

TL46

DATALOGIC



IO-Link



ULTRA HIGH SPEED HIGH PERFORMING CONTRAST SENSOR FOR COLORED REGISTRATION MARK DETECTION

- Ultra Fast model up to 70 kHz and very low 3µs jitter (TL46-WH...OZ)
- Color mode enhanced model (TL46-WE)
- Position mounting monitoring through IO-Link communication
- Mechanical vibration monitoring through IO-Link communication
- Wide-spectrum RGB or white LED emission
- 7 different models: basic, standard, enhanced, low jitter, color mode, basic IO-Link, ultra fast with IO-Link
- Automatic, manual and dynamic settings
- 10, 15, 20, 30, 50, 70 kHz switching frequencies
- Very low 3µs jitter for fast and very precise detection (TL46-WH...OZ)
- NPN/PNP/PP and analog outputs
- IO-Link connectivity V1.1.2 with smart functions
- Standard mounting, M12 connector rotatable to 5 positions

APPLICATIONS

- Packaging and labeling machinery
- Beverage/Food/Cosmetic/Pharmaceutical industries
- Printing machinery
- Flexographic printing machinery
- Very high precision for cutting and sealing applications

(**) ATEXII 3DG

TL46

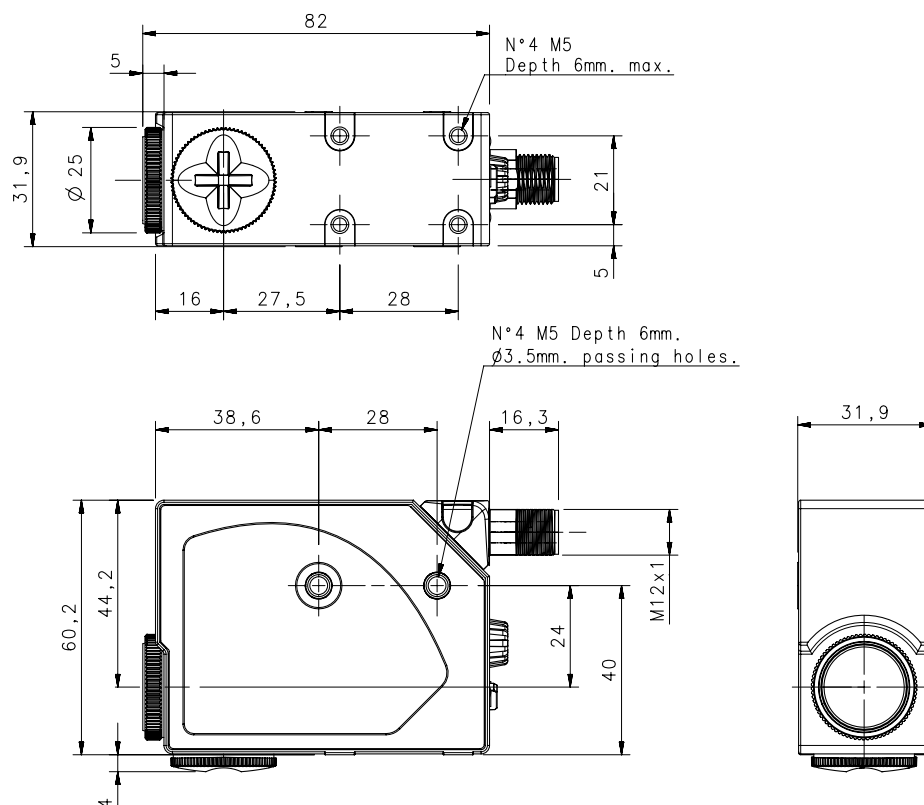
		9 ±3 mm
Contrast sensor		18 mm (Lens No.18 glass)
		22 mm (Lens No.22 glass)
		28 mm (Lens No.28 glass)
		40 mm (Lens No.40 glass)
		10 kHz (mod. TL46-WE color mode)
Switching frequency		15 kHz (mod. TL46-W)
		20 kHz (mod. TL46-A/WL)
		25 kHz (mod. TL46-W...PZ)
		30 kHz (mod. TL46-WLF/WE contrast mode)
		50 kHz (mod. TL46-WJ)
		70 kHz (mod. TL46-WH...PZ)
Jitter		50 µs (mod. TL46-WE color mode)
		33 µs (mod. TL46-W)
		25 µs (mod. TL46-A/WL)
		<20 µs (mod. TL46-W...PZ)
		16 µs (mod. TL46-WLF/WE contrast mode)
		<7 µs (mod. TL46-WJ)
Light emission		<3 µs (mod. TL46-WH...PZ)
		RGB LED
		white LED
Setting		Red LED
		push buttons
Power supply		Trimmer (precise incremental encoder) mod. TL46-A
		10...30 V
	VDC	
Output	VAC	
	VAC/DC	
	PNP	•
	NPN	•
	NPN/PNP	•
	relay	
Connection	Analogue out	0...5 V Analogue Output (TL46-A/W/WL only)
	 IO-Link	IO-Link V1.1.2 Smart sensor profile double channel I/O (mod. TL46-WH...PZ, TL46-W...PZ)
	cable	
Approximate dimensions (mm)	connector	•
	pig-tail	
Housing material		Aluminium
Mechanical protection		IP67

