VF05 TDR
LEVEL GAUGE

HYCONTROL

WHY USE TDR FOR LEVEL MEASUREMENT?

UNAFFECTED BY CHANGES IN

- Dielectric
- Pressure
- Vacuum
- Humidity
- Dust
- Viscosity
- Temperature
- Foam

Vf05 TDR'S KEY FEATURES INCLUDE

- Measuring range of up to 30 m (100 ft) with a wide selection of probe types
- Versatile technology for liquids, slurries, pastes and powders
- Measures level, distance or volume
- Two-wire loop powered 24 V DC
- Compact, durable design suitable for tough industrial environments
- Convenient, portable plug-in display and programming unit
- HART Protocol for ease of system compatibility
- ATEX hazardous area options available
- Suitable for narrow tanks or side-mounted bypass chambers
- Simple to install and retrofit with a wide selection of process connections
- Coated cables suitable for corrosive and acidic atmospheres
- High-temperature options available
- Remote or local programming and configuration for maximum ease of use

APPLICATIONS IN MOST INDUSTRIES

- Petrochemical
- Food
- Water & Waste
- Cement
- Asphalt
- Power Generation
- Metals
- Chemicals
- Process
- Quarrying
- Animal Feed
- Milling

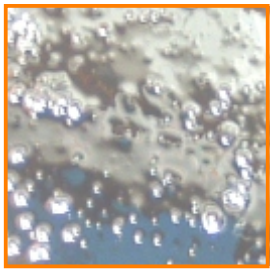
EFFECTIVE REPLACEMENT FOR

- Capacitance transmitters
- Differential pressure transmitters
- Displacers
- Hydrostatic transmitters
- Ultrasonics
- Radar transmitters
- Float transmitters
- Capacitance transmitters

MANUFACTURED TO ISO9001 Q.M.S.

The standard of all Hycontrol products is strictly monitored to conform to all ISO quality requirements.

This ensures we meet the needs of customers as well as statutory and regulatory requirements.



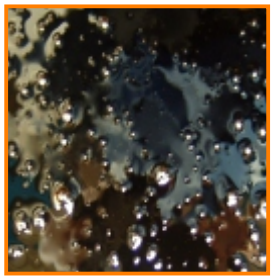
Acids

Grains

Plastics

Flakes

Powders



Oils

VF05 SERIES TDR

Hycontrol's VF05 guided wave radar transmitter offers users a practical solution for measuring liquids, pastes, slurries and powdered products. The robust, compact design and removable programmable display make it an ideal choice for various industrial-level control applications.

The VF05 utilises the **Time Domain Reflectometry (TDR)** measuring principle to determine distance, level or volume accurately. During operation, the probe transmits micro-pulses along a cable or a rod at close to the speed of light. When these pulses hit the surface of the medium, it reflects them to the electronic module. As both level and distance are directly proportional to the flight time, this makes TDR a highly accurate measurement principle.

With ATEX options and HART connectivity, the Hycontrol VF05 offers an ideal solution for various level requirements.

- Aluminium or Stainless Steel housing
- Measuring range up to 30 m (98 ft)
- Accuracy of +/- 5 mm
- Rod, cable and coaxial probes
- Removable, plug-in programmable display
- ATEX options for hazardous areas
- 4~20 mA & HART output
- Maximum temp. 200°C
- Maximum pressure 40 bar
- Variety of process connections
- Simple programming
- 2-wire loop powered

PROGRAMMING THE VF05

A core feature of the VF05 TDR unit is the option to use the **VGF-DISPLAY removable programming and display unit** (*illustrated below*). The unit connects to the top of the TDR unit, allowing programming via touch buttons and the LCD screen. A simple menu system allows for fast programming and simple commissioning. In addition, the portable nature of the VGF-DISPLAY unit provides a cost-saving for users purchasing and installing multiple probes. With only one display unit, the user can programme any number of installed VF05 units, with output information being fed back to the site PLC or a panel via the 4-20 mA or HART outputs. Alternatively, operators can use a HART programmer or HYVIEW PC software for remote computer control, downloaded free from **hycontrol.com**.

The default display shows the primary measured value, from which the output current is calculated. Besides the numerical display, there is a bar graph on the right representing the current output value. Programming is conducted via a text-based menu, navigated with the unit's four buttons.

