

FT 25-WV

White-light contrast sensor



PRODUCT HIGHLIGHTS

- Precise detection of the slightest contrast differences
- Very robust operation despite fluttering and glossy objects
- Simple alignment through very precise and easily visible light spot
- Housings that are many times smaller than standard housings – and offer better performance
- Very high positioning accuracy with 10 µs scanning

Optical data		Functions	
Scanning distance	12 mm	Indicator LED, green	Operating voltage indicator
Depth of field	± 2.5 mm	Indicator LED, yellow	Switching output indicator
Type of light	White LED, 400 ... 780 nm	Sensitivity adjustment	Via teach-in button and control line
Light spot size	1 x 4 mm ²	Teach-in modes	Mode 1: with running process
		Adjustment possibilities	Mode 2: with standing process
			LO / DO DO via Teach-in button and control line
			Button lock via control input
Electrical data		Mechanical data	
Operating voltage, +U _B	10 ... 30V DC ¹	Dimensions	34 x 20 x 12 mm ³
No-load current, I ₀	≤ 30 mA	Enclosure rating	IP 69K & IP 67 ³
Output current, I _e	≤ 100 mA	Material, housing	ABS
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection (Q)	Material, front screen	PMMA
Protection Class	2	Type of connection	See Selection Table
Power On Delay	< 300 ms	Ambient temperature: operation	-20 ... +55 °C ⁴
Switching output, Q	PNP / NPN, push-pull	Ambient temperature: storage	-20 ... +80 °C
Output function	LO / DO	Weight (plug device)	10 g
Switching frequency, f (ti/tp 1:1) ²	See Selection Table	Weight (metal plug device ⁵)	10 g
Response time	See Selection Table	Weight (integrated cable)	20 g
Jitter (electrical)	See Selection Table	Vibration and impact resistance	EN 60947-5-2
Control input, IN	+U _B = teach-in -U _B = button locked open = normal operation		

¹ Max. 10 % ripple, within U_B, ~ 50 Hz / 100 Hz

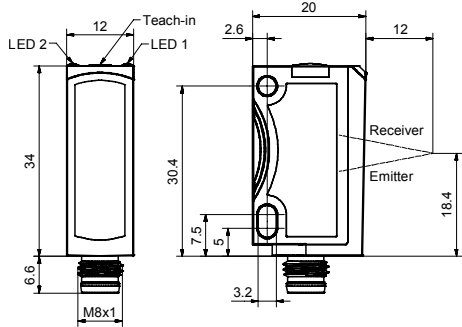
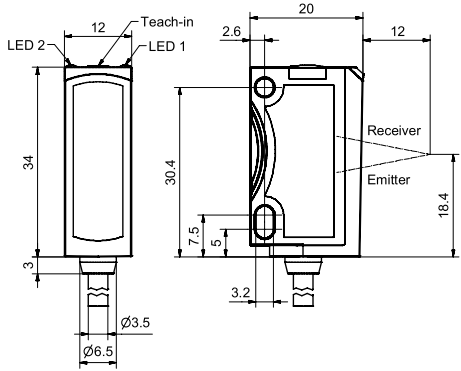
² f = 1 / (T x Nyq x 2)

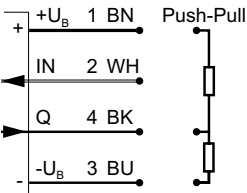
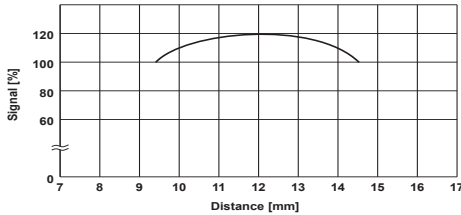
³ With connected IP 67 / IP 69K plug

⁴ UL: -20 ... +50 °C

⁵ no Ecolab

Switching frequency, f (ti/tp 1:1) ²	Response time	Jitter (electrical)	Type of connection	Part number	Article number
≤ 25000 Hz	≤ 20 µs	10 µs	Metal plug, M8x1, 4-pin	FT 25-W1-GS-M4M	607-21013
≤ 25000 Hz	≤ 20 µs	10 µs	Integrated cable: 150 mm with plug M12x1, 4-pin	FT 25-W1-GS-KL4	607-21012
≤ 10000 Hz	≤ 50 µs	25 µs	Plug, M8x1, 4-pin	FT 25-W2-GS-M4	607-21014
≤ 10000 Hz	≤ 50 µs	25 µs	Integrated cable: 150 mm with plug M12x1, 4-pin	FT 25-W2-GS-KL4	607-21015

Plug connection	Integrated cable
	

Connection, 4-pin	Signal process
	

Accessories	
Connection cables	From Page A-34
Brackets	From Page A-4

FT 25-RGB

Multi-colour contrast sensor



PRODUCT HIGHLIGHTS

- Precise detection of the slightest of contrast differences through multi-colour RGB evaluation
- Very robust operation despite fluttering and glossy objects
- Simple alignment thanks to very precise and easily visible light spot
- Communication via 3-colour light spot (simple, comprehensible, clearly defined)
- Very accurate positioning due to rapid scanning rate of 10 μ s