TECHNICAL DATA

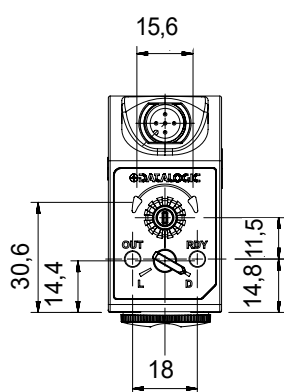
Power supply	10 ... 30 VDC (limit values)
Ripple	2 VPP max.
Consumption (output current excluded)	40 mA max. at 24 VDC (mod. TL46-A) 50 mA max. at 24 VDC (mod. TL46-W/WJ) 85 mA max. at 24 VDC with bargraph ON in threshold adjustment mode, 55 mA max at 24 VDC with bargraph OFF in normal functioning mode (mod. TL46-WL) 35 mA max. at 24 VDC (mod. TL46-WLF/WE) 30mA (mod. TL46-WH...PZ, TL46-W...PZ)
Light emission	white LED 400-700 nm (mod. TL46-A-4xx); red LED 630 nm (mod. TL46-A-6xx) blue LED 465nm/green LED 520 nm/red LED 630 nm (mod. TL46-W/WL/WLF/WE/WJ/WH...PZ/W...PZ)
Detection Distance	9 ±3 mm 18 mm (Lens No.18 glass) 22 mm (Lens No.22 glass) 28 mm (Lens No.28 glass) 40 mm (Lens No.40 glass)
Minimum spot dimension	1.5 x 5 mm; 0.8 x 4 mm (TL46-WJ, TL46-WH...PZ, TL46-W...PZ)
Depth of field	± 3 mm
Response time	100 µs (mod. TL46-WE, TL46-WH...PZ color mode) 33 µs (mod. TL46-W) 25 µs (mod. TL46-A/WL) 20 µs (mod. TL46-W...PZ) 16 µs (mod. TL46-WLF/WE contrast mode) 10 µs (mod. TL46-WJ) 6 µs (mod. TL46-WH...PZ)
Switching frequency	10 kHz (mod. TL46-WE, TL46WH...PZ color mode) 15 kHz (mod. TL46-W) 20 kHz (mod. TL46-A/WL) 30 kHz (mod. TL46-WLF/WE contrast mode) 50 kHz (mod. TL46-WJ) 70 kHz (mod. TL46-WH...PZ)
Jitter	50 µs (mod. TL46-WE, TL46-WH...OZ color mode) 33 µs (mod. TL46-W) 25 µs (mod. TL46-A/WL) 20 µs (mod. TL46-W...PZ) 16 µs (mod. TL46-WLF/WE contrast mode) <7 µs (mod. TL46-WJ) 3 µs (mod. TL46-WH...PZ)
Setting	SET push-buttons (mod. TL46-W/WL/WLF/WH...PZ/W...PZ) sensivity trimmer (mod. TL46-A)
Operating mode	DARK/LIGHT selection by switch (mod. TL46-A); automatic DARK/LIGHT selection (mod. TL46-W/WL/WJ) automatic DARK/LIGHT selection in the target/background detection, selectable via wire in the dynamic detection (mod. TL46-WLF/WE/WH)
Indicators	yellow OUTPUT LED green READY LED, orange DELAY LED and KEYLOCK (mod TL46-W/WJ/W...PZ) green READY LED, 4-digit display/DELAY LED/KEYLOCK LED mod. TL46-WLF/WE/WH...PZ orange ARROWS (mod. TL46-A), DELAY LED and KEYLOCK LED 5-segment bargraph (mod. TL46-WL)
Dark/light selection	Switch; Automatic; Automatic/manual; remote/dynamic
Delay	0...20ms selectable via delay input 0...100ms programmed
Auxiliary function	Keylock (not available on TL46-WE) Fine Hysteresis regulation (TL46-WL/WLF/WE)
Output	PNP (mod. TL46-WJ); PNP or NPN; PNP/NPN (mod. TL46-W/WL/WLF/WE by part number); PP/PNP/NPN (TL46-W/WH...PZ); analog output (mod. TL46-A/W/WL)
Output current	100mA
Saturaton Voltage	= <2V
Analogue Out	0,5...5,5V ±10%; 2V on white target 90%; 1...3V ±10%(white 90%) ; 5,5V max
Analogue out impedance	2,2 kΩ (short circuit protection)
Connection	M12 5-pole connector
Dielectric strength	500 Vac, 1 min between electronics and housing
Insulating resistance	>20 MΩ, 500 Vdc between electronics and housing
Electrical protection	class 2, double insulation
Protection device	Reverse polarity protection, overload and short circuit protection
Mechanical protection	IP67
Ambient light rejection	according to EN 60947-5-2
Vibrations	0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing material	aluminium
Lens material	PMMA (mod. TL46-A, TL46-W), glass (mod. TL46-W-815G/WL/WLF/WJ/WE)
Operating temperature	-10 ... 55 °C
Storage temperature	-20 ... 70 °C
Weight	170 g max.