		With aluminium housing VF05□–7□□□–4, 5, 6, 8	With stainless steel housing VF05□–9□□□–4, 5, 6, 8
Input data	Measured values	Distance between the reference point and the plane of the reflection (surface of the material); derived values: level, volume or weight	
	Measuring range	Depends on the probe and the measured medium	
Probe types and technical data		Coaxial rod, dual cable, cable, dual rod, and rod probes (for technical data refer to the Technical Data of Probes table)	
Housing		Cast aluminium with epoxy finish	Stainless steel
Process temperature		–30…+200 °C (–22…+392 °F) (for technical data refer to – **MEDIUM TEMPERATURE** table – Page 7)	
Process pressure		–1…40 bar (–0.1…4 MPa [–14…580 psig]) (for technical data refer to – **MEDIUM PRESSURE DIAGRAM** – Page 7)	
Ambient temperature		–30…+65 °C (–22…+149 °F), with display: –20…+65 °C (–4…+149 °F)	
Seal		Standard temperature: FPM (Viton®) Optional EPDM (150°C) or FFKM (275°C)	
Ingress protection		IP67	
Supply voltage		13V …36V DC, nominal 24V DC, Ex version: 13v(1)…30V DC, transient overvoltage protection	
Output data	Output signal	Analog: 4…20 mA; (3.9…20.5 mA) passive output; error signal 3.8 or 22 mA	
		BUS: serial, HART® interface, termination resistor maximum 750 Ω	
		Display (optional): VGF-DISPLAY LCD dot-matrix	
		Relay (optional): SPDT 30V / 1A DC; 48V / 0.5A AC	
	Accuracy (1)	Liquids: ±5 mm (±0.2"). If probe length is ≥ 10 m (L ≥ 33 ft); ±0.05% of probe length	
		Solids: ±20 mm (±0.8"). If probe length is ≥ 10 m (L ≥ 33 ft); ±0.2% of probe length	
Wiring		2× M20×1.5 cable glands, cable outer diameter: Ø6…Ø12 mm (Ø0.23…Ø0.47") (metal for Ex version, otherwise plastic) + 2× internally threaded ½" NPT connection for protective pipes, wire cross-section: 0.5…1.5 mm2 (20 AWG…15 AWG) (shielded cable recommended)	
Electrical protection		Class III	
Weight (housing)		2.2kg (4.9 lbs)	3.9kg (8.6 lbs)

(1) - With ideal reflective surfaces and constant temperatures.

EX CERTIFICATION INFORMATION

ATEX Intrinsically safe protection (Ex ia)

	VARIANT WITH METAL HOUSING AND VGF DISPLAY	VARIANT WITH METAL HOUSING WITHOUT VGF DISPLAY	VARIANT WITH METAL HOUSING
NORMAL TEMPERATURE TYPES	VF05B□-□□□□-8 Ex	VF05T□-□□□□-8 Ex	VF05B/T□-□□□□-6 Ex
Ex marking (ATEX)	**Ⓔx II 1G Ex ia IIB T6…T4 Ga**	**Ⓔx II 1G Ex ia IIC T6…T4 Ga**	**Ⓔx II 1D Ex ia IIIC T85°C…T110°C Da**
HIGH-TEMPERATURE TYPES	VF05P□-□□□□-8 Ex	VF05H□-□□□□-8 Ex	VF05H/P□-□□□□-6 Ex
Ex marking (ATEX)	**Ⓔx II 1G Ex ia IIB T6…T3 Ga**	**Ⓔx II 1G Ex ia IIC T6…T3 Ga**	**Ⓔx II 1D Ex ia IIIC T85°C…T180°C Da**
Ex power supply data	Ui = 30 V, Ii = 140 mA, Pi = 1 W Ci ≤ 25 nF, Li ≤ 300 mH	Ui = 30 V, Ii = 100 mA, Pi = 0.75 W Ci ≤ 25 nF, Li ≤ 300 mH	Ui = 30 V, Ii = 140 mA, Pi = 1 W Ci ≤ 25 nF, Li ≤ 300 mH
Supply voltage range	12…30V DC		
Temperature limits	See following Ex ia tables		

Temperature limit data for ATEX (Ex ia) approved models

For standard temperature Ex ia transmitters

Temperature data	Hazardous gas atmospheres VF05T/B□–7□□□–8 Ex VF05T/B□–9□□□–8 Ex			Explosive dust atmospheres VF05T/B□–7□□□–6 Ex VF05T/B□–9□□□–6 Ex		
	Ex ia IIC, Ex ia IIB			Ex ia IIIC		
Maximum process temperature	+80 °C (+176 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+80 °C (+176 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)
Maximum surface temperature at the process connection	+70 °C (+158 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+75 °C (+167 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)
Maximum ambient temperature	+65 °C (149 °F)			+65 °C (149 °F)		
Temperature class	**T6**	**T5**	**T4**	**T85°C**	**T100°C**	**T110°C**

For high - temperature Ex ia transmitters

Temperature data	Hazardous gas atmospheres VF05H/P ☐–7☐☐☐–8 Ex VF05H/P ☐–9☐☐☐–8 Ex				Explosive dust atmospheres VF05H/P ☐–7☐☐☐–6 Ex VF05H/P ☐–9☐☐☐–6 Ex			
	Ex ia IIC, Ex ia IIB				Ex ia IIIC			
Maximum process temperature	+80 °C (+176 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+180 °C (356 °F)	+80 °C (+176 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+180 °C (356 °F)
Maximum surface temperature at the process connection	+70 °C (+158 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+175 °C (347 °F)	+75 °C (+167 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+175 °C (347 °F)
Maximum ambient temperature	+65 °C (149 °F)				+65 °C (149 °F)			
Temperature class	**T6**	**T5**	**T4**	**T3**	**T85°C**	**T100°C**	**T110°C**	**T180°C**

