single cable Ø2 mm (0.08¨) for BM 26 ADVANCED	
				K	Single cable Ø2 mm (0.08¨) for BM 26 F	
					Probe end type	
					5	Counterweight Ø14 mm × 100 mm (Ø0.55¨ × 3.94¨) (single cable Ø2 mm (0.08¨))
					L	Centering counterweight Ø20 mm × 100 mm (Ø0.79¨) for BM 26 F + BM 26 ADVANCED
VF71	4					Order code (complete this code on the pages that follow)

						Feedthrough / Temperature / Sealing		
						2	Standard / -40…+150°C (-40…+302°F) / FKM/FPM	
						3	Standard / -20…+150°C (-4…+302°F) / Kalrez 6375	
						4	Standard / -50...+150°C (-58…+302°F) / EPDM	
						5	Standard / HT -40...+300°C (-40…+572°F) / FKM/FPM	
						6	Standard / HT -20...+300°C (-4…+572°F) / Kalrez 6375	
						7	Standard / HT -50...+250°C (-58…+482°F) / EPDM	
							Process connection EN	
							0	Without
							2	G 1A ISO 228
							4	DN25 PN40 Type B1 EN 1092-1
							6	DN50 PN40 Type B1 EN 1092-1
							7	DN80 PN40 Type B1 EN 1092-1
							8	DN100 PN16 Type B1 EN 1092-1
							A	DN100 PN40 Type B1 EN 1092-1
							B	DN150 PN16 Type B1 EN 1092-1
							C	DN150 PN40 Type B1 EN 1092-1
							D	DN50 PN63 Type B1 EN 1092-1
							E	DN80 PN63 Type B1 EN 1092-1
							F	DN100 PN63 Type B1 EN 1092-1
							H	G ½A ISO 228
							K	DN25 PN63/PN100 Type B1 EN 1092-1
							L	DN40 PN63/PN100 Type B1 EN 1092-1
							M	DN50 PN100 Type B1 EN 1092-1
							N	DN80 PN100 Type B1 EN 1092-1
							P	DN100 PN100 Type B1 EN 1092-1 2
							R	DN150 PN63 Type B1 EN 1092-1 2
							S	DN150 PN100 Type B1 EN 1092-1 2
							U	DN 200 PN 16 Type B1 EN 1092-1
							V	DN 200 PN 40 Type B1 EN 1092-1
VF71	4							Order code (complete this code on the pages that follow)

								Process connection ASME		
								0	Without	
								2	1 NPTF	
								4	1¨ 150 lb RF ASME B16.5	
								5	1½¨ 150 lb RF ASME B16.5	
								6	1½¨ 300 lb RF ASME B16.5	
								7	2¨ 150 lb RF ASME B16.5	
								8	2¨ 300 lb RF ASME B16.5	
								A	3¨ 150 lb RF ASME B16.5	
								B	3¨ 300 lb RF ASME B16.5	
								C	4¨ 150 lb RF ASME B16.5	
								D	4¨ 300 lb RF ASME B16.5	
								E	6¨ 150 lb RF ASME B16.5	
								F	8¨ 150 lb RF ASME B16.5	
								G	6¨ 300 lb RF ASME B16.5 2	
								H	½ NPTF	
								K	1¨ 300 lb RF ASME B16.5	
								L	2¨ 300 lb RF ASME B16.5 / BM 26 F	
								M	1¨ 600 lb RF ASME B16.5	
								N	1½¨ 600 lb RF ASME B16.5	
								P	2¨ 600 lb RF ASME B16.5	
								R	3¨ 600 lb RF ASME B16.5	
								S	4¨ 600 lb RF ASME B16.5 2	
								T	1¨ 900/1500 lb RJ ASME B16.5	
								U	1½¨ 900/1500 lb RJ ASME B16.5	
								V	2¨ 900/1500 lb RJ ASME B16.5 2	
								W	3¨ 900 lb RF ASME B16.5 2	
								X	4¨ 900 lb RF ASME B16.5 2	
								Y	1¨ 2500 lb RJ ASME B16.5 2	
									Process connection other	
									0	Without
									3	RJ (ring joint)
									5	10K 40A RF JIS B2220
									6	10K 50A RF JIS B2220
									7	10K 80A RF JIS B2220
									8	10K 100A RF JIS B2220
									V	Type C (EN 1092-1) tongue
									W	Type D (EN 1092-1) groove
									X	Type E (EN 1092-1) spigot
									Y	Type F (EN 1092-1) recess
VF71	4									Order code (complete this code on the pages that follow)

