OPTIFLEX 7200 C/F/S/D Technical Datasheet

Guided radar (TDR) level transmitter for liquids in storage and process applications

- Premium device for level and interface measurement in the chemical, oil and gas industries
- Extensive choice of probes for all applications with ±2 mm / 0.08¨ accuracy
- SIL 2/3-certified current and relay outputs

HART COMMUNICATION PROTOCOL   Ex   c(PS)us   SIL 2/3 Safety Integrity Level

KROHNE

2.1 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.

VFAA	4	4			OPTIFLEX 7200 C/F/S/D TDR Guided Radar l(TDR) level transmitter for liquids in storage and process applications up to 100 barg (1450 psig) and +250°C (+482°F)
					Regional directives or approvals
			1		Europe
			2		China
			3		USA
			4		Canada
			5		Brazil
			6		Australia
			A		Russia
			B		Kazakhstan
			C		Belarus
			W		Worldwide
					Ex approval ①
				0	Without
				1	ATEX II 1/2 G Ex ia IIC T6…T* Ga/Gb + II 1/2 D Ex ia IIIC T85°C…T*°C Da/Db 2
				2	ATEX II 1/2 G Ex ia/db IIC T6…T3 Ga/Gb + II 1/2 D Ex ia/tb IIIC T85°C…T*°C Da/Db 2
				3	ATEX II 3 G Ex ic IIC T6…T* Gc + II 3 D Ex ic IIIC T85°C…T*°C Dc 2
				4	ATEX II 3 G Ex ic nA T6…T* Gc 2
				5	NEPSI Ex ia IIC T*~T6 Ga/Gb + Ex iaD 20/21 T85~T** 2
				6	NEPSI Ex d ia IIC T*~T6 Ga/Gb + Ex iaD 20 tD A21 IP6X T85°C~T*°C 2
				A	cQPSus IS CL I/II/III DIV 1 GP A-G + CL I Z0 AEx ia/Ex ia IIC T6…T* Ga + Z20 AEx ia/Ex ia IIIC T85°C…T*°C Da 2
				B	cQPSus XP-IS/DIP-IS CL I DIV 1 GP A-G + CL I Z1 AEx db ia/Ex db ia IIC T6…T* Gb + Z21 AEx ia tb/Ex ia tb IIIC T85°C…T*°C Db 2
				C	cQPSus NI CL I/II/III DIV 2 GP ABCDFG
				K	IECEx Ex ia IIC T6…T* Ga/Gb + Ex ia IIIC T85°C…T*°C Da/Db 2
				L	IECEx Ex ia/db IIC T6…T* Ga/Gb + Ex ia/tb IIIC T85°C…T*°C Da/Db 2
				M	IECEx Ex ic IIC T6…T* Gc + Ex ic IIIC T85°C…T*°C Dc 2
				P	EAC Ex Ga/Gb Ex ia T6…T* X + Da/Db Ex ia IIIC T85°C...T*°C X (Pending) 2
				R	EAC Ex Ga/Gb Ex ia/db IIC T6...T* X + Da/Db Ex ia/tb IIIC T85°C…T*°C X (Pending) 2
					Industry / safety
				0	Without
				1	SIL2/3 – only available for the compact (C) and sensor extension with compact (S) versions
VFAA	4	0			Order code (complete this code on the pages that follow)