ATEX explosive dust protection (Ex t)

	Metal housing		High-temperature version with metal housing VF05 H/P ☐–7☐☐☐–5 Ex VF05 H/P ☐–9☐☐☐–5 Ex
	VF05T/B☐–7☐☐☐–9 Ex VF05T/B☐–9☐☐☐–9 Ex	VF05T/B☐–7☐☐☐–5 Ex VF05T/B☐–9☐☐☐–5 Ex	
Ex marking (ATEX)	⟨Ex⟩ II 1 D Ex ta IIIC T105°C Da	⟨Ex⟩ II 1/2 D Ex ta/tb IIIC T85°C…T110°C Da/Db	⟨Ex⟩ II 1/2 D Ex ta/tb IIIC T85°C…T180°C Da/Db
Waiting time for opening the cover	0 min	30 min	30 min
Ex power supply*	Ui = 30 V DC Ii = 1 A		
Supply voltage	12…30 V DC		
Temperature limit data	See following tables		
Cable entry	M20x1.5 cable glands with “Ex ta” protection		
Cable outer diameter	Ø6…Ø12 mm (Ø0.23…Ø0.47")		

** Maximum supply voltage and current to the product while maintaining Ex protection.*

Temperature limit data for ATEX (Ex t) approved models

For standard temperature Ex t transmitters

Temperature data	Explosive dust atmospheres			
	VF05T/ B ☐ – 7 ☐ ☐ ☐ – 9 Ex VF05T/ B ☐ – 9 ☐ ☐ ☐ – 9 Ex	VF05T/ B ☐ – 7 ☐ ☐ ☐ – 5 Ex VF05T/ B ☐ – 9 ☐ ☐ ☐ – 5 Ex		
	Ex ta IIIC	Ex ta/tb IIIC		
Maximum process temperature	+65 °C (149 °F)	+80 °C (+176 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)
Maximum surface temperature at the process connection	+65 °C (149 °F)	+75 °C (+167 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)
Maximum ambient temperature	+65 °C (149 °F)	+65 °C (149 °F)		
Temperature class	**T105°C**	**T85°C**	**T100°C**	**T110°C**

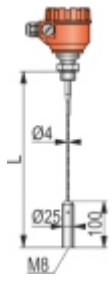
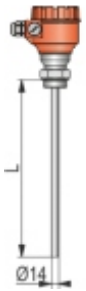
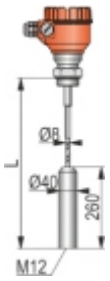
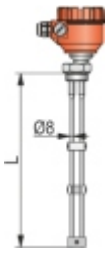
For high-temperature Ex t transmitters

Temperature data	Explosive dust atmospheres VF05H / P ☐ – 7☐ ☐ ☐ – 5 Ex VF05H / P ☐ – 9 ☐ ☐ ☐ – 5 Ex			
	Ex ta/tb IIIC			
Maximum process temperature	+80 °C (+176 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+180 °C (356 °F)
Maximum surface temperature at the process connection	+75 °C (+167 °F)	+90 °C (+194 °F)	+100 °C (+212 °F)	+175 °C (347 °F)
Maximum ambient temperature	+65 °C (149 °F)			
Temperature class	**T85°C**	**T100°C**	**T110°C**	**T180°C**