DIMENSIONS

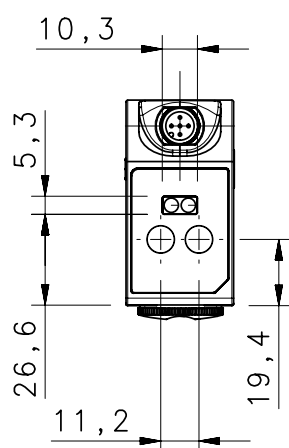
AbN
automation



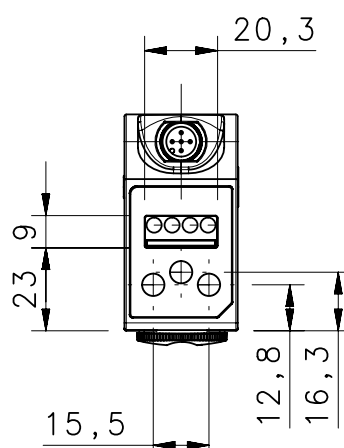
TL46-A



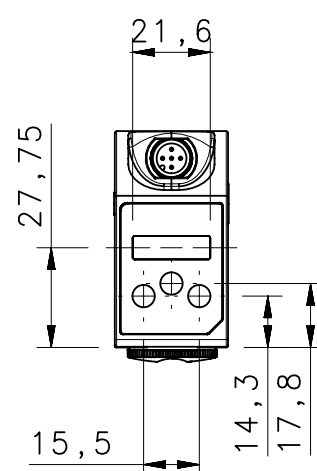
TL46-W/WJ/W...PZ



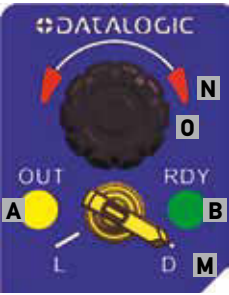
TL46-WL



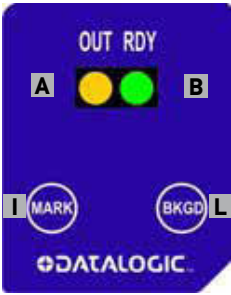
TL46-WLF/WE/WH...PZ



INDICATORS AND SETTINGS



