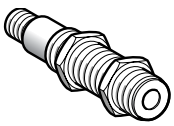
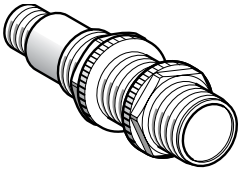
Ultrasonic sensors

OsiSense XX, General purpose
Cylindrical, plastic or metal
DC supply, solid-state output

564546

XX512A1KAM8

564547

XX518A1KAM12

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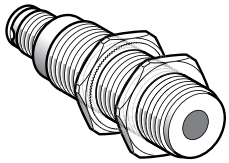
XXV18B1●●M12

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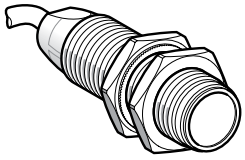
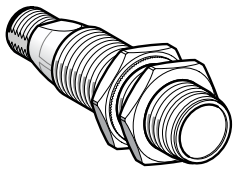

XX518A3●●L2

532713

XX518A3●AM12

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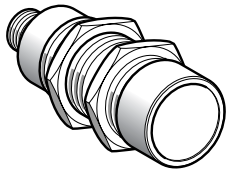
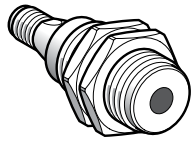
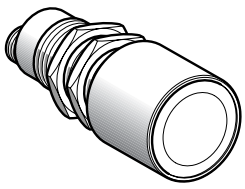

XX630A1●●●12
XX630A2●●●M12

537727

XX6V3A1●AM12

564531

XX630A3●CM12

Diffuse system

Fixed sensing distance sensors

Sensors	Sensing distance (Sn)	Function/output	Connection	Reference	Weight
	m				kg
Ø 12 Plastic	0.05	NO/PNP + NO/NPN	M8 connector	**XX512A1KAM8**	0.011
	0.10	NO/NPN	M8 connector	**XX512A2NAM8**	0.011
		NO/PNP	M8 connector	**XX512A2PAM8**	0.011
Ø 18 Plastic	0.15	NO/PNP + NO/NPN	M12 connector	**XX518A1KAM12**	0.033
Ø 18 Metal	0.05	NO/NPN	Pre-cabled (L = 2 m)	**XXV18B1NAL2**	0.110
			Pre-cabled (L = 5 m)	**XXV18B1NAL5**	0.200
			Pre-cabled (L = 10 m)	**XXV18B1NAL10**	0.340
			M12 connector	**XXV18B1NAM12**	0.050
		NO/PNP	Pre-cabled (L = 2 m)	**XXV18B1PAL2**	0.110
			Pre-cabled (L = 5 m)	**XXV18B1PAL5**	0.200
			Pre-cabled (L = 10 m)	**XXV18B1PAL10**	0.340
			M12 connector	**XXV18B1PAM12**	0.050
		NC/NPN	Pre-cabled (L = 2 m)	**XXV18B1NBL2**	0.110
			Pre-cabled (L = 5 m)	**XXV18B1NBL5**	0.200
			Pre-cabled (L = 10 m)	**XXV18B1NBL10**	0.340
			M12 connector	**XXV18B1NBM12**	0.050
		NC/PNP	Pre-cabled (L = 2 m)	**XXV18B1PBL2**	0.110
			Pre-cabled (L = 5 m)	**XXV18B1PBL5**	0.200
			Pre-cabled (L = 10 m)	**XXV18B1PBL10**	0.340
			M12 connector	**XXV18B1PBM12**	0.050

Adjustable sensing distance sensors

Ø 18 Plastic	0.50 (adjustable)	NO/NPN	Pre-cabled (L = 2 m)	**XX518A3NAL2**	0.080
		NO/PNP	Pre-cabled (L = 2 m)	**XX518A3PAL2**	0.080
		NO/NPN	M12 connector	**XX518A3NAM12**	0.033
		NO/PNP	M12 connector	**XX518A3PAM12**	0.033
Ø 30 Plastic	1 (adjustable)	NO/PNP + NO/NPN	M12 connector	**XX630A1KAM12**	0.090
		NO/NPN	M12 connector	**XX6V3A1NAM12**	0.090
		NO/PNP	M12 connector	**XX6V3A1PAM12**	0.090
		NO/NPN + NC/NPN	M12 connector	**XX630A1NCM12**	0.090
			M12 connector	**XX630S1NCM12** *(1)*	0.090
		NO/PNP + NC/PNP	M12 connector	**XX630A1PCM12**	0.090
			M12 connector	**XX630S1PCM12** *(1)*	0.090
	2 (adjustable)	NO/NPN + NC/NPN	M12 connector	**XX630A2NCM12**	0.090
		NO/PNP + NC/PNP	M12 connector	**XX630A2PCM12**	0.090
	8 (adjustable)	NO/NPN + NC/NPN	M12 connector	**XX630A3NCM12**	0.110
		NO/PNP + NC/PNP	M12 connector	**XX630A3PCM12**	0.110

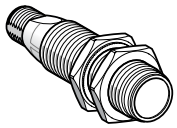
(1) Stainless steel 303 case.