TECHNICAL DATA - PROBES

Type	VF05□K–□□□□–□ VF05□L–□□□□–□ VF05□V–□□□□–□ VF05□W–□□□□–□	VF05□R–□□□□–□ VF05□P–□□□□–□	VF05□S–□□□□–□ VF05□Z–□□□□–□	VF05□N–□□□□–□ VF05□J–□□□□–□	VF05□T–□□□□–□ VF05□U–□□□□–□	VF05□D–□□□□–□ VF05□E–□□□□–□	VF05□A–□□□□–□ VF05□B–□□□□–□ VF05□C–□□□□–□ VF05□H–□□□□–□
Version	4 mm cable (0.15")	Rod		8 mm cable (0.3")	4mm dual cable (0.15")	Dual rod	Coaxial rod
Maximum measuring range	30 m (100 ft)	3 m (10 ft)	6 m (20 ft)	30 m (100 ft)		3 m (10 ft)	6 m (20 ft)
Minimum measuring range ε_r = 80 / 2.4	0.25 m / 0.35 m (0.82 ft / 1.15 ft)				0.15 m / 0.3 m (0.5 ft / 1 ft)		0 m (0 ft)
Min. distance to objects	Æ600 mm (Ø2 ft)				Æ200 mm (Ø 0.65 ft)		Æ0 mm (0 ft)
Minimum ε_r of medium	2.1				1.8		1.4
Process connection	1" BSPP (G1) 1" NPT	1" BSPP (G1)	1½" BSPP (G1½)				1" BSPP (G1) 1" NPT
	1½" BSPP (G1½) 1½" NPT	1" NPT	1½" NPT				1½" BSPP (G1½) 1½" NPT
Material of probe	316 (1.4401)	316Ti (1.4571)		316 (1.4401)		316Ti (1.4571)	
Nominal diameter of probe	4 mm (0.15")	8 mm (0.3")	14 mm (0.55")	8 mm (0.3")	4 mm (0.15")	8 mm (0.3")	28 mm (1.1")
Weight	0.12 kg/m (0.08 lb/ft)	0.4 kg/m (0.25 lb/ft)	1.2 kg/m (0.8 lb/ft)	0.4 kg/m (0.25 lb/ft)	0.24 kg/m (0.16 lb/ft)	0.8 kg/m (0.5 lb/ft)	1.3 kg/m (0.85 lb/ft)
Separator material	–				PFA, welded onto cable	PTFE-GF25 if length is >1.5 m (5 ft)	PTFE, if length is >1.5 m (5 ft)
Tensioning weight dimensions	Ø25 x 100 mm (Ø1 x 4")	–		Ø40 x 260 mm (Ø1.5 x 10")	Ø40 x 80 mm (Ø1.5 x 3")	–	
Material of tensioning weight	316Ti (1.4571)	–		316Ti (1.4571)	316Ti (1.4571)	–	

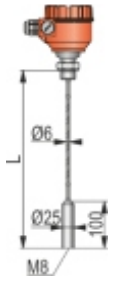
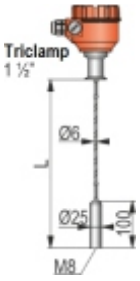
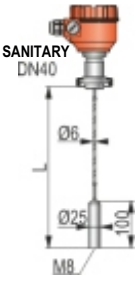
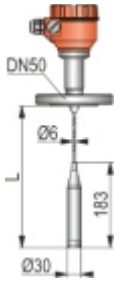
DIMENSIONS

VF05TK–□□□□–□ VF05TL–□□□□–□ VF05TV–□□□□–□ VF05TW–□□□□–□	VF05TR–□□□□–□ VF05TP–□□□□–□	VF05TS–□□□□–□ VF05TZ–□□□□–□	VF05TN–□□□□–□ VF05TJ–□□□□–□	VF05TT–□□□□–□ VF05TU–□□□□–□	VF05TD–□□□□–□ VF05TE–□□□□–□	VF05TA–□□□□–□ VF05TB–□□□□–□ VF05TC–□□□□–□ VF05TH–□□□□–□
						