							Construction		
							0	Without	
							3	NACE MR0175 (ISO 15156), MR0103 (ISO 17945)	
							Converter version (Housing material / IP class)		
								2	C / Compact version (aluminium housing - IP66/IP68)
								3	C/ Compact version (stainless steel housing - IP66/IP68)
								7	F / Remote version (converter and sensor: aluminium housing - IP66/IP68) 3
								8	F / Remote version (converter and sensor: stainless steel housing - IP66/IP68) 3
								D	S / Sensor extension with compact version (aluminium housing - IP66/IP68) 4
								E	S / Sensor extension with compact version (stainless steel housing - IP66/IP68) 4
								H	D / Double sensor extension (aluminium housing - IP66/IP68) with remote version (aluminium housing - IP66/IP68) 5
								K	D / Double sensor extension (stainless steel housing - IP66/IP68) with remote version (stainless steel housing - IP66/IP68) 5
							Outputs		
								1	2-wire / 4...20 mA passive HART®
								2	2 × 2-wire / 4...20 mA passive HART® + 4...20 mA passive
								3	2-wire + 4-wire / 4...20 mA passive HART® + switch output - relay (48 V DC / 6 A; 24 V DC / 6 A)
							Cable entry / cable gland		
								1	M20×1.5 / without
								2	M20×1.5 / 1 × plastic + plug Ⓐ
								3	M20×1.5 / 1 × nickel-plated brass + plug 7
								4	M20×1.5 / 1 × stainless steel + plug 7
								6	M20×1.5 / 2 × plastic 8
								7	M20×1.5 / 2 × nickel-plated brass 9
								8	M20×1.5 / 2 × stainless steel 9
								C	½ NPT / without
								D	½ NPT / 1 × nickel-plated brass + plug 7
								E	½ NPT / 1 × stainless steel + plug 7
								F	½ NPT / 2 × nickel-plated brass 9
								G	½ NPT / 2 × stainless steel 9
							Display / Housing orientation		
								1	No Display / Vertical
								2	No Display / Horizontal
								4	Display / Vertical top
								5	Display / Vertical side
								6	Display / Horizontal side
VFAA	4	0							Order code (complete this code on the pages that follow)

										Display - Documentation language	
									1	English ①O	
									2	German	
									3	French	
									4	Italian	
									5	Spanish	
									6	Portuguese	
									7	Japanese	
									8	Chinese (simplified)	
									A	Russian	
									B	Czech	
									C	Turkish	
									D	Polish	
									Enhanced functions		
									0	Without	
									2	Dynamic Gas-phase Compensation (DGC)	
									Process seal / gaskets		
										0	Without
										1	-1...40 barg (-14.5…580 psig) / -40°C...+150°C (-40…+302°F) / Single PTFE process seal system with FKM/FPM gasket
										2	-1...40 barg (-14.5…580 psig) / -20°C...+150°C (-4…+302°F) / Single PTFE process seal system with Kalrez® 6375 gasket
										3	-1...40 barg (-14.5…580 psig) / -50°C...+150°C (-58…+302°F) / Single PTFE process seal system with EPDM gasket
										4	-1...40 barg (-14.5…580 psig) / -50°C...+150°C (-58…+302°F) / fully TFM-T62 PTFE-coated
										K	-1...100 barg (-14.5…1450 psig) / -40°C...+200°C (-40…+392°F) / Single ceramic process seal system with FKM/FPM gasket
										L	-1...100 barg (-14.5…1450 psig) / -20°C...+250°C (-4…+482°F) / Single ceramic process seal system with Kalrez® 7075 gasket
										M	-1...100 barg (-14.5…1450 psig) / -50°C...+150°C (-58…+302°F) / Single ceramic process seal system with EPDM gasket
VFAA	4	0									Order code (complete this code on the pages that follow)

