

24VL

ISO 9001:2008 / ATEX



ASSURIX Intrinsically Safe Photoelectronic Sensors

3-wire construction

Operating Manual and Control Drawing No. OM-AX-01

- For use in CL I, CL II, CL III, Division 1, GR ABCDEFG, HAZARDOUS LOCATIONS.

 - For use in ATEX Ex Zones 1, 2
 Type of Ex protection: Intrinsically safe II 2 G Ex ia IIC T6 Gb.
 - CLASSIFIED BY UNDERWRITER'S LABORATORIES INC. ASSIGNED CONTROL No. 24VL.
- , II 2 G Ex ia IIC T6 Gb

60158

ATEX Certification no. DMT 03 ATEX E003

~	Light Damers	· · · · · · · · · · · · · · · · · · ·	Renorencenve Barriera	
Technical Data		Te Ch. according to the ATEX di	rootivo 2014/24/EU	_
Designation	II 2 G EX IA IIC	$\Delta X_{-}T_{-}5_{-}P_{-}18$ $\Delta X_{-}T_{-}10_{-}P_{-}18$	ΔX-P-1-P18 ΔX-P-1-P3	
	AX-SE-25-P30	AX-T-5-P30 AX-T-10-P30		5
Туре	S:Emitter / E: Receiver	I: Proximity switch	R: Retroreflective barrier	
Range	25m 50m	0.5m Note1 1m Note1	1m Note2 4m Note2	
Housing	P18 = M18 M30	P18=M18P18=M18	M18 M30	
(Yellow brass, nickel plated)	P30=M30	P30=M30P30=M30		
Light source, wave length	870	0nm	623nm	
Optical aperture angle	appr. 17° (emitter)	appr. 30°	appr. 17°	
Nominal supply voltage		12VDC (intrinsically safe)		
Current consumption	13mA 13mA	15mA 15mA	15mA 15mA	
Safety ratings	Vi <=13.6VDC / li <= 1	20mA /Pi <= 800mW (in accordar	ce with the power supply)	
Effective capacity / inductance		Ci = 150pF / Li = 7.92uH		
Response	50Hz 50Hz	100Hz 100Hz	100Hz 100Hz	
Output		PNP, short circuit protect	ted	
Operating temperature range Tame		$-20^{\circ}C < T_{amb} < +60^{\circ}C$		_
Enclosure rating			x	_
Mean Time to Failure MTTE		407 Vears	A	
Coble Longth: 2m	Emittor: 2 x AM/C24		2 × Δ\Δ/C24	-
Cable, Length. Sm,	Emiller. 2 X AVVG24	3 X AVVG24	3 X AWG24	
	Receiver: 3 X AVVG24			_
rible optics connection				
<u> </u>				
Accessories	M18: 4 nuts M18	M18: 2 nuts M18	2 nuts M18 2 nuts M30	1
	M30: 4 nuts M30	M30: 2 nuts M30		
Accessories, not included	- Reflector (triple mirror for re	etroreflective barriers), D=40mn	n, 50mm or 83mm	
Options	- AX / 1kHz:	Sensors with a switching frequency	of 1kHz	
	-AX-SE- 10 -P18:	Light barrier with 10kHz switching f	requency	
	-AX-SE-100-P30:	Light barrier with a range of 100m		
	-AX-SE-56-P30-GF: Light barriers for fibre optics, high density			
	- AX-SE-25/50-P30-GF: Light barriers for fibre optics			
	- AX-rx-1-F 10/90: Device with 90' viewing angle			
	-AX-S/EP30- S017: Light barriers with socket M18. Binder series 714. 4 terminals.			
	housing M30. LED inside the socket for receiver and emitter (I=13m		A)	
	-AXP18- S096: Housing M18, socket M12 /5P at cable, length 10cm, with LEC		able, length 10cm, with LED	
	- AXP30- S099 :	Housing M30, socket M12/ 5P, with	1 LED	
	- AX-R S171 :	Retroreflective barriers with potenti	ometer for fine adjustement	
	-AX-R-4-P30- S172 :	Retroreflective barriers M30 socke	t M12 and notentiometer	
	-AA-5E-25-P16-5199:	Range: 100m, housing M18		
	-AX-SE-25-P18- S199 : -AX-T-5/10-P18- S201 :	Range: 100m, housing M18 For applications with fibre optics Stainless steel bousing 1 4404 / 31		
Eurotion and	-AX-SE-23-P18- 3199 : -AX-T-5/10-P18- S201 : - AXP S224 :	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31	6L	
Function and LED indication Light barriers	-AX-SE-25-P16- S199 . -AX-T-5/10-P18- S201 : - AXP S224 :	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31		
Function and LED indication Light barriers	-AX-SE-25-P18- S199 . -AX-T-5/10-P18- S201 : - AXP S224 :	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31		
Function and LED indication Light barriers	- AX-75-25-716- 5199 . - AX-7-5/10-P18- 5201 : - AXP 5224 : Light beam not intern	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31	6L	
Function and LED indication Light barriers Proximity switch	- AX-5E-25-P 10-5 199. - AX-T-5/10-P18-5201: - AXP5224: Light beam not intern	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31	6L ght beam interrupted	-
Function and LED indication Light barriers Proximity switch	- AX-52-25-P10-5199. - AX-T-5/10-P18-5201: - AXP5224: Light beam not inter	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31	6L ght beam interrupted	-