Coated Probe Properties

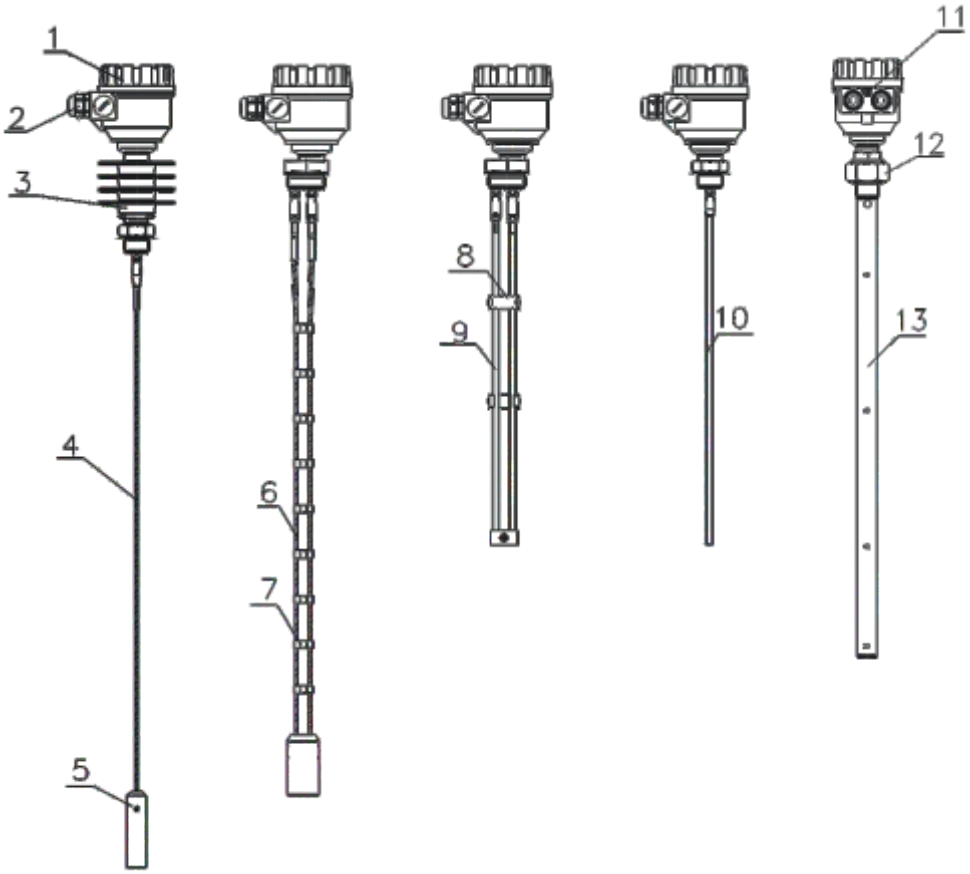
Type	VF05□F–□□□□–□ VF05□G–□□□□–□	VF05□X–□□□□–□	VF05□Y–□□□□–□	VF05□M–□□□□–□	VF05□Q–□□□□–□	VF05□O–□□□□–□	VF05□I-□□□□-□
Version	Ø4 mm (0.15") FEP-coated cable			Ø4 mm (0.15") fully FEP / PFA-coated cable	Fully PFA-coated rod		Fully PP-coated rod
Maximum measuring range	30 m (100 ft)				3 m (10 ft)		
Minimum measuring range ε_r = 80 / 2,4	0.25 m / 0.35 m (0.82 ft / 1.15ft)						
Free space requirement	Æ600 mm (Ø2 ft)						
Minimum ε_r of medium	2.1						
Process connection	1" BSPP (G1) / 1" NPT	1½" Triclamp	DN 40 Sanitary	DN 50		1½" TriClamp	DN 50
Material of probe	316 (1.4401) / FEP				316Ti (1.4571) / PFA		316Ti (1.4571) / PP
Nominal diameter of probe	6 mm (0.23")				12 mm (0.5")		16 mm (0.62")
Mass	0.16 kg/m (0.1 lb/ft)				0.5 kg/m (0.33 lb/ft)		0.6 kg/m (0.4 lb/ft)
Coating of fillet and tension weight	–			PFA			PP
Tensioning weight dimensions	Ø25 x 100 mm (Ø1 x 4")				–		
Material of tensioning weight	316Ti (1.4571)				–		
Maximum medium temperature	+200 °C (+392 °F)			+150 °C (+302 °F)			+60 °C (+140 °F)

DIMENSIONS

VF05TF–□□□□–□ VF05TG–□□□□–□	VF05TX–□□□□–□	VF05TY–□□□□–□	VF05TM–□□□□–□	VF05TQ–□□□□–□	VF05TI–□□□□–□
					

SELECTING THE RIGHT PROBE

Probe Type	Maximum Measuring Range	Dead Zone (unmeasurable area) Upper (T)/Lower (B)		Process Connection	ε_R Minimum
		$\varepsilon_R = 80$	$\varepsilon_R = 2.4$		
Mono cable Ø4 mm (0.15")	30 m (1181")	250 mm / 20 mm (9.84" / 0.75")	350 mm / 100 mm (13.8" / 4")	1", 1½"	2.1
Mono cable Ø8 mm (0.3")				1½"	
Mono rod Ø8 mm (0.3")	3 m (118")			1"	
Mono/segmented rod Ø14 mm (0.55")	6 m (236")			1½"	
Twin cable Ø4 mm (0.15")	30 m (1181")	150 mm / 20 mm (6" / 0.75")	300 mm / 100 mm (12" / 4")		1.8
Twin rod Ø8 mm (0.3")	3 m (118")				
Coaxial pipe Ø28 mm (1.1")	6 m (236")	0 / 10 mm (0 / 0.4")	0 / 100 mm (0 / 4")	1", 1½"	1.4
Coated cable Ø6 mm (0.23")	30 m (1181")	250 mm / 20 mm (9.84" / 0.75")	350 mm / 100 mm (13.8" / 4")	1", 1½" TriClamp, DN40 Sanitary, DN50	2.4
Coated rod Ø12 mm / 16 mm (0.45" / 0.65")	3 m (118")			DN50	



1	Housing
2	Cable gland
3	High temp. connection
4	Mono cable probe
5	Weight
6	Twin cable probe
7	Twin cable separator
8	Twin rod separator
9	Twin rod probe
10	Mono rod probe
11	Grounding screw
12	Process connection
13	Coaxial probe

ORDER CODES

VF05 - WITH CABLE PROBE

VF05 ☐ ☐-☐ ☐ ☐ ☐ - ☐ **Ex*** **2-wire guided microwave level transmitter**

Version / Temperature	Code
Transmitter (1)	T
High-temperature transmitter (2)	H
Transmitter + display (1)	B
High-temperature transmitter + display (2)	P