										Output			
										0	1 output: 4…20 mA (HART®)		
										1	1 output: 4...20 mA (HART®) – INTERFACE		
										2	2 outputs: 4...20 mA (HART®) + 4...20 mA		
										3	2 outputs: 4...20 mA (HART®) + 4…20 mA – INTERFACE		
											Housing / Cable entry / Cable gland		
											0	Aluminium / M20 × 1.5 (nickel-plated brass adaptor) / without	
											1	Aluminium / ½ NPT (nickel-plated brass adaptor) / without	
											2	Aluminium / G ½ (nickel-plated brass adaptor) / without	
											3	Aluminium / M20 × 1.5 (nickel-plated brass adaptor) / plastic (non-Ex: black, Ex ia: blue)	
											4	Aluminium / M20 × 1.5 (nickel-plated brass adaptor) / metal (only for Ex d)	
											A	Stainless steel / M25 × 1.5 (stainless steel adaptor) / without	
											B	Stainless steel / ½ NPT (stainless steel adaptor) / without	
											D	Stainless steel / M25 × 1.5 (stainless steel adaptor) / plastic M20 (non-Ex: black, Ex ia: blue)	
											E	Stainless steel / M25 × 1.5 (stainless steel adaptor) / metal M20 (only for Ex d)	
												Housing option	
												0	Without
												2	Stainless steel weather protection
												3	Remote version with 50-ohm cable / 2 m (2180 mm) / 6.56 ft (85.83¨)
												4	Remote version with 50-ohm cable / 4.5 m (4720 mm) / 14.76 ft (185.83¨)
												5	Remote version with 50-ohm cable / 9.5 m (9800 mm) / 31.17 ft (385.83¨)
												6	Remote version with 50-ohm cable / 14.5 m (14880 mm) / 47.57 ft (585.83¨)
												A	Remote version with 50-ohm cable / 2 m (2180 mm) / 6.56 ft (85.83¨) + stainless steel weather protection
												B	Remote version with 50-ohm cable / 4.5 m (4720 mm) / 14.76 ft (185.83¨) + stainless steel weather protection
												C	Remote version with 50-ohm cable / 9.5 m (9800 mm) / 31.17 ft (385.83¨) + stainless steel weather protection
												D	Remote version with 50-ohm cable / 14.5 m (14880 mm) / 47.57 ft (585.83¨) + stainless steel weather protection
VF71	4												Order code (complete this code on the pages that follow)

												HMI (display and keys)							
												0	Without						
												1	English						
												2	German						
												3	French						
												4	Italian						
												5	Spanish						
												6	Portuguese						
												7	Japanese						
												8	Chinese (simplified)						
												A	Russian						
													Version						
													0	KROHNE (RAL 9006 / RAL 5005)					
													A	KMIC L (for liquid applications)					
														Special option					
														0	Without				
														2	Metaglas® sealing				
															Other approvals				
															0	Without			
															B	EAC Russia			
															C	EAC Belarus			
															K	EAC Kazakhstan			
																Calibration certificate			
																0	Without		
																1	Calibration certificate 2 factory-default points for an accuracy of ±3 mm / ±0.12¨ up to 10 m / 32.81 ft (minimum distance of first point: 300 mm / 11.81¨)		
																2	Calibration certificate 5 factory-default points for an accuracy of ±3 mm / ±0.12¨ up to 10 m / 32.81 ft (minimum distance of first point: 500 mm / 19.69¨)		
																	Construction		
																	0	Without	
																	3	NACE-Design (MR 0175 / MR 0103 / ISO 15156)	
																		Tag N°	
																		0	Without
																		2	Tag N° on stainless steel plate (18 characters max.)
VF71	4																		Order code

