OPTIWAVE 5200 C/F

Technical Datasheet

Radar (FMCW) Level Transmitter for liquids in storage and process applications

- Modular design of housing and antenna ensures suitability for a variety of mounting positions and applications
- Universal measurement device for liquids, pastes and slurries
- SIL2-compliant according to IEC 61508 for safety-related systems

5.1 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.

VF50	4	OPTIWAVE 5200 C/F 10 GHz Radar (FMCW) Level Transmitter for liquids in storage and process applications			
		Converter version (Housing material – protection category)			
		1	OPTIWAVE 5200 C: Compact version (Aluminium – IP66/67)		
		2	OPTIWAVE 5200 C: Compact version (Stainless steel – IP66/67)		
		3	OPTIWAVE 5200 F: Remote version (converter & antenna housing: Aluminium – IP66/67)		
		4	OPTIWAVE 5200 F: Remote version (converter & antenna housing: Stainless steel – IP66/67)		
			Approval ①		
			0	Without	
			1	ATEX II 1/2 G Ex ia IIC T6 Ga/Gb + II 1/2 D Ex ia IIIC Da/Db	
			2	ATEX II 1/2 G Ex d ia IIC T6 Ga/Gb + II 1/2 D Ex ia tb IIIC Da/Db	
			4	ATEX II 3 G Ex ic IIC T6 Gc + II 3 D Ex ic IIIC Dc (Zone 2 & 22)	
			6	IECEx Ex ia IIC T6 Ga/Gb + Ex ia IIIC Da/Db	
			7	IECEx Ex d ia IIC T6 Ga/Gb + Ex ia tb IIIC Da/Db	
			8	IECEx Ex ic IIC T6 Gc + Ex ic IIIC Dc (Zone 2 & 22)	
			A	cFMus IS CL I/II/III DIV 1 GPS A-G + CL I zone 0/20 Ex ia IIC/IIIC T6	
			B	cFMus XP-AIS/DIP CL I/II/III DIV 1 GPS A-G (A not for Canada) + CL I zone 0/20 Ex d[ia]/tb[ia] IIC/IIIC T6 ②	
			C	cFMus NI CL I/II/III DIV 2 GPS A-G + CL I zone 2 Ex nA IIC T6	
			L	NEPSI Ex ia IIC T6 Ga/Gb + DIP A20/A21 ②	
			M	NEPSI Ex d ia IIC T6 Ga/Gb + DIP A20/A21 ②	
			R	INMETRO Ex ia IIC T6 Ga/Gb + Ex ia IIIC Da/Db	
			S	INMETRO Ex d ia IIC T6 Ga/Gb + Ex ia tb IIIC Da/Db	
			T	INMETRO Ex ic IIC T6 Gc + Ex ic IIIC Dc (Zone 2 & 22)	
				Other approval	
				0	Without
				1	SIL 2 – only available for the OPTIWAVE 5200 C (compact version) with a 4…20 mA output
				4	CRN (Canadian Registration Number)
				5	CRN + SIL 2 – only available for the OPTIWAVE 5200 C (compact version) with a 4…20 mA output
				A	WHG – must be supplied with a calibration certificate
				B	EAC Russia
				C	EAC Belarus
				D	EAC Russia + SIL 2 – only available for the OPTIWAVE 5200 C (compact version) with a 4…20 mA output
				E	EAC Belarus + SIL 2 – only available for the OPTIWAVE 5200 C (compact version) with a 4…20 mA output
				K	EAC Kazakhstan
				L	EAC Kazakhstan + SIL 2 – only available for the OPTIWAVE 5200 C (compact version) with a 4…20 mA output
VF50	4				Order code (complete this code on the pages that follow)