Probe / Process connection		Code
Mono cable, Æ4 mm, 316	1" BSPP (G1)	K
	1" NPT	L
	1½" BSPP (G1½)	V
	1½" NPT	W
	1½" TriClamp	1
	2" TriClamp	2
Mono cable, Æ8 mm, 316	1½" BSPP (G1½)	N
	1½" NPT	J
Twin cable, 2x Æ4 mm, 316	1½" BSPP (G1½)	T
	1½" NPT	U
Mono cable, Ø4 mm, FEP-coated (3)	1" BSPP (G1)	F
	1" NPT	G
	TriClamp 1½"	X
	Sanitary DN40	Y
Mono cable, Ø4 mm, + PFA/FEP fully coated / DN50, PN25, 316Ti + PFA/FEP lining		M

Housing	Code
Aluminium	7
Stainless steel	9

Probe length (4) (x 10m)	Code
0 m	0
10 m	1
20 m	2
30 m	3

Probe length (4) (x 1m)	Code
0 m	0
1 m	1
2 m	2
3 m	3
4 m	4
5 m	5
6 m	6
7 m	7
8 m	8
9 m	9

Probe length (4) (x 0.1m)	Code
0 m	0
0.1 m	1
0.2 m	2
0.3 m	3
0.4 m	4
0.5 m	5
0.6 m	6
0.7 m	7
0.8 m	8
0.9 m	9

Output	Code
4...20 mA + HART®	4
4...20 mA + HART® / Ex ta/tb IIIC (ATEX)	5
4...20 mA + HART® / Ex ia IIIC (ATEX)	6
4...20 mA + HART® / Ex ia IIC/IIB (ATEX)	8
4...20 mA + HART® / Ex ta IIIC (ATEX)	9
4...20 mA + HART® + Relay	H

** Ex versions are marked "Ex" right after the type designation on the label.*
(1) Flange temperature max. +90 °C (+194 °F)
(2) Flange temp. max. +200 °C (+392 °F) ("M" type only up to +150 °C [+302 °F])
(3) Only the cable probe is coated
(4) Max. cable length is 30 m (100 ft)

ATEX Note Devices with a display must NOT be operated in an "Ex ia IIC" environm
Devices with Plastic coated probes must be operated in an "Ex ia IIC" environmen
Refer to pages 4 & 5 for ATEX temperature limits

Standard seal material is FPM (Viton) up to 200°C

Special seals (5)
EPDM up to 150°C
FFKM Perfluoroelastomer (Kalrez® 6375) up to 275°C

(5) The above special seals are ordered separately and must be specified in the text part of the order.

VF05 - WITH ROD PROBE

VF05 ☐ ☐-☐ ☐ ☐ ☐ - ☐ **Ex*** **2-wire guided microwave level transmitter**

Version / Temperature	Code
Transmitter (1)	T
High-temperature transmitter (2)	H
Transmitter + display (1)	B
High-temperature transmitter + display (2)	P

Probe / Process connection		Code
Mono rod, Ø8 mm, 316Ti	1" BSPP (G1)	R
	1" NPT	P
	1½" TriClamp	3
Twin rod, 316Ti	1½" BSPP (G1½)	D
	1½" NPT	E
Mono rod PFA-coated	1½" TriClamp PFA-coated	O
	DN50, PN25, 316Ti flange, PFA-coated	Q
Mono rod + PP-coated / DN50, PN25, 316Ti + PP lining (3)		I

Housing	Code
Aluminium	7
Stainless steel	9

Probe length (4) (x 10m)	Code
0 m	0

Probe length (4) (x 1m)	Code
0 m	0
1 m	1
2 m	2
3 m	3

Probe length (4) (x 0.1m)	Code
0 m	0
0.1 m	1
0.2 m	2
0.3 m	3
0.4 m	4
0.5 m	5
0.6 m	6
0.7 m	7
0.8 m	8
0.9 m	9

Output	Code
4...20 mA + HART®	4
4...20 mA + HART® / Ex ta/tb IIIC (ATEX)	5
4...20 mA + HART® / Ex ia IIIC (ATEX)	6
4...20 mA + HART® / Ex ia IIC/IIB (ATEX)	8
4...20 mA + HART® / Ex ta IIIC (ATEX)	9
4...20 mA + HART® + Relay	H

** Ex versions are marked "Ex" right after the type designation on the label.*
(1) Flange temperature max. +90 °C (+194 °F)
(2) Flange temp. max. +200 °C (+392 °F) (up to +150°C [+302 °F] with plastic-coated probes)
(3) High-temperature version not available
(4) Max. probe length is 3 m (10 ft)

ATEX Note Devices with a display must NOT be operated in an "Ex ia IIC" environ
Devices with Plastic coated probes must be operated in an "Ex ia IIC" environmen
Refer to pages 4 & 5 for ATEX temperature limits

Standard seal material is FPM (Viton) up to 200°C

Special seals (5)
EPDM up to 150°C
FFKM Perfluoroelastomer (Kalrez® 6375) up to 275°C

(5) The above special seals are ordered separately and must be specified in the text part of the order.