												Probe / Probe end / Material
											0	Without
											1	Single rod Ø8 mm (0.32¨) / none / 316L - 1.4404 / 0.6...4 m (1.97. 13.12 ft)
											2	Single rod Ø8 mm (0.32¨) segmented / None / 316L - 1.4404 / 0.6...6 m (1.97. 19.69 ft)
											3	Single rod Ø8 mm (0.32¨) / none / HASTELLOY® C-22® / 0.6...4 m (1.97. 13.12 ft)
											4	Single rod Ø10 mm (0.39¨) / none / fully TFM-T62 PTFE-coated / 0.6...4 m (1.97. 13.12 ft)
											6	Single cable Ø4 mm (0.16¨) / counterweight 20×100mm / 316 - 1.4401 / 1.0…60 m (3.28 196.85 ft)
											7	Single cable Ø4 mm (0.16¨) / turnbuckle / 316 - 1.4401 / 1.0…60 m (3.28. 196.85 ft)
											8	Single cable Ø4 mm (0.16¨) / chuck / 316 - 1.4401 / 1.0…60 m (3.28. 196.85 ft)
											A	Single cable Ø4 mm (0.16¨) / threaded end / 316 - 1.4401 / 1.0…60 m (3.28. 196.85 ft)
											B	Single cable Ø4 mm (0.16¨) / crimped end / 316 - 1.4401 / 1.0…60 m (3.28. 196.85 ft)
											C	Single cable Ø4 mm (0.16¨) / open end / 316 - 1.4401 / 1.0…60 m (3.28. 196.85 ft)
											K	Coaxial Ø22 mm (0.87¨) / none / 316L - 1.4404 / 0.3...6 m (0.98…19.69 ft)
											L	Coaxial Ø22 mm (0.87¨) segmented / none / 316L - 1.4404 / 0.3...6 m (0.98…19.69 ft)
											N	Coaxial Ø22 mm (0.87¨) / none / HASTELLOY® C-22® / 0.3...6 m (0.98…19.69 ft)
											P	Coaxial Ø42 mm (1.65¨) / none / 316L - 1.4404 / 0.6...6 m (1.97…19.69 ft)
											R	Coaxial Ø42 mm (1.65¨) / none / HASTELLOY® C-22® / 0.6...6 m (1.97…19.69 ft)
											T	Double rod 2×Ø8 mm (0.32¨) / none / 316L - 1.4404 / 0.6...4 m (1.97…13.12 ft)
											U	Double cable 2×Ø4 mm (0.16¨) / counterweight 38×60mm / 316 - 1.4401 /1.0...14 m (3.28…45.93ft)
											V	Reversed interface Ø10 mm (0.39¨) / none / 316L - 1.4404 / 1.0...4 m (3.28…13.12 ft)
											W	Reversed interface Ø10 mm (0.39¨) / none / HASTELLOY® C-22® / 1.0...4 m (3.28…13.12 ft)
VFAA	4	0										Order code (complete this code on the pages that follow)

			Sensor extensions ("S" and "D" converter versions only)
	0		Without
	1		Sensor extension with 50-ohm cable / length: 2.0 m (6.56 ft)
	2		Sensor extension with 50-ohm cable / length: 5.0 m (16.40 ft)
	3		Sensor extension with 50-ohm cable / length: 10.0 m (32.81 ft)
	4		Sensor extension with 50-ohm cable / length: 15.0 m (49.21 ft)

			Process connection : Size / Pressure class / Sealing face
0	0	0	Without
			Threaded – ISO 228
D	P	0	G ¾ ①①
E	P	0	G 1 A ①①
G	P	0	G 1½ A ①2
			Threaded – ASME B1.20.1
D	A	0	¾ NPT ①①
E	A	0	1 NPT ①①
G	A	0	1½ NPT ①3
			EN 1092-1 flanges ①4
E	E	1	DN25 PN16 - Type B1 ①①
E	F	1	DN25 PN25 - Type B1 ①①
E	G	1	DN25 PN40 - Type B1 ①①
G	F	1	DN40 PN25 - Type B1 ①①
G	G	1	DN40 PN40 - Type B1 (for BM26 A) ①①
H	D	1	DN50 PN10 - Type B1 ①2
H	E	1	DN50 PN16 - Type B1 ①2
H	F	1	DN50 PN25 - Type B1 ①2
H	G	1	DN50 PN40 - Type B1 ①2
H	H	1	DN50 PN63 - Type B1 ①2
H	K	1	DN50 PN100 - Type B1 ①2
L	D	1	DN80 PN10 - Type B1
L	E	1	DN80 PN16 - Type B1
L	G	1	DN80 PN40 -Type B1
L	H	1	DN80 PN63 - Type B1
L	K	1	DN80 PN100 - Type B1
M	D	1	DN100 PN10 - Type B1
M	E	1	DN100 PN16 - Type B1
M	G	1	DN100 PN40 - Type B1
M	H	1	DN100 PN63 - Type B1
P	D	1	DN150 PN10 - Type B1
P	E	1	DN150 PN16 - Type B1
P	G	1	DN150 PN40 - Type B1