① DIP= Dust Ignition Proof

2 Ex approvals are only available for HT, HP and HT/HP versions of the device with this flange option

All other probe types

VF71	4	OPTIFLEX 1300 C Guided Radar (TDR) level transmitter for heavy-duty and interface applications		
		Approval		
		0	Without	
		1	WHG (overfill protection)	
		2	ATEX II 1 G Ex ia IIC T6 Ga + II 1 D Ex ia IIIC Da	
		3	ATEX II 1/2 G Ex ia/d IIC T6 Ga/Gb + II 1/2 D Ex ia tb IIIC Da/Db	
		4	ATEX II 1 G Ex ia IIC T6 Ga + II 1 D Ex ia IIIC Da + WHG	
		5	ATEX II 1/2 G Ex ia/d IIC T6 Ga/Gb + II 1/2 D Ex ia tb IIIC Da/Db + WHG	
		6	FM IS CL I/II/III DIV 1 GPS A-G + CL I zone 0 Ex ia IIC T6	
		7	FM XP-AIS/DIP/NI CL I/II/III Div 1 GPS A–G + CL I zone 1 / zone 2 Ex d[ia] / Ex nA[ia] IIC T6	
		A	ATEX II 3 G Ex nA IIC T6 Gc (Zone 2)	
		B	INMETRO Ex ia IIC T6 Ga + Ex ia IIIC Da	
		C	INMETRO Ex d[ia Ga] IIC T6 Ga/Gb + Ex tb[ia Da] IIIC Db	
		E	NEPSI Ex ia IIC T6 + DIP A21/A20 ①	
		F	NEPSI Ex d ia IIC T6 + DIP A21/A20 ①	
		H	CSA IS CL I/II/III DIV 1 GPS A–G + CL I zone 0 Ex ia IIC T6	
		K	CSA XP-AIS/DIP/NI CL I/II/III DIV 2 GPS A–G + CL I zone 1 / zone 2 Ex d / Ex nA IIC T6 ①	
		M	IECEx Ex ia IIC T6 Ga + Ex ia IIIC Da	
		N	IECEx Ex ia/d IIC T6 Ga/Gb + Ex ia tb IIIC Da/Db	
		R	KGS Ex ia IIC T6 + Ex iaD 20	
		S	KGS Ex d[ia] IIC T6 + Ex tD[iaD] A21/20	
			Material of Process Connection and Probe / Pressure	
			0	316L (1.4404) / 40 barg (580 psig)
			1	HASTELLOY® C-22® (2.4602) / 40 barg (580 psig) 2
			2	316L (1.4404) / 100 barg (1450 psig) 3
			3	HASTELLOY® C-22® (2.4602) / 100 barg (1450 psig) 2
VF71	4			Order code (complete this code on the pages that follow)

				Probe type			
				0	Single rod Ø8 mm (0.32¨) max. 4 m (13.12 ft)		
				1	Double rod Ø8 mm (0.32¨) max. 4 m (13.12 ft)		
				2	Coaxial Ø22 mm (0.87¨) max. 6 m (19.69 ft)		
				3	Single cable Ø4 mm (0.16¨) max. 35 m (114.83 ft)		
				4	Single cable Ø8 mm (0.32¨) max. 35 m (114.83 ft)		
				5	Double cable Ø4 mm (0.16¨) max. 8 m (26.25 ft)		
				7	Single cable Ø4 mm (0.16¨) FEP coating 1 mm (0.04¨) max. 35 m (114.83 ft)		
				8	Single rod Ø8 mm (0.32¨) + PVDF sheath max. 4 m (13.12 ft)		
				A	No probe – (single rod Ø8 mm (0.32¨) max. 4 m (13.12 ft))		
				B	No probe – (double rod Ø8 mm (0.32¨) max. 4 m (13.12 ft))		
				C	No probe – (single cable Ø4 mm (0.16¨) max. 35 m (114.83 ft))		
				D	No probe – (single cable Ø8 mm (0.32¨) max. 35 m (114.83 ft))		
				E	No probe – (double cable Ø4 mm (0.16¨) max. 8 m (26.25 ft))		
				H	Single cable Ø4 mm (0.16¨) for BM 26 ADVANCED		
				L	Single cable Ø4 mm (0.16¨) for BM 26 F		
				M	Single rod Ø8 mm (0.32¨) max. 6 m (19.69 ft) – segmented		
				S	Coaxial Ø22 mm (0.87¨) max. 6 m (19.69 ft) – segmented		
					Probe end type		
					0	Without (rod and coaxial probes)	
					1	Counterweight Ø12 mm × 100 mm (Ø0.47¨ × 3.94¨) (single cable Ø8 mm (0.32¨))	
					2	Counterweight Ø38 mm × 245 mm (Ø1.5¨ × 9.65¨) (single cable Ø8 mm (0.32¨))	
					3	Counterweight Ø20 mm × 100 mm (Ø0.79¨ × 3.94¨) (single cable Ø4 mm (0.16¨))	
					4	Counterweight Ø38 mm × 60 mm (Ø1.5¨ × 2.36¨) (double cable Ø4 mm (0.16¨))	
					A	Turnbuckle	
					B	Chuck	
					C	Threaded end	
					D	Crimped end	
					E	Open end	
					L	Centering counterweight for BM 26 F + BM 26 ADVANCED	
						Feedthrough / Temperature / Sealing	
						0	Standard / -40...+200°C (-40…+392°F) / FKM/FPM
						1	Standard / -20...+200°C (-4…+392°F) / Kalrez 6375
						4	Standard / -50…+150°C (-58…+302°F) / EPDM 4
VF71	4						Order code (complete this code on the pages that follow)