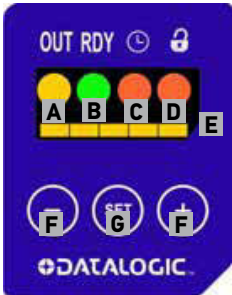
TL46-A
TRIMMER



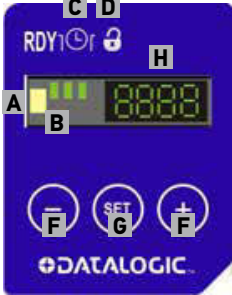
TL46-W
BASE

TL46-WJ
LOW JITTER

TL46-W...PZ
BASE IO-Link



TL46-WL
STANDARD



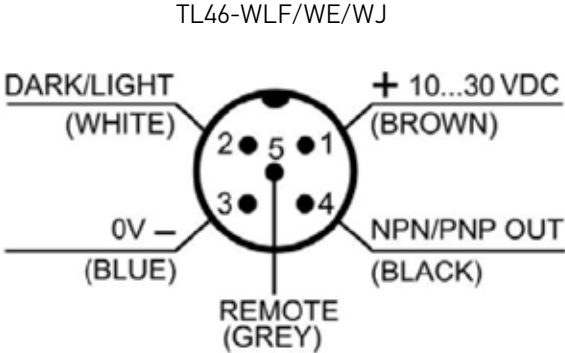
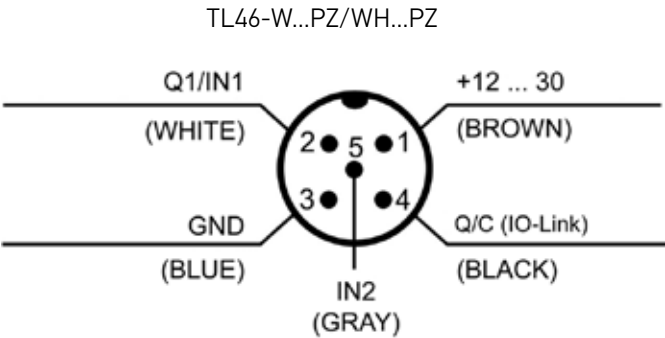
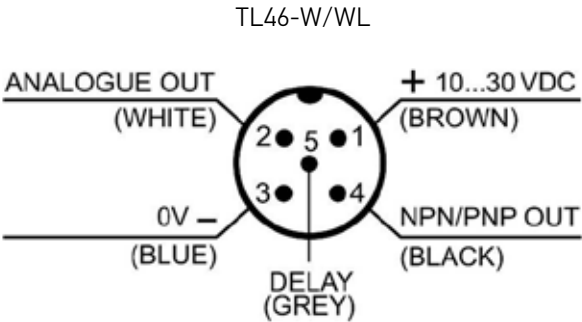
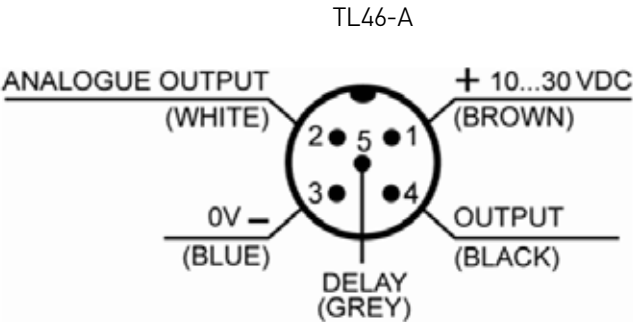
TL46-WLF
ENHANCED