Optical data		Functions	
Scanning distance	12 mm	Indicator LED, green	Operating voltage indicator
Depth of field	± 3 mm	Indicator LED, yellow	Switching output indicator
Type of light	Red LED Green LED Blue LED	Sensitivity adjustment	Via teach-in button and control line
Light spot size	1 x 4 mm ²	Teach-in modes	Mode 1: with running process Mode 2: with standing process
		Adjustment possibilities	LO / DO via Teach-in button and control line Button lock via control input
Electrical data		Mechanical data	
Operating voltage, +U _B	10 ... 30V DC ¹	Dimensions	34 x 20 x 12 mm ³
No-load current, I ₀	≤ 30 mA	Enclosure rating	IP 69K & IP 67 ³
Output current, I _e	≤ 100 mA	Material, housing	ABS
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection (Q)	Material, front screen	PMMA
Protection Class	2	Type of connection	See Selection Table
Power On Delay	< 300 ms	Ambient temperature: operation	-20 ... +55 °C ⁴
Switching output, Q	PNP / NPN, push-pull	Ambient temperature: storage	-20 ... +80 °C
Output function	LO / DO	Weight (plug device)	10 g
Switching frequency, f (ti/tp 1:1) ²	See Selection Table	Weight (metal plug device ⁵)	10 g
Response time	See Selection Table	Weight (integrated cable)	20 g
Jitter (electrical)	See Selection Table	Vibration and impact resistance	EN 60947-5-2
Control input, IN	+U _B = teach-in -U _B = button locked open = normal operation		

¹ Max. 10 % ripple, within U_B, ~ 50 Hz / 100 Hz

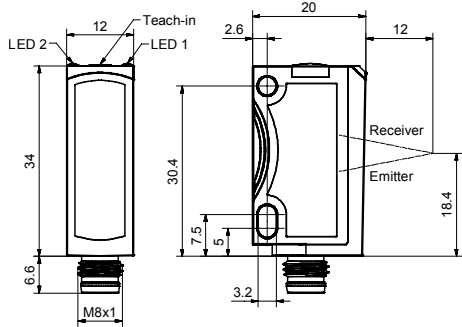
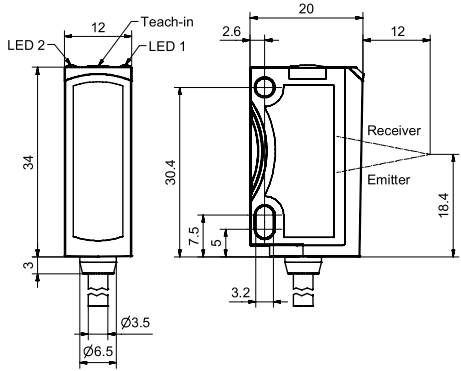
² f = 1 / (T x Nyq x 2)

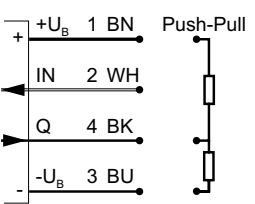
³ With connected IP 67 / IP 69K plug

⁴ UL: -20 ... +50 °C

⁵ no Ecolab

Switching frequency, f (ti/tp 1:1) ²	Response time	Jitter (electrical)	Type of connection	Part number	Article number
≤ 25000 Hz	≤ 20 μ s	< 10 μ s	Metal plug, M8x1, 4-pin	FT 25-RGB1-GS-M4M	607-21011
≤ 25000 Hz	≤ 20 μ s	< 10 μ s	Integrated cable: 150 mm with plug M12x1, 4-pin	FT 25-RGB1-GS-KL4	607-21010
≤ 10000 Hz	≤ 50 μ s	< 25 μ s	Plug, M8x1, 4-pin	FT 25-RGB2-GS-M4	607-21017
≤ 10000 Hz	≤ 50 μ s	< 25 μ s	Integrated cable: 150 mm with plug M12x1, 4-pin	FT 25-RGB2-GS-KL4	607-21018

Plug connection	Integrated cable
 153-00995	 153-00996

Connection, 4-pin	Signal process
 154-00320	 155-01648

Accessories	
Connection cables	From Page A-34
Brackets	From Page A-4

FT 25-RL

Laser contrast sensor



PRODUCT HIGHLIGHTS

- Differentiation even with low grey value differences at long scanning distances
- Sensor setup via teach-in and control input
- Resilient laser printing
- Very small, easily visible laser light spot
- Large range of variants

