



NAMUR sensors Q45 and MINI-BEAM series (EEx ia IIC T6)

MINI-BEAM and Q45 NAMUR photoelectric sensors are designed in accordance with DIN 19234 for use in hazardous sensing environments. These sensors are used together with approved switching amplifiers. Current through the sensor output is in accordance with the universal NAMUR standard of ≤ 1 mA in the dark sensing condition and $\geq 2,1$ mA in the light sensing condition. Sensing response may be accurately set by adjusting the sensor's 15-turn sensitivity control. Electrical connection is made either with an integral 2 m cable or with a *Conprox*[®]-connector, depending on model selected.

Q45 NAMUR

Q45 NAMUR sensors are rated IP 67. They offer high excess gain for long sensing range or for sensing in dirty environments. The KEMA Ex 95.C.3442 certification allows the sensor to be used in protection class EEx ia IIC T6 explosive environments.

MINI-BEAM NAMUR

The MINI-BEAM NAMUR sensors are compact sensors with outstanding sensing performance. Like the Q45 NAMUR sensors, these sensors may also be used in protection class EEx ia IIC T6 in accordance with the KEMA 95.C.7937 certification.

All NAMUR sensors comply with DIN 19234; EN 50014, part 1, 1977 and EN 50020, 1977 + A1...A2. These NAMUR photoelectric sensors are available in retro-reflective, opposed, convergent and diffuse sensing modes, as well as plastic and glass fibre optic models.

Photoelectric Sensors

MINI-BEAM series according to DIN 19234 (NAMUR)

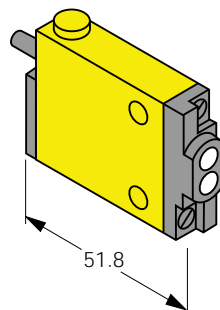
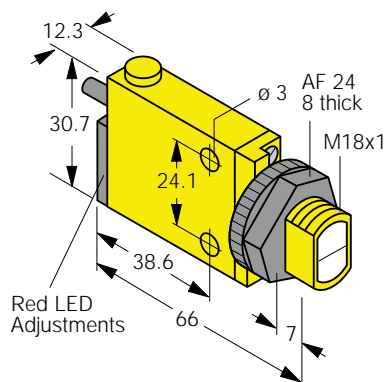
Excess gain curve:
Excess gain in relation to the distance

	<i>Max. range - Fibre type</i>	<i>Light source</i>	<i>Output function</i>	<i>Connection</i>	<i>Type</i>	<i>Ident number</i>
<p>— Retro-reflective</p> <p>Graph showing excess gain (y-axis, 1 to 100) versus distance (x-axis, 0.01 to 10 m) for retro-reflective sensors. The LV curve peaks at approximately 30 at 0.5 m, and the LVAG curve peaks at approximately 15 at 0.2 m. A legend indicates 'BRT75 reflector'.</p>	5 m 5 m 2 m 2 m	red red red red	light operate light operate light operate light operate	cable connector cable connector	Mi-AD9-LV Mi-AD9-LV-Q <i>with polarising filter</i> Mi-AD9-LVAG Mi-AD9-LVAG-Q	30 377 17 38 033 00 30 377 16 30 372 94
<p>— Diffuse</p> <p>Graph showing excess gain (y-axis, 1 to 100) versus distance (x-axis, 0.1 to 100 cm) for diffuse sensors. The W curve peaks at approximately 50 at 0.5 cm, and the D curve peaks at approximately 30 at 5 cm.</p>	75 mm 75 mm 380 mm 380 mm	IR IR IR IR	light operate light operate light operate light operate	cable connector cable connector	Mi-AD9-W Mi-AD9-W-Q Mi-AD9-D Mi-AD9-D-Q	30 377 18 38 042 00 30 377 14 38 036 00
<p>— Convergent</p> <p>Graph showing excess gain (y-axis, 1 to 100) versus distance (x-axis, 0.1 to 100 cm) for convergent sensors. The CV curve peaks at approximately 20 at 1 cm, and the CV2 curve peaks at approximately 10 at 5 cm.</p>	16 mm 16 mm 43 mm 43 mm	red red red red	light operate light operate light operate light operate	cable connector cable connector	Mi-AD9-CV Mi-AD9-CV-Q Mi-AD9-CV2 Mi-AD9-CV2-Q	30 377 13 38 041 00 30 377 12 38 047 00
<p>— Opposed</p> <p>Graph showing excess gain (y-axis, 1 to 100) versus distance (x-axis, 0.1 to 100 m) for opposed sensors. The gain decreases linearly from 100 at 0.1 m to 1 at 10 m.</p>	6 m 6 m	IR IR	- light operate - light operate	cable cable connector connector	Mi-9-E Mi-AD9-R Mi-9-E-Q Mi-AD9-R-Q	30 401 41 30 401 44 38 044 00 38 045 00
<p>— Fibre-optic</p> <p>Graph showing excess gain (y-axis, 1 to 100) versus distance (x-axis, 0.1 to 100 cm) for fibre-optic sensors. The IT11 and IT13S curves are nearly identical, peaking at 100 at 0.1 cm. The IT23S curve peaks at 100 at 1 cm.</p>	glass glass	IR IR	light operate light operate	cable connector	Mi-AD9-F Mi-AD9-F-Q	30 377 15 38 037 00