TL46-WE
COLOR
ENHANCED

TL46-WH...PZ
HIGH SPEED IO-Link

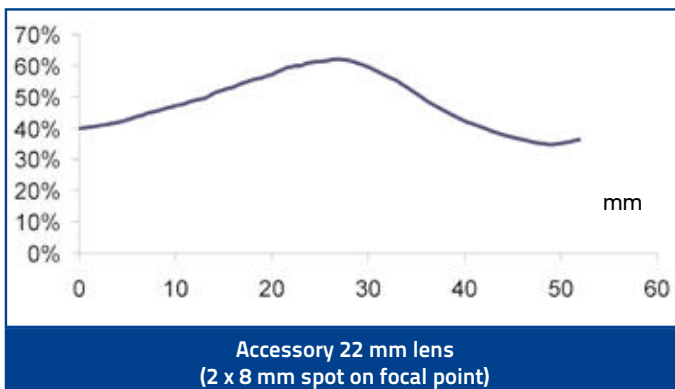
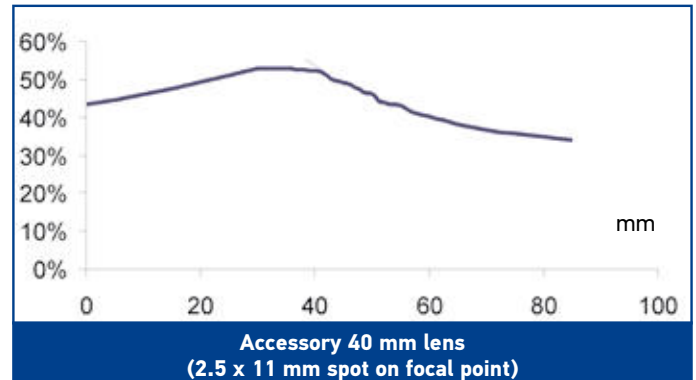
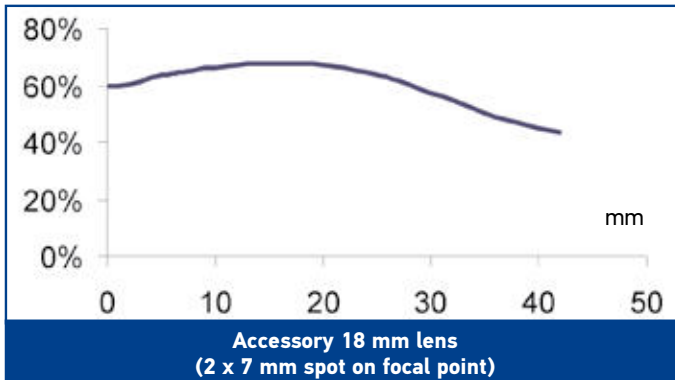
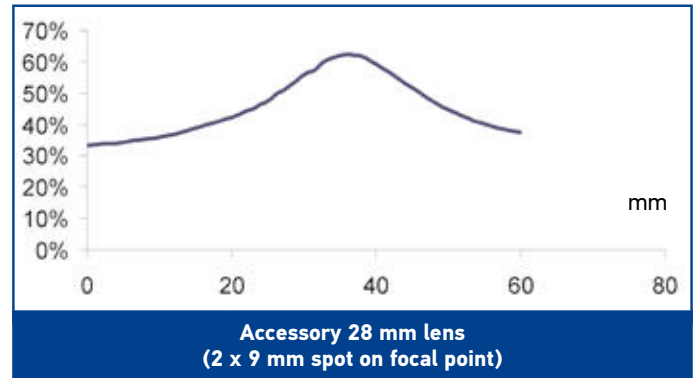
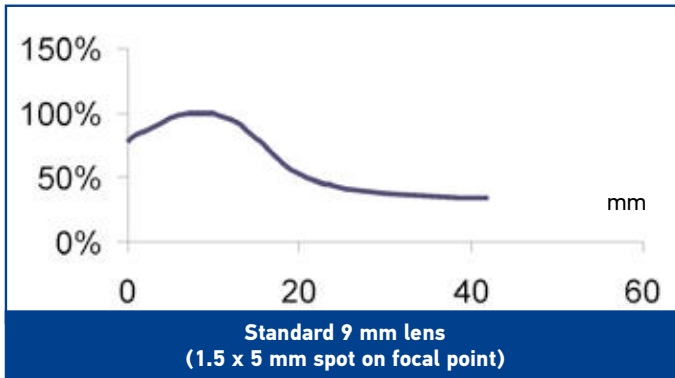
- A yellow OUTPUT LED
- B green READY LED
- C orange DELAY LED
- E orange KEYLOCK LED
- D Bargraph
- F +/- push-buttons
- G SET push-button
- H Display
- I MARK push-button
- L BKGD push-button
- M Light/Dark Switch
- N Orange Indicators Arrows
- O Sensitivity Adjustment Knob