General: pages 8 to 13
Dimensions: pages 26 and 27
Schemes: pages 28 and 29
Setting-up and curves: pages 30 and 31

Ultrasonic sensors

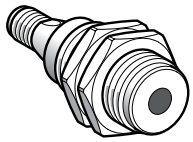
OsiSense XX, General purpose
Cylindrical, plastic or metal
DC supply, solid-state output

532713



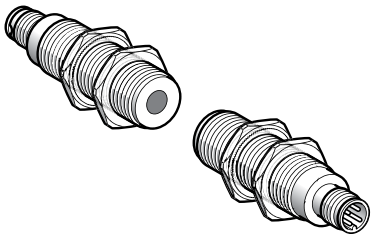
XXB18A3PAM12

537727



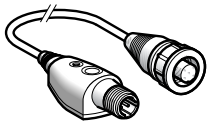
XXBV3A1PAM12

600810



XXT18● + XXR18● (thru-beam system)

564530



XXZPB100

Reflex system

Adjustable sensing distance sensors

Sensors	Sensing distance (Sn)	Function/output	Connection	Reference	Weight
	m				kg
Ø 18 Plastic	0.50 (adjustable)	NO/PNP	M12 connector	**XXB18A3PAM12**	0.033
Ø 30 Plastic	1 (adjustable)	NO/PNP	M12 connector	**XXBV3A1PAM12**	0.090

Thru-beam system

Sensors	Sensing distance (Sn)	Function/output	Connection	Reference	Weight
	m				kg
Ø 12					
Transmitter	0.20		M8 connector	**XXT12A8M8**	0.020
Receiver	0.20	NO/PNP + NO/NPN	M8 connector	**XXR12A8KAM8**	0.020
		NC/PNP + NC/NPN	M8 connector	**XXR12A8KBM8**	0.020
Ø 18					
Transmitter	0.61		M12 connector	**XXT18A3M12**	0.040
Receiver	0.61	NO/PNP + NO/NPN	M12 connector	**XXR18A3KAM12**	0.040
		NC/PNP + NC/NPN	M12 connector	**XXR18A3KBM12**	0.040
Transmitter	1		M12 connector	**XXT18A4M12**	0.040
Receiver	1	NO/PNP + NO/NPN	M12 connector	**XXR18A4KAM12**	0.040
		NC/PNP + NC/NPN	M12 connector	**XXR18A4KBM12**	0.040

Accessories

Teach pushbutton	For use with sensors	Reference	Weight kg
Selection of detection window **Input:** M12 female connector **Output:** M12 male connector	XX518A3●AM12, XXB18A3●AM12, XXBV3A1●AM12 and XX6V3A●AM12	**XXZPB100**	0.035

Other connection and fixing accessories

See page 24.

Ultrasonic sensors

OsiSense XX, General purpose
Cylindrical, plastic or metal
DC supply, solid-state output

Sensor type			XX5 12A1●	XX5 12A2●	XX● 12A8●	XXV 18B1●	XX5 18A1●	XX● 18A3● XX● 18A4●	XX5 18A3● XXB 18A3●	XX6 V3A1● XXB V3A1●	XX630A1● XX630A2● XX630S1●	XX6 30A3●
General characteristics												
Conformity to standards			CE,IEC 60947-5-2									
Product certifications			UL	UL	UL	cULus		UL	UL, cCSAus *(1)*	UL, cCSAus *(2)*		
Nominal sensing distance (Sn)		**m**	0.05	0.1	0.2	0.05	0.15	0.60 or 1 *(3)*	0.50	1	1 or 2 *(4)*	8
Blind zone (in diffuse mode the object is not detected in this zone, in reflex mode the background is not detected in this zone)		**mm**	0…6.4	0…6.4	–	0...2	0…19	–	0 ... 51 (XX518A3●) 0 ... 165 (XXB18A3●)	0 ...100 (XX6V3A1●) 0 ... 315 (XXBV3A1●)	0…51 (XX630●1 0...120 (XX630A2●)	0…300
Detection window		**mm**	Fixed						Remotely adjustable or by using external teach button		Adjustable using teach button on sensor	
Detection system	Diffuse		●	●	–	●	●	–	●	●	●	●
	Reflex		–	–	–	–	–	–	●	●	–	–
	Thru-beam		–	–	●	–	–	●	–	–	–	–
Transmission frequency (transmitter resonance)		**kHz**	500			360	200	300	300	180	200	75
Differential travel		**mm**	< 0.7	< 0.7	–	< 3	–	< 2.5	< 2.5	< 2.5	< 2.5	< 12.7
Repeat accuracy		**mm**	± 0.7		± 0.79	± 1.5	± 0.79	± 1.27	± 1.27	± 1.6	± 0.87	± 2.54
Overall beam angle (see detection lobe)			11°	10°	10°	10°	20	6°	6°	7°	10°	16°
Minimum size of object to be detected	Cylinder Ø (in mm), at distance (in mm)		Ø 2.5 at 38	Ø 2.5 at 50	Ø 12 at 200	Ø 2.5 at 20	Ø 1.6 at 63	Ø 38 at 600 Ø 114 at 1000	Ø 2.5 at 150	Ø 50 at 1000	Ø 1.6 at 635	Ø 51 at 4732
Deviation angle from 90° of the object to be detected			± 10°	± 10°	–	± 8°	± 10°	–	± 7°	± 5°	± 7° or ± 10° *(4)*	± 5°
Materials	Case		ULTEM®			Nickel plated brass	ULTEM®	ULTEM®	Valox®	Valox®	ULTEM®	ULTEM®
			Stainless steel 303 for XX630AS1●●●●									
	Sensing face *(5)*		Epoxy			Epoxy	Silicone	Silicone	Epoxy	Epoxy	Silicone	Epoxy
Connection	Connector		M8, 4-pin	M8, 3-pin	M8, 4-pin	M12, 4-pin	M12, 4-pin	M12, 4-pin	M12, 4-pin	M12, 4-pin	M12, 4-pin	M12, 4-pin
	Pre-cabled (wire c.s.a.)		–	–	–	3 x 0.34 mm^2/ *AWG 22*	–	–	4 x 0.08 mm^2/*AWG 28*	–	–	–