					Process seal – Temperature / Pressure / Material / Remarks (higher flange temperature and process pressure on request)		
					0	Without	
					1	-40...+150°C (-40…+302°F) / -1...40 barg (-14.5…580 psig) / FKM/FPM / Metaglas® for Metallic Horn and Wave Guide	
					5	-50...+130°C (-58…+266°F) / -1...40 barg (-14.5…580 psig) / EPDM / Metaglas® for Metallic Horn and Wave Guide	
					6	-20...+150°C (-4…+302°F) / -1...40 barg (-14.5…580 psig) / Kalrez® 6375 / Metaglas® for Metallic Horn and Wave Guide	
					A	-60...+130°C (-76…+266°F) / -1...40 barg (-14.5…580 psig) / PFA / Metaglas® for Metallic Horn and Wave Guide	
					D	-40...+200°C (-40…+392°F) / -1...40 barg (-14.5…580 psig) / FKM/FPM / Metaglas® for Metallic Horn and Wave Guide with distance piece	
					K	-20...+250°C (-4…+482°F) / -1...40 barg (-14.5…580 psig) / Kalrez® 6375 / Metaglas® for Metallic Horn and Wave Guide with distance piece	
					R	-20...+100°C (-4…+212°F) / -1...16 barg (-14.5…232 psig) / PP / for PP Wave Horn with G and NPT threaded connections	
					T	-50...+150°C (-58…+302°F) / -1...40 barg (-14.5…580 psig) / PTFE / for PTFE Wave Horn with Type B1 (EN 1092-1) or Raised Face (ASME B16.5) flange facing	
						Antenna	
						0	Without
						1	Metallic Horn (sheet metal) DN80 (3¨) L= 110 mm (4.33¨) / 316L ③
						2	Metallic Horn (sheet metal) DN100 (4¨) L= 148 mm (5.83¨) / 316L ③
						3	Metallic Horn (sheet metal) DN150 (6¨) L= 223 mm (8.78¨) / 316L
						4	Metallic Horn (sheet metal) DN 200 (8¨) L= 335 mm (13.19¨) / 316L
						5	Metallic Horn (machined) DN65 (2.5¨) L= 86 mm (3.38¨) for RC W5200 4
						G	Wave Horn Ø43 mm (1.69¨) L= 322 mm (12.68¨)/ PP
						H	Wave Horn Ø43 mm (1.69¨) L= 296 mm (11.65¨)/ PTFE
						L	Metallic Wave Guide Ø30 mm (1.18¨) ≤1 m (3.28 ft) / 316L
						M	Metallic Wave Guide Ø30 mm (1.18¨) ≤1.5 m (4.92 ft) / 316L
						N	Metallic Wave Guide Ø30 mm (1.18¨) ≤2 m (6.56 ft) / 316L
						P	Metallic Wave Guide Ø30 mm (1.2¨) ≤2.5 m (8.20 ft) / 316L
						R	Metallic Wave Guide Ø30 mm (1.18¨) ≤3 m (9.84 ft) / 316L
						S	Metallic Wave Guide Ø30 mm (1.18¨) ≤3.5 m (11.48 ft) / 316L
						T	Metallic Wave Guide Ø30 mm (1.18¨) ≤4 m (13.12 ft) / 316L
						U	Metallic Wave Guide Ø30 mm (1.18¨) ≤4.5 m (14.76 ft) / 316L
						V	Metallic Wave Guide Ø30 mm (1.18¨) ≤5 m (16.40 ft) / 316L
						W	Metallic Wave Guide Ø30 mm (1.18¨) ≤5.5 m (18.05 ft) / 316L
						X	Metallic Wave Guide Ø30 mm (1.18¨) ≤6 m (19.69 ft) / 316L
VF50	4						Order code (complete this code on the pages that follow)

							Antenna extension				
							0	Without			
							6	100 mm (3.94¨) L= 396 mm (15.59¨) / PTFE (for the PTFE Wave Horn antenna) ⑤			
							7	200 mm (7.87¨) L= 496 mm (19.53¨) / PTFE (for the PTFE Wave Horn antenna) ⑤			
							8	300 mm (11.81¨) L= 596 mm (23.47¨) / PTFE (for the PTFE Wave Horn antenna) ⑤			
							E	100 mm (3.94¨) / 316L (for the Metallic Horn antenna) ⑤			
							F	200 mm (7.87¨) / 316L (for the Metallic Horn antenna) ⑤			
							G	300 mm (11.81¨) / 316L (for the Metallic Horn antenna) ⑤			
							H	400 mm (15.75¨) / 316L (for the Metallic Horn antenna) ⑤			
							K	500 mm (19.69¨) / 316L (for the Metallic Horn antenna) ⑤			
							R	1000 mm (39.37¨) / 316L (for the Metallic Horn antenna) ⑤			
							W	S-bend extension / 316L ⑤			
							X	L-bend (right angle) extension / 316L ⑤			
								Process connection (size / pressure rating / flange face)			
								0	0	0	Without
								Threaded – ISO 228			
								G	P	0	G 1½ A – for the PP Wave Horn antenna Ⓐ
								H	P	0	G2 A – for the PP Wave Horn antenna
								Threaded – ASME B1.20.1			
								G	A	0	1½ NPT – for the PP Wave Horn antenna
								H	A	0	2 NPT – for the PP Wave Horn antenna
								EN / DIN flanges – EN 1092-1 7			
								H	E	1	DN50 PN16 – Type B1 ⑧
								H	G	1	DN50 PN40 – Type B1 ⑧
								L	E	1	DN80 PN16 – Type B1
								L	G	1	DN80 PN40 – Type B1
								M	E	1	DN100 PN16 – Type B1
								M	G	1	DN100 PN40 – Type B1
								P	E	1	DN150 PN16 – Type B1
								P	G	1	DN150 PN40 – Type B1
								R	E	1	DN200 PN16 – Type B1
								R	G	1	DN200 PN40 – Type B1
								ASME B16.5 / ANSI flanges 7			
								H	1	A	2¨ 150 lb RF ⑧
								H	2	A	2¨ 300 lb RF ®
								L	1	A	3¨ 150 lb RF
								L	2	A	3¨ 300 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
								R	2	A	8¨ 300 lb RF
VF50	4										Order code (complete this code on the pages that follow)