CONNECTIONS



READING DIAGRAMS

FOR ALL MODELS



VERTICAL SPOT

HORIZONTAL SPOT



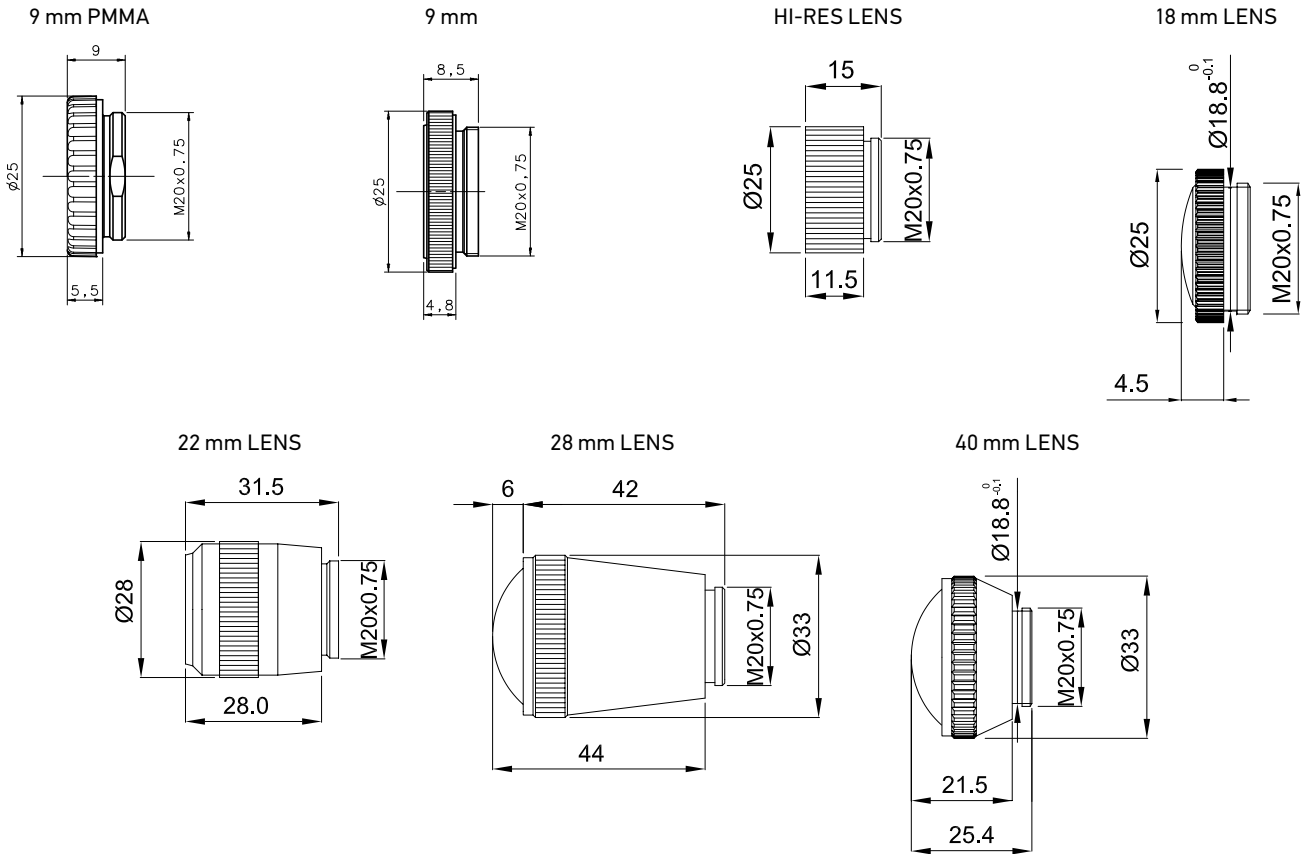
Horizontal spot is present in the TL46 models with final '-L' suffix