Function and LED indication Light barriers Proximity switch	- AX-52-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflect	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted	6L ght beam interrupted am interrupted / no reflection	-
Function and LED indication Light barriers Proximity switch	- AX-52-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflect	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted	6L ght beam interrupted am interrupted / no reflection	
Function and LED indication Light barriers Proximity switch Retroreflective barriers	- AX-52-25-P10-5199. - AX-T-5/10-P18-S201: - AXPS224: Light beam not inter Light beam free / Reflect	rupted Lig tion detected Light bea	SL ght beam interrupted am interrupted / no reflection	
Function and LED indication Light barriers Proximity switch Retroreflective barriers	- AX-52-25-P10-5199. - AX-T-5/10-P18-S201: - AXPS224: Light beam not inter Light beam free / Reflect	rupted Light bear tion detected Light bear rupted Light bear tion detected Light bear trupted Light bear Light bear	and potentioned	-
Function and LED indication Light barriers Proximity switch Retroreflective barriers	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-5201: - AXP5224: Light beam not inter Light beam free / Reflect Light beam not inter Light beam not inter	rupted Light beat rupted Light beat rupted Light beat rupted Light beat Light beat Li	6L ght beam interrupted am interrupted / no reflection ght beam interrupted / log reflection	-
Function and LED indication Light barriers Proximity switch Retroreflective barriers	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-5201: - AXP5224: Light beam not inter Light beam free / Reflect Light beam not inter Light beam not inter	rupted Light beat rrupted Light beat for applications with fibre optics Stainless steel housing 1.4404 / 31 Light beat Light beat Li	6L ght beam interrupted am interrupted / no reflection ght beam interrupted / line reflection LED=OFF	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function:	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-5201: - AXP5224: Light beam not inter Light beam free / Reflect Light beam not inter Light beam not inter Light beam not inter	rupted Light beat rupted Light beat Stainless steel housing M18 Light beat 2VDC	6L ght beam interrupted am interrupted / no reflection ght beam interrupted / LED=OFF 0 +12VDC	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the colority of the sure by	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-S201: - AXPS224: Light beam not inter Light beam free / Reflect Light beam not inter Light beam not inter Light beam not inter Light beam of the second secon	rupted Light beat rupted Light beat Stainless steel housing M18 Light beat 2VDC \overline of the state of	6L ght beam interrupted am interrupted / no reflection ght beam interrupted LED=OFF	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply	- AX-SE-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflec Light beam not inter Light beam not inter	rupted Light beat rupted Light beat 2VDC	6L ght beam interrupted am interrupted / no reflection ght beam interrupted LED=OFF 0+12VDC	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage.	- AX-SE-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflec: Light beam not inter Light beam not inter Light beam not inter Light beam of inter	rupted Light bear rrupted Light bear Comparison of the second	an interrupted / no reflection ght beam interrupted / no reflection ght beam interrupted / leD = OFF LED = OFF U = OFF OUT	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage.	- AX-SE-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflec: Light beam not inter Light beam not inter Light beam not inter Light beam of inter 	rupted Light bear rupted Light bear stainless steel housing M18 Light bear 2VDC C	All potentioned	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage.	