| VFAA | 4 | 0 | | Order code (complete this code on the pages that follow) |

													ASME B16.5 flanges ①5			
													E	1	A	1¨ 150 lb - RF ①2
													E	2	A	1¨ 300 lb - RF ①2
													E	3	A	1¨ 600 lb - RF ①2
													G	1	A	1½¨ 150 lb - RF ①2
													G	2	A	1½¨ 300 lb - RF ①2
													H	1	A	2¨ 150 lb - RF ①2
													H	2	A	2¨ 300 lb - RF ①2
													H	3	A	2¨ 600 lb - RF ①2
													L	1	A	3¨ 150 lb - RF
													L	2	A	3¨ 300 lb - RF
													L	3	A	3¨ 600 lb - RF
													M	1	A	4¨ 150 lb - RF
													M	2	A	4¨ 300 lb - RF
													P	1	A	6¨ 150 lb - RF
													P	2	A	6¨ 300 lb - RF
													R	1	A	8¨ 150 lb - RF
													JIS B2220 Flanges			
													G	U	P	40A JIS 10K RF ①①
													H	U	P	50A JIS 10K RF ①2
													L	U	P	80A JIS 10K RF
													M	U	P	100A JIS 10K RF
													P	U	P	150A JIS 10K RF
															Alternative flange faces	
															5	Type E, EN 1092-1 (Spigot)
															B	FF, ASME B16.5 (Flat face)
															Calibration certificate	
															0	Without (accuracy ±2 mm (0.08¨) up to 10 m (32.81 ft))
															1	Calibration certificate ±2 mm (0.08¨), 2 factory default points
															2	Calibration certificate ±2 mm (0.08¨), 5 factory default points
															3	Calibration certificate ±2 mm (0.08¨), 5 points specified by customer
															Options	
															0	Without
															1	With BM26 A
VFAA	4	0														Order code (complete this code on the pages that follow)

																Accessories / Tag plate	
																0	Without
																1	Weather protection
																2	Adaptor for OPTIFLEX 1300 C process connections (before June 2009)
																3	Stainless steel tag plate (18 characters max.)
																6	Weather protection + stainless steel tag plate (18 characters max.)
VFAA	4	0															Order code

① For more data, refer to the Technical data section (Approvals and certification)

② If the device has a ceramic process seal system and a Kalrez® gasket, then T*= T2. For all other versions in Gas Groups, T* = T3. If the device has a ceramic process seal system and a Kalrez® gasket, then T*°C = T250°C or T** = T250. If the device has a ceramic process seal system and an FPM/FKM gasket, then T*°C = T200°C or T** = T200. For all other versions in Dust Groups, T*°C = T150°C or T** = T150.

③ Length of the RS-485 cable between the remote converter and the probe electronics housing: 1...100 m / 3.28. 328.08 ft

④ Length of the 50-ohm cable between the probe electronics housing and the probe: refer to "Sensor extensions" in this table

⑤ Length of the RS-485 cable between the remote converter and the probe electronics housing: 1...100 m / 3.28. 328.08 ft. Length of the 50-ohm cable between the probe electronics housing and the probe: refer to "Sensor extensions" in this table.

⑥ This option is available if the device has one output. This option is not available for devices with an Ex d ia approval.

⑦ This option is available if the device has one output

⑧ This option is available if the device has two outputs. This option is not available for devices with an Ex d ia approval.

⑨ This option is available if the device has two outputs

⑩If no language is selected or the selected language is not available, the device is supplied with documentation in English

⑪Do not use with double rod, double cable, reversed interface and Ø42 mm / 1.65¨ coaxial probes

⑫Do not use with the reversed interface probe

⑬Do not use with the reversed interface and Ø42 mm / 1.65¨ coaxial probes

⑭Other flange faces are available. Refer to your local supplier for more data.

⑮Flanges with RF faces have a slip on-type design with an anti-blowout feature. Other flange faces are available. Refer to your local supplier for more data.