

JANUS



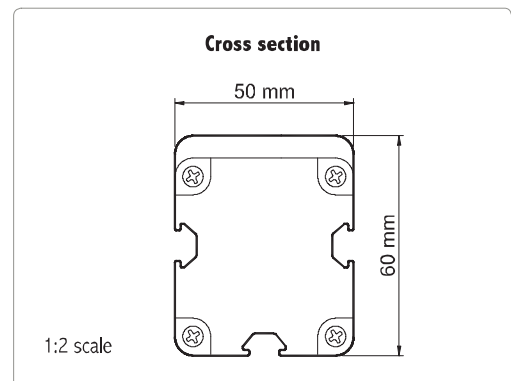