MODEL SELECTION AND ORDER INFORMATION

OPTIC FUNCTION	SETTING & INDICATORS	OUTPUT	EMISSION	MODEL	ORDER No.
Contrast sensor	Trimmer 2 LEDs	PNP	WHITE vertical spot	TL46-A-415	954601070
		NPN	WHITE vertical spot	TL46-A-425	954601080
		PNP	RED vertical spot	TL46-A-615	954601090
		NPN	RED vertical spot	TL46-A-625	954601100
	Push-buttons 2 LEDs	PNP/NPN	R.G.B. vertical spot	TL46-W-815	954601000
			R.G.B. horizontal spot	TL46-W-815L	954601010
			R.G.B. vertical spot	TL46-W-815G*	954601060
		IO-Link PP/PNP/NPN	R.G.B. vertical spot	TL46-W-815-PZ	954600005
	Push buttons 4 LEDs bargraph	PNP/NPN	R.G.B. vertical spot	TL46-WL-815	954601020
			R.G.B. horizontal spot	TL46-WL-815L	954601030
	Push buttons 4 LEDs display	PNP/NPN	R.G.B. vertical spot	TL46-WLF-815	954601040
			R.G.B. horizontal spot	TL46-WLF-815L	954601050
Contrast low jitter sensor	Push buttons 4 LEDs display	PNP	R.G.B. vertical spot	TL46-WJ-815	954601110
			R.G.B. horizontal spot	TL46-WJ-815L	954601120
Color contrast sensor	Push buttons 4 LEDs display	PNP	R.G.B. vertical spot	TL46-WE-815	954601130
		NPN	R.G.B. vertical spot	TL46-WE-825	954601140
High Performance Contrast sensor	Push buttons 4 LEDs display	IO-Link PP/PNP/NPN	R.G.B. vertical spot	TL46-WH-815-PZ	954600004

(*) Glass lens version of TL46-W model

ACCESSORIES



MODEL	DESCRIPTION	ORDER No.
Lens No.9	glass lens with 9 mm focus	95ACC2670
Lens No.9 PMMA	plastic lens with 9 mm focus	95ACC2540
Lens Hi-Res	additional focussing glass lens with 9 mm focus (*)	95ACC1050
Lens No.18	glass lens with 18 mm focus	95ACC2680
Lens No.22	glass lens with 22 mm focus	95ACC1100
Lens No.28	glass lens with 28 mm focus	890000194
Lens No.40	glass lens with 40 mm focus	95ACC2740

* focussing lens to screw between the sensor and the normal 9 mm lens

CABLES

TYPE	DESCRIPTION	LENGTH	MODEL	ORDER No.
Axial M12 Connector	5-pole, grey, P.V.C.	3 m	CS-A1-03-G-03	95ACC2110
		5 m	CS-A1-03-G-05	95ACC2120
		10 m	CS-A1-03-G-10	95ACC2140
	5-pole, U.L., black, P.V.C	3 m	CS-A1-03-U-03	95ASE1170
		5 m	CS-A1-03-U-05	95ASE1180
		10 m	CS-A1-03-U-10	95ASE1190
		15 m	CS-A1-03-U-15	95ASE1200
		25 m	CS-A1-03-U-25	95ASE1210
		50 m	CS-A1-03-U-50	95A252700

DATALOGIC PRODUCT OFFERING



Sensors



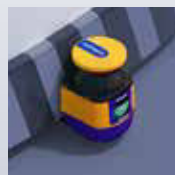
Hand Held
scanners



Mobile Computers



Laser Marking
Systems



Safety Laser
Scanner



Vision
Systems



Stationary
Industrial
Scanners



Safety Light
Curtains

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