							Process connection EN	
							0	Without
							1	G ¾A ISO 228
							2	G 1A ISO 228
							3	G 1½A ISO 228
							4	DN25 PN40 Type B1 EN 1092-1
							5	DN40 PN40 Type B1 EN 1092-1 / BM 26 Advanced
							6	DN50 PN40 Type B1 EN 1092-1
							7	DN80 PN40 Type B1 EN 1092-1
							8	DN100 PN16 Type B1 EN 1092-1
							A	DN100 PN40 Type B1 EN 1092-1
							B	DN150 PN16 Type B1 EN 1092-1
							C	DN150 PN40 Type B1 EN 1092-1
							D	DN50 PN63 Type B1 EN 1092-1
							E	DN80 PN63 Type B1 EN 1092-1
							F	DN100 PN63 Type B1 EN 1092-1
							K	DN25 PN63/PN100 Type B1 EN 1092-1
							L	DN40 PN63/PN100 Type B1 EN 1092-1
							M	DN50 PN100 Type B1 EN 1092-1
							N	DN80 PN100 Type B1 EN 1092-1
							P	DN100 PN100 Type B1 EN 1092-1 5
							R	DN150 PN63 Type B1 EN 1092-1 5
							S	DN150 PN100 Type B1 EN 1092-1 5
							U	DN 200 PN 16 Type B1 EN 1092-1
							V	DN 200 PN 40 Type B1 EN 1092-1
VF71	4							Order code (complete this code on the pages that follow)

								Process connection ASME		
								0	Without	
								1	¾ NPT	
								2	1 NPT	
								3	1½ NPT	
								4	1¨ 150 lb RF ASME B16.5	
								5	1½¨ 150 lb RF ASME B16.5	
								6	1½¨ 300 lb RF ASME B16.5	
								7	2¨ 150 lb RF ASME B16.5	
								8	2¨ 300 lb RF ASME B16.5	
								A	3¨ 150 lb RF ASME B16.5	
								B	3¨ 300 lb RF ASME B16.5	
								C	4¨ 150 lb RF ASME B16.5	
								D	4¨ 300 lb RF ASME B16.5	
								E	6¨ 150 lb RF ASME B16.5	
								F	8¨ 150 lb RF ASME B16.5	
								G	6¨ 300 lb RF ASME B16.5 5	
								K	1¨ 300 lb RF ASME B16.5	
								L	2¨ 300 lb process connection / BM 26 F	
								M	1¨ 600 lb RF ASME B16.5	
								N	1½¨ 600 lb RF ASME B16.5	
								P	2¨ 600 lb RF ASME B16.5	
								R	3¨ 600 lb RF ASME B16.5	
								S	4¨ 600 lb RF ASME B16.5 5	
								T	1¨ 900/1500 lb RJ ASME B16.5	
								U	1½¨ 900/1500 lb RJ ASME B16.5	
								V	2¨ 900/1500 lb RJ ASME B16.5 5	
								W	3¨ 900 lb RF ASME B16.5 5	
								X	4¨ 900 lb RF ASME B16.5 5	
									Process connection other	
									0	Without
									3	RJ (ring joint)
									5	10K 40A RF JIS B2220
									6	10K 50A RF JIS B2220
									7	10K 80A RF JIS B2220
									8	10K 100A RF JIS B2220
									V	Type C (EN 1092-1) tongue
									W	Type D (EN 1092-1) groove
									X	Type E (EN 1092-1) spigot
									Y	Type F (EN 1092-1) recess
VF71	4									Order code (complete this code on the pages that follow)