MINI-BEAM series according to DIN 19234 (NAMUR)

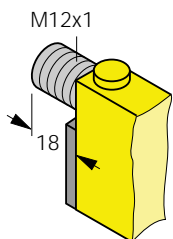
Dimensions [mm]

• Cable

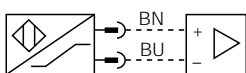


Mi-AD9-W-.....

• Connector



Wiring



Wave length

IR (infrared)	880 nm
Red	650 nm

Adjustment

sensitivity

Supply

Supply voltage 5...15 VDC (8.2 V nom.)

Output

Current consumption	≤ 1 mA (in dark condition) ≥ 2.1 mA (in light condition)
Switching frequency	100 Hz

Ex-certification

Accord. to certificate of conf. KEMA No. Ex.-95.C.7937
Protection class intrinsically safe, EEx ia IIC T6

Material

Housing	PBT
Lens	acrylic
End cap	acrylic
Protection class (DIN 40050)	IP 66
Temperature range	-40...+70 °C
Cable	2 m, PVC 2 x 0.5 mm ²
Connector	Conprox®

Indicator LED

Red light sensed

Accessories

Brackets

SMB312B	37 093 00	bottom mounting
SMB312S	37 092 00	side mounting
SMB18A	34 702 00	front mounting

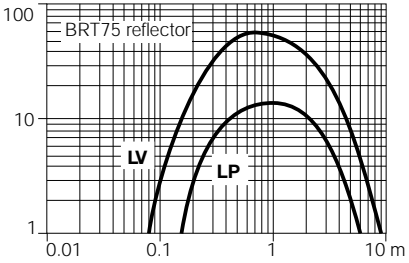
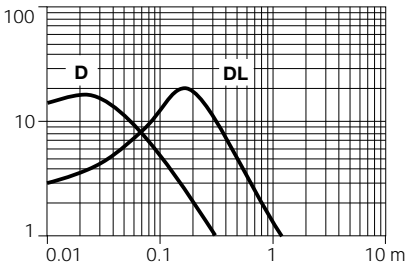
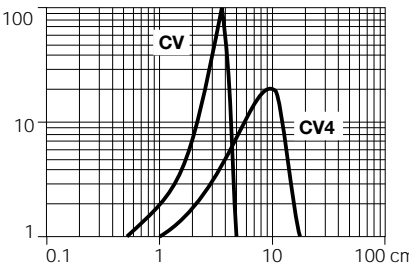
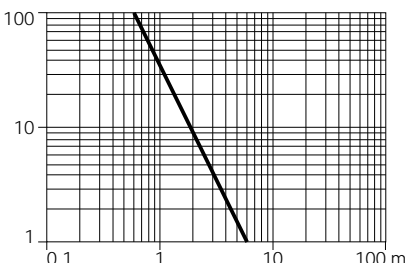
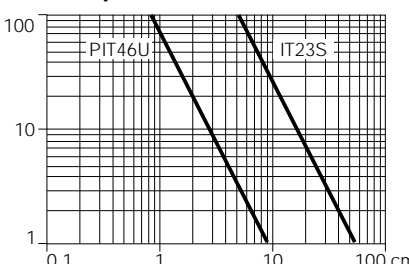
Connectors

RK4.21T-2	66 360 50	straight type
WK4.21T-2	66 740 00	right-angled type

Photoelectric Sensors

Q45 series according to DIN 19234 (NAMUR)