ORDER CODES

VF05 – WITH ROD PROBE OR COAXIAL ROD PROBE

VF05 ☐ ☐-☐ ☐ ☐ ☐-☐ Ex* 2-wire guided microwave level transmitter

Version / Temperature	Code
Transmitter (1)	T
High-temperature transmitter (2)	H
Transmitter + display (1)	B
High-temperature transmitter + display (2)	P

Probe / Process connection		Code
Mono rod (3), Æ14 mm, 316Ti	1½" BSPP (G1½)	S
	1½" NPT	Z
	2" TriClamp	4
Coaxial (3), 316Ti	1" BSPP (G1)	A
	1" NPT	B
	1½" BSPP (G1½)	C
	1½" NPT	H
	1½" TriClamp	5
	2" TriClamp	6

Housing	Code
Aluminium	7
Stainless steel	9

Probe length (4) (x 10m)	Code
0 m	0

Probe length (4) (x 1m)	Code
0 m	0
1 m	1
2 m	2
3 m	3
4 m	4
5 m	5
6 m	6

Probe length (4) (x 0.1m)	Code
0 m	0
0.1 m	1
0.2 m	2
0.3 m	3
0.4 m	4
0.5 m	5
0.6 m	6
0.7 m	7
0.8 m	8
0.9 m	9

Output	Code
4...20 mA + HART®	4
4...20 mA + HART® / Ex ta/tb IIIC (ATEX)	5
4...20 mA + HART® / Ex ia IIIC (ATEX)	6
4...20 mA + HART® / Ex ia IIC/IIB (ATEX)	8
4...20 mA + HART® / Ex ta IIIC (ATEX)	9
4...20 mA + HART® + Relay	H

** Ex versions are marked "Ex" right after the type designation on the label.*
(1) Flange temperature max. +90 °C (+194 °F)
(2) Flange temp. max. +200 °C (+392 °F)
(3) Can be ordered with segmented probe which must be specified in the text of the order. The length of the probe section is 1 m.
(4) Max. probe length is 6 m (20 ft)

Standard seal material is FPM (Viton) up to 200°C

Special seals (5)
EPDM up to 150°C
FFKM Perfluoroelastomer (Kalrez® 6375) up to 275°C

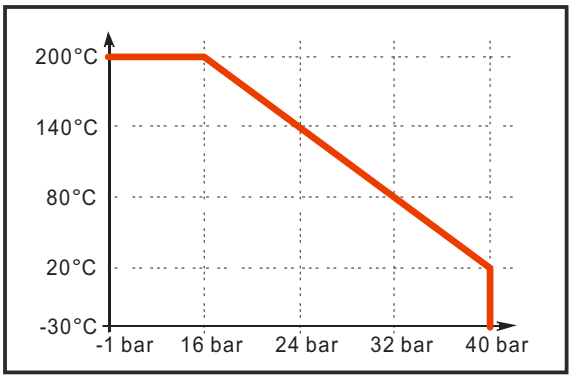
(5) The above special seals are ordered separately and must be specified in the text part of the order.

ATEX Note: - Devices with a display must NOT be operated in an "Ex ia IIC" environment
Devices with Plastic coated probes must be operated in an "Ex ia IIB" environment
Refer to pages 4 & 5 for ATEX temperature limits

MEDIA TEMPERATURE TABLE & PRESSURE DIAGRAM

Type	Flange Temperature
Base model	–30…+90 °C (–22…+194 °F)
High-temperature VF05H☐ or VF05P☐ transmitter	–30…+200 °C (–22…+392 °F)

**Limited for coated probes, see coated probe properties table on page 7*



DISPLAY UNIT TECHNICAL DATA

Display	64x128 Dot-matrix LCD, glyphs, units and bar graph
Ambient temperature	–20°C…+60°C (–4°F…+140°F)
Housing material	PBT fiberglass, plastic (DuPont®)

HYCONTROL - THE COMPLETE LEVEL SOLUTION

Hycontrol has been at the forefront of level control and measurement technology for over thirty-five years, providing practical solutions for diverse applications across many industries ranging from quarrying to food, nuclear power to chemicals, and animal feed to waste recycling. From our manufacturing base in Redditch, Worcestershire, we have overseen thousands of applications across the UK and around the world.

At Hycontrol, we pride ourselves on providing a 'complete solution' service to our UK customers. We provide a turnkey solution for level equipment requirements, with the experience and skill to design, manufacture, install, and maintain bespoke measurement and control systems crafted to suit each customer's particular needs.

We understand the consequences of inaccurate or unreliable level systems. Therefore each Hycontrol installation is tailored precisely to match your application. Our goal is simple: to provide the best-engineered solution - without compromise.