- AX-SE-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflec: Light beam not inter Light beam not inter Light beam not inter Light beam of inte	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted Light beat ≤	am interrupted / no reflection ght beam interrupted / no reflection ght beam interrupted / leD=OFF LED=OFF 0 0UT 0 0V	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage.	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-5 201: - AXPS224: Light beam not inter Light beam free / Reflec Light beam not inter Light beam not inter Light beam not inter Light beam not inter U	rupted Light bear rupted Light bear frupted Light bear Curve to the second s	am interrupted / no reflection ght beam interrupted / no reflection ght beam interrupted / leD = OFF LED = OFF 0 + 12VDC 0 OUT 0 OV 06/S099:	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage. Connection diagram: Device	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-5201: - AXP5224: Light beam not inter Light beam free / Reflec Light beam not inter Light beam not inter Light beam not inter Light beam not inter O O O O O O O O O O O O O O O O O O O	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted Light bea <	6L ght beam interrupted am interrupted / no reflection ght beam interrupted / LED=OFF 0 +12VDC 0 OUT 0 OV 96/S099: connected)	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage. Connection diagram: Device +12\/DC Brown	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-S201: - AXPS224: Light beam not inter Light beam free / Reflec Light beam not inter Light beam not inter Light beam not inter Light beam of the second of the	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted Light bea <	beam interrupted am interrupted / no reflection ght beam interrupted / no reflection LED = OFF U LED = OFF U C OUT OV OV OV OV OV	
Function and LED indication Light barriers Proximity switch Proximity switch Retroreflective barriers Provinity switch Output function: Inverted output function by changing the polarity of the supply voltage. Provinity switch Connection diagram: Device +12VDC Brown OV:	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-S201: - AXPS224: Light beam not inter Light beam free / Reflec Light beam not inte LED=ON 0 UT 0 0U 0 0V s with Socket S0 cable com Pin 1 Dia 2	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted Light bea <	All potentioned	-
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage. Connection diagram: Device +12VDC Brown OV: Output: Black	- AX-SE-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflec Light beam not inte LED=ON 0 UT 0 OUT 0	rupted Lig tion detected Light bea 2VDC T 17: Socket SOS nection: (Pin 2: Not Pin 3 / blue Dia 4 / blae	BL ght beam interrupted am interrupted / no reflection ght beam interrupted / no reflection LED = OFF \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage. Connection diagram: Device +12VDC Brown Black Output: Red	- AX-SE-25-P10-5199. - AX-T-5/10-P18-5201: - AXPS224: Light beam not inter Light beam free / Reflec Light beam not inte LED=ON 0 UT 0 0U 0 0V s with Socket S0 cable com Pin 1 Pin 3 Pin 2 Dig 1	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted Light bea ≤ 2VDC T 117: nection: (Pin 2: Not Pin 1 / brow Pin 4 / blac	All potentioned All potentioned an interrupted / no reflection an interrupted / no reflection All potentioned LED=OFF OUT OUT OUT OV D6/S099: connected) wn	
Function and LED indication Light barriers Proximity switch Retroreflective barriers Output function: Inverted output function by changing the polarity of the supply voltage. Connection diagram: Device H12VDC Brown OV: Black Qutput: Output: Red Protection earth PA/PE	- AX-SE-25-P 10-5 199. - AX-T-5/10-P18-5 201: - AXPS224: Light beam not inter Light beam free / Reflec Light beam not inter Light beam not inter Light beam not inter Light beam not inter OUT 0 0UT 0 0UT 0 0UT 0 0UT 0 0UT s with Socket S0 cable com Pin 1 Pin 3 Pin 2 housing Pin 4	Range: 100m, housing M18 For applications with fibre optics Stainless steel housing 1.4404 / 31 rupted Light bear ≤	All potentionetal	