Optical data		Functions	
Scanning distance	1 ... 250 mm ¹	Indicator LED, green	Operating voltage indicator
Adjustment range	25 ... 250 mm ¹	Indicator LED, yellow	Switching output indicator
Type of light	Laser, red, 650 nm	Sensitivity adjustment	Via teach-in button and control line
Light spot size	See diagram	Teach-in modes	Mode 1: with running process
Laser Class (DIN EN 60825-1:2008-5)	1	Adjustment possibilities	Mode 2: with standing process
Hysteresis	≤ 10% ²	Default setting	LO / DO via Teach-in button and control line
			Button lock via control input
			Max. scanning distance and N.O.
Electrical data		Mechanical data	
Operating voltage, +U _B	10 ... 30V DC ³	Dimensions	34 x 20 x 12 mm ³
No-load current, I ₀	≤ 30 mA	Enclosure rating	IP 69K & IP 67 ⁴
Output current, I _e	≤ 100 mA	Material, housing	ABS
Protective circuits	Reverse-polarity protection, U _B / short-circuit protection (Q)	Material, front screen	PMMA
Protection Class	2	Type of connection	See Selection Table
Power On Delay	< 300 ms	Ambient temperature: operation	-20 ... +60 °C ⁵
Switching output, Q	PNP / NPN (See Selection Table)	Ambient temperature: storage	-20 ... +80 °C
Output function	LO / DO	Weight (metal plug device ⁶)	10 g
Switching frequency, f (ti/tp 1:1)	≤ 1500 Hz	Weight (cable device)	40 g
Response time	333 μs	Weight (integrated cable)	20 g
Control input, IN	+U _B = teach-in -U _B = button locked open = normal operation	Vibration and impact resistance	EN 60947-5-2

¹ Reference material: white, 90 % reflectivity

² Up to scanning distance of 150 mm

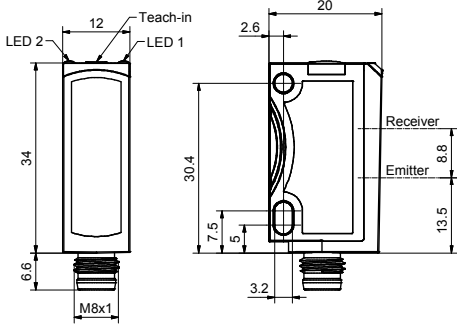
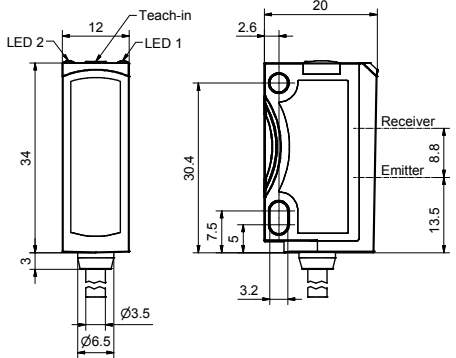
³ Max. 10 % ripple, within U_B, ~ 50 Hz / 100 Hz

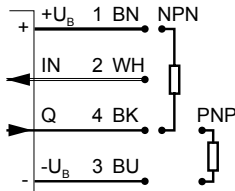
⁴ With connected IP 67 / IP 69K plug

⁵ UL: -20 °C... + 50 °C

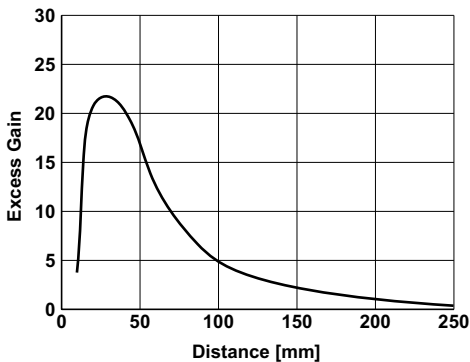
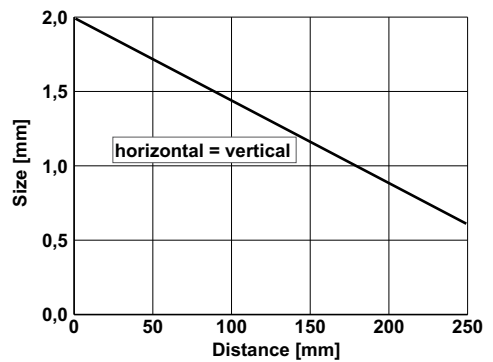
⁶ no Ecolab

Scanning distance	Switching output	Type of connection	Part number	Article number
1 ... 250 mm	PNP	Metal plug, M8x1, 4-pin	FT 25-RL-PS-M4M	609-21013
1 ... 250 mm	NPN	Metal plug, M8x1, 4-pin	FT 25-RL-NS-M4M	609-21014
1 ... 250 mm	PNP	Cable, 2 m, 4-wire	FT 25-RL-PS-K4	609-21010
1 ... 250 mm	NPN	Cable, 2 m, 4-wire	FT 25-RL-NS-K4	609-21008
1 ... 250 mm	PNP	Integrated cable: 150 mm with plug M12, 4-pin	FT 25-RL-PS-KL4	609-21012
1 ... 250 mm	NPN	Integrated cable: 150 mm with plug M12, 4-pin	FT 25-RL-NS-KL4	609-21009

Plug connection	Integrated cable
 153-00937	 153-00936

Connection, 4-pin
 154-00312

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Functional reserves	Light spot size
 155-01384	 155-01383

Reference material	Detection range
White (90 %)	1 ... 250 mm
Grey (18 %)	6 ... 100 mm
Black (6 %)	20 ... 60 mm

Accessories	
Connection cables	From Page A-34
Brackets	From Page A-4