With one of the widest ranges of level measurement technologies on the market, including award-winning silo pressure safety systems and a patented range of foam detection and control equipment, backed up by a team of experienced engineers and technicians, Hycontrol is a leading force in the manufacture and supply of advanced level solutions.

HYCONTROL LEVEL TECHNOLOGIES

Product Range for Solids:

(1) TDR radar

(2) 80 GHz FMCW radar

(3) 2-wire ultrasonic transmitter

(4) RF admittance level switch

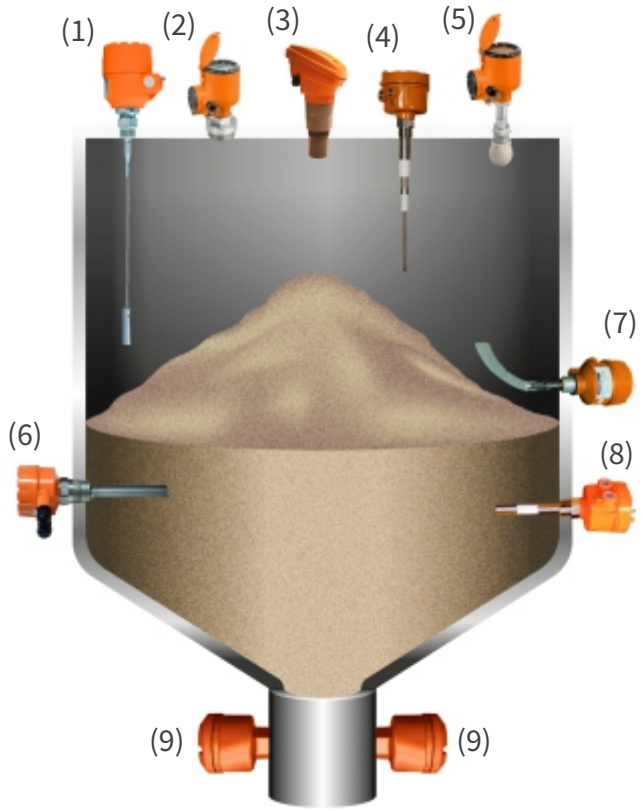
(5) 24 GHz FMCW radar

(6) Vibrating level probe

(7) Rotary paddle switch

(8) Capacitance level switch

(9) Microwave flow & blockage switch



Product Range for Liquids:

(1) Bypass level indicator

(2) 80 GHz FMCW radar

(3) Foam control system

(4) 24 GHz FMCW radar

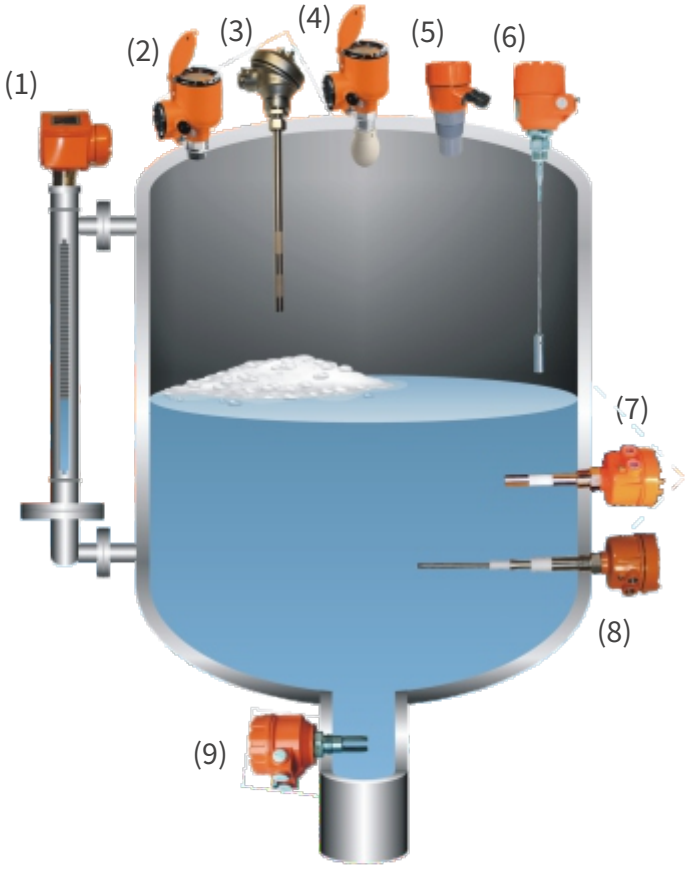
(5) 2-wire ultrasonic transmitter

(6) TDR radar

(7) Capacitance level switch

(8) RF admittance level switch

(9) Tuning fork vibrating level switch



Hycontrol Ltd, Larchwood House, Orchard Street, Redditch, Worcestershire, England, B98 7DP
Tel : 01527 406800, Fax : 01527 406810, sales@hycontrol.com, www.siloprotection.com