								JIS B2220 flanges							
								H	U	P	10K 50A RF ®				
								L	U	P	10K 80A RF				
								M	U	P	10K 100A RF				
								P	U	P	10K 150A RF				
								R	U	P	10K 200A RF				
										Alternative flange faces					
										2	Type B2, EN 1092-1 (surface roughness must be specified in the order)				
										3	Type C, EN 1092-1 (Tongue)				
										4	Type D, EN 1092-1 (Groove)				
										5	Type E, EN 1092-1 (Spigot)				
										6	Type F, EN 1092-1 (Recess)				
										B	FF, ASME B16.5 (Flat face)				
											Output				
											1	2-wire / 4...20 mA passive HART			
											A	2-wire / FOUNDATION™ fieldbus			
											B	2-wire / PROFIBUS PA			
												Cable entry / cable gland			
												1	M20×1.5 / Without		
												2	M20×1.5 / Plastic		
												3	M20×1.5 / Nickel-plated brass		
												4	M20×1.5 / Stainless steel		
												A	½ NPT (nickel-plated brass) / Without		
												B	½ NPT (stainless steel) / Without		
													Housing – Orientation / Display / Weather protection		
													1	Horizontal / Without / Without – for the compact version	
													2	Horizontal / Display on side / Without – for the compact version	
													3	Horizontal / Without / With – for the compact version	
													4	Horizontal / Display on side / With – for the compact version	
													A	Vertical / Without / Without	
													B	Vertical / Display on top / Without	
													C	Vertical / Display on side / Without (not available for Ex d ia and cFMus-approved devices)	
													D	Vertical / Without / With	
													E	Vertical / Display on top / With	
													F	Vertical / Display on side / With (not available for Ex d ia and cFMus-approved devices)	
VF50	4													Order code (complete this code on the pages that follow)	

													Display language									
													0	Without (if no display)								
													1	English								
													2	German								
													3	French								
													4	Italian								
													5	Spanish								
													6	Portuguese								
													7	Japanese								
													8	Chinese (simplified)								
													A	Russian								
														Version								
														0	Standard orders and orders for solid applications in China							
														6	Orders with FCC radio approval (FCC Part 15 and RSS-210)							
														A	Orders for liquid applications in China							
															0	Options for the remote version (OPTIWAVE 52000 F)						
																0	Without					
																6	Signal cable 10 m (32.81 ft) / grey (non-Ex) or blue (Ex)					
																7	Signal cable 25m (82.02 ft) / grey (non-Ex) or blue (Ex)					
																8	Signal cable 50m (164.04 ft) / grey (non-Ex) or blue (Ex					
																A	Signal cable 75m (246.06 ft) / grey (non-Ex) or blue (Ex)					
																B	Signal cable 100m (328.08 ft) / grey (non-Ex) or blue (Ex)					
																		Adaptor for BM 70 A, BM 700 and BM 702 A process connections				
																		0	Without			
																		1	For BM70x process connection			
																			Calibration certificate			
																			0	Without		
																			1	Calibration certificate ±5 mm 2 factory default points for accuracy of ±5 mm (0.2¨)		
																				TAG Number		
																				0	Without	
																				2	Tag No. stainless steel plate (18 characters max.)	
VF50	4																					Order code (complete this code on the pages that follow)

																			Other constructions	
																			0	Without
																			1	NACE design (MR0175 / MR0103 / ISO 15156)
																			3	Heating / Cooling ①O
																			5	Purging with liquid ①O
																			6	Purging with liquid + Heating / Cooling ①O
																			A	Purging with gas ①O
																			B	Purging with gas + Heating / Cooling ①O
VF50	4														0					Order code

① For more data, refer to the Technical data section (Approvals and certification)
2 DIP= Dust Ignition Proof
③ Only for a standpipe (bypass chamber or stilling well)
4 The device is installed on top of a BM 26 A. The device must have a 2¨ 300 lb RF (ASME B16.5) flange without an antenna extension. Refer to the BM 26 A technical data sheet to make a selection of options for the measuring chamber.
⑤ For device dimensions, refer to the "Dimensions and weights" section
Ⓐ Refer to the accessory list to attach a low-pressure stainless steel flanges to the threaded connection
7 Other flange faces are available. Refer to your local supplier for more data. Flanges with the PTFE Wave Horn antenna option have a slip on-type design with an anti-blowout feature.
⑧ Minimum flange size for the PTFE Wave Horn antenna. This is not available for the Metallic Horn antenna.
® Minimum flange size for the PTFE Wave Horn antenna. This flange is also available with the DN65 Metallic Horn antenna for the RC W5200 reference chamber.