(1) Only XX518A3● sensors are cCSAus certified.
(2) Only XX6V3A1●, XX630A1●, XX630A2●, XX630S1● and XX630A3● sensors are cCSAus certified.
(3) The first value is given for XX●18A3●, the second value for XX●18A4●.
(4) The first value is given for XX630A1● and XX630S1●, the second value for XX630A2●.
(5) Silicone face for optimum chemical resistance.

Ultrasonic sensors

OsiSense XX, General purpose
Cylindrical, plastic or metal
DC supply, solid-state output

Sensor type			XX5 12A1●	XX5 12A2●	XX● 12A8●	XXV 18B1●	XX5 18A1●	XX● 18A3 XX● 18A4●	XX5 18A3● XXB 18A3●	XX6 V3A1● XXB V3A1●	XX630A1● XX630A2● XX630S1●	XX6 30A3●
Supply characteristics												
Rated supply voltage		**V**	12…24 V ⎓ with protection against reverse polarity									
Voltage limits (including ripple)		**V**	10…28 V ⎓			10…36 V ⎓	10…28 V ⎓					
Current consumption, no-load		**mA**	25		50	15	60	40	40	60	50 or 100 *(1)*	50
Output characteristics												
LED indicators	Output state		Yellow LED				–	–	Yellow LED			
	Power on		Green LED			–	–	–	Green LED			
	Setting-up assistance		–	–	–	–	–	–	Multicolour LED			
Switching capacity (with overload and short-circuit protection)		**mA**	< 100			< 200	< 100					
Voltage drop		**V**	< 1 (NPN); < 1.5 (PNP); 1.1 for XX●12A8, < 2 for XXV18B1●; 0.5 for XX630A2●									
Maximum switching frequency		**Hz**	125	125	125	80	80	40	40	70	10 or 16 *(1)*	2
Delays	First-up	**ms**	20	20	20	5	350	100	100	75	720	800
	Response	**ms**	2	3	0.4	4	3	10	10	15	20 or 25 *(1)*	200
	Recovery	**ms**	2	3	0.4	4	3	10	10	75	20	200
Environment characteristics												
Degree of protection	Conforming to IEC 60529 and IEC 60947-5-2		IP 67			IP 65, IP 67 or IP 69K *(2)*	IP 67	IP 67	IP 67	IP 67	IP 65 or IP 67 *(1)*	IP 67
Storage temperature		**°C**	- 40…+ 80									
Operating temperature		**°C**	- 20…+ 65			0 …+ 60	0 …+ 50	0 …+ 60	- 20 …+ 65	0 …+ 70	0…+ 60 or 0…+ 50 *(1)*	- 20 …+ 60
Vibration resistance	Conforming to IEC 60068-2-6		Amplitude ± 1 mm (f = 10…55 Hz); ± 2 mm for XXV18B1●									
Mechanical shock resistance	Conforming to IEC 60068-2-27		30 gn, duration 11 ms, in all 3 axes 50 gn, duration 11 ms, in all 3 axes for XXV18B1●									
Resistance to electromagnetic interference			Conforming to IEC 60947-5-2									

(1) The first value is given for XX630A1● and XX630S1●, the second value for XX630A2●.
(2) Double insulation for pre-cabled sensors. IP 69K for sensors with M12 connector.