										Output			
										0	1 output: 4…20 mA (HART®)		
										1	1 output: 4...20 mA (HART®) – INTERFACE		
										2	2 outputs: 4...20 mA (HART®) + 4...20 mA		
										3	2 outputs: 4...20 mA (HART®) + 4…20 mA – INTERFACE		
											Housing / Cable entry / Cable gland		
											0	Aluminium / M20 × 1.5 (nickel-plated brass adaptor) / without	
											1	Aluminium / ½ NPT (nickel-plated brass adaptor) / without	
											2	Aluminium / G ½ (nickel-plated brass adaptor) / without	
											3	Aluminium / M20 × 1.5 (nickel-plated brass adaptor) / plastic (non-Ex: black, Ex ia: blue)	
											4	Aluminium / M20 × 1.5 (nickel-plated brass adaptor) / metal (only for Ex d)	
											A	Stainless steel / M25 × 1.5 (stainless steel adaptor) / without	
											B	Stainless steel / ½ NPT (stainless steel adaptor) / without	
											D	Stainless steel / M25 × 1.5 (stainless steel adaptor) / plastic M20 (non-Ex: black, Ex ia: blue)	
											E	Stainless steel / M25 × 1.5 (stainless steel adaptor) / metal M20 (only for Ex d)	
												Housing option	
												0	Without
												2	Stainless steel weather protection
												3	Remote version with 50-ohm cable / 2 m (2180 mm) / 6.56 ft (85.83¨)
												4	Remote version with 50-ohm cable / 4.5 m (4720 mm) / 14.76 ft (185.83¨)
												5	Remote version with 50-ohm cable / 9.5 m (9800 mm) / 31.17 ft (385.83¨)
												6	Remote version with 50-ohm cable / 14.5 m (14880 mm) / 47.57 ft (585.83¨)
												A	Remote version with 50-ohm cable / 2 m (2180 mm) / 6.56 ft (85.83¨) + stainless steel weather protection
												B	Remote version with 50-ohm cable / 4.5 m (4720 mm) / 14.76 ft (185.83¨) + stainless steel weather protection
												C	Remote version with 50-ohm cable / 9.5 m (9800 mm) / 31.17 ft (385.83¨) + stainless steel weather protection
												D	Remote version with 50-ohm cable / 14.5 m (14880 mm) / 47.57 ft (585.83¨) + stainless steel weather protection
VF71	4												Order code (complete this code on the pages that follow)

												HMI (display and keys)							
												0	Without						
												1	English						
												2	German						
												3	French						
												4	Italian						
												5	Spanish						
												6	Portuguese						
												7	Japanese						
												8	Chinese (simplified)						
												A	Russian						
													Version						
													0	KROHNE (RAL 9006 / RAL 5005)					
													A	KMIC L (for liquid applications)					
														Special option					
														0	Without				
														1	ESD protection 30 kV				
														2	Metaglas® sealing				
															Other approval				
															0	Without			
															B	EAC Russia			
															C	EAC Belarus			
															K	EAC Kazakhstan			
																Calibration certificate			
																0	Without		
																1	Calibration certificate 2 factory-default points for an accuracy of ±3 mm / ±0.12¨ up to 10 m / 32.81 ft Ⓐ		
																2	Calibration certificate 5 factory-default points for an accuracy of ±3 mm / ±0.12¨ up to 10 m / 32.81 ft 7		
																	Construction		
																	0	Without	
																	3	NACE-Design (MR 0175 / MR 0103 / ISO 15156)	
																		Tag N°	
																		0	Without
																		2	Tag N° on stainless steel plate (18 characters max.)
VF71	4																		Order code

① DIP= Dust Ignition Proof

2 Not available for single cable Ø8 mm (0.32¨) and double cable Ø4 mm (0.32¨) probes

3 Not available for the single cable Ø8mm (0.32¨) probe

4 This option is not available for the single cable Ø8 mm (0.32¨) probe)

5 This flange option is applicable only to non-Ex devices

Ⓐ Minimum distance of first point: 400 mm / 15.75¨ (coaxial probe) or 500 mm / 19.69¨ (other probes)