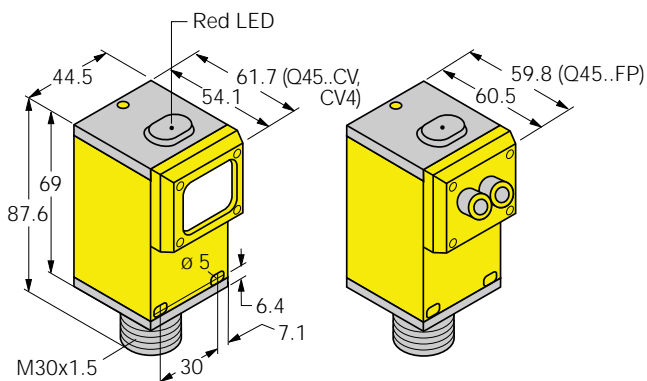
Excess gain curve:
Excess gain in relation to the distance

	<i>Max. range - Fibre type</i>	<i>Light source</i>	<i>Output function</i>	<i>Connection</i>	<i>Type</i>	<i>Ident number</i>
— Retro-reflective 	0,08...9 m	red	light operate	cable	Q45-AD9-LV Q45-AD9-LV-Q <i>with polarising filter</i> Q45-AD9-LP Q45-AD9-LP-Q	30 376 20
	0,08...9 m	red	light operate	connector		30 376 30
	0,15...6 m	red	light operate	cable		30 376 19
	0,15...6 m	red	light operate	connector		30 376 29
— Diffuse 	0,3 m	IR	light operate	cable	Q45-AD9-D Q45-AD9-D-Q Q45-AD9-DL Q45-AD9-DL-Q	30 376 17
	0,3 m	IR	light operate	connector		30 376 27
	1,07 m	IR	light operate	cable		30 376 18
	1,07 m	IR	light operate	connector		30 376 28
— Convergent 	38 mm	red	light operate	cable	Q45-AD9-CV Q45-AD9-CV-Q Q45-AD9-CV4 Q45-AD9-CV4-Q	30 376 23
	38 mm	red	light operate	connector		30 376 33
	100 mm	red	light operate	cable		30 376 24
	100 mm	red	light operate	connector		30 376 34
— Opposed 	6 m	IR	–	cable	Q45-9-E Q45-AD9-R Q45-9-E-Q Q45-AD9-R-Q	30 376 25
	6 m	IR	light operate	cable		30 376 26
	6 m	IR	–	connector		30 376 35
	6 m	IR	light operate	connector		30 376 36
— Fibre-optic 	glass	IR	light operate	cable	Q45-AD9-F Q45-AD9-F-Q Q45-AD9-FP Q45-AD9-FP-Q	30 376 21
	glass	IR	light operate	connector		30 376 31
	plastic	red	light operate	cable		30 376 22
	plastic	red	light operate	connector		30 376 32

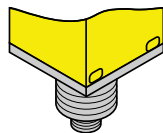
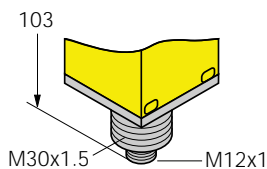
Q45 series according to DIN 19234 (NAMUR)

Dimensions [mm]

• Cable

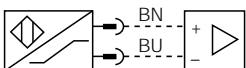


• Connector



Screws M30, AF 36, included

Wiring



Wave length

IR (infrared)	880 nm
Red	680 nm
	660 nm (Q45...FP)

Adjustment

sensitivity

Supply

Supply voltage 5...15 VDC (8.2 V nom.)

Output

Current consumption	≤ 1 mA (in dark condition)
	≥ 2,1 mA (in light condition)
Switching frequency	100 Hz
	250 Hz (opposed)

Ex-certification

Accord. to certificate of conf. KEMA No. Ex.-95.C.3442
Protection class intrinsically safe, EEx ia IIC T6

Material

Housing	PBT
Lens	acrylic
Cover	Lexan® (PC)
Protection class (DIN 40050)	IP 67
Temperature range	-40...+70 °C
Cable	2 m, PVC 2 x 0.5 mm ²
Connector	Conprox®

Indicator LED

Red light sensed

Accessories

Brackets

SMB30A	34 703 00	angle bracket
SMB30S	34 706 00	swivel mount bracket
SMB30C	34 701 00	split clamp bracket

Connector

RK4.21T-2	66 360 50	straight type
WK4.21T-2	66 740 00	right-angled type