Ex-Protection

It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The electrical connections must be exactly as shown in the control drawing for hazardous areas. The local equipotential bonding have to be done by a reliable, noncorrosive holding of the protection earth connection. The cable must be protected against damages. To connect cables inside the hazardous locations, only use certificated Ex housings. Only original manufacture optical parts must be used . Other additional optical lenses or fibre optics are not allowed in hazardous locations. The sensor must only be supplied by an approved intrinsically safe power supply or safety shunt barrier with the minimum specification II (2) G [Ex ia] IIC Gb, mounted out of the hazardous location. Connector versions: The maximum rates of capacity and inductance of the connection cable must be respected. Function

Light barriers: If the light beam is not interrupted the output switches to ON (+12V). If the light beam is interrupted the output switches to OFF. The load must be connected between the output and 0V

Proximity Switches: If the sensor detects reflected light, by any object, the output is switching ON (H-Level). If the sensor detects no reflected light, the output is switched OFF.

Retroreflective light barriers: If the light beam the sensor and the reflector, is not interrupted the output switches to ON (+12V). If the light beam is interrupted the output switches to OFF. The load must be connected between the output and 0V.

Output-Mode (X-Function): By changing the polarity of the supply voltage, the output mode will be reversed. The LED function will remain unchanged.

Maintenance

e37/2017-11-07/HB

DM-AX-01

No special maintenance is required. Cleaning only with a nonaggressive cleaning liquid. Equipment must only be repaired by the manufacturer.

Fibre optics

For efficiently detection solutions look for our multiple program of

General Notes, disposal

We reserve the right to modify our equipment. Our equipment is designed such way, that it has the least possible adverse effect on the environment. It neither emit or contain any damaging or siliconized substances and use a minimum of energy and resources. No longer usable or irreparable units must be disposed of in accordance with local waste disposal regulations.

Safety Informations

Matrix When installing and operating with the light barrier, it is necessary to take into consideration the relevant international and other national regulations. EN 60079-14, UL508, UL913 Intrinsically Safe **Fippkemper** Apparatus and Associated Apparatus for use in Class I, II, III Division 1, Hazardous (Classified) Locations. There is no risk on eye injuries by the diode emitters. The maximum possible exposure is less then the ratings described by the standard EN 60825-1/item 13).

UL/EU-Declaration of Conformity/Approvals:

ATEX EC-type certification No. DMT 03 ATEX E 003, DEKRA. UL-Classified, Assigned Control No. 24VL / E185916. The sensors are conform to the following standards: UL 913, UL 508, EN 60079-0:2009, EN 60079-11:2007 EN 60825-1:2007; N 60529:2014, EN 60950-1:2006; EN 61000-4-2 to EN 61000-4-6. EN 61000-6-1/-2. EN 61000-6-4. UL 913, ATEX directive: 2014/34/EU, EMC directive: 2014/30/EU. Machine directive: 2006/42/EC. RoHS directive: 2011/65/EU ATEX certification of quality type production of Ex devices according to the ATEX directive 2014/34/EU, CE 0158. Certification No: BVS 15 ATEX ZQS / E118. The conformity of the devices with the EC/UL standards and directives and the EC/UL-type examination certificate and the observation of the Quality Safety System ISO

H. Mode

9001:2008 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG

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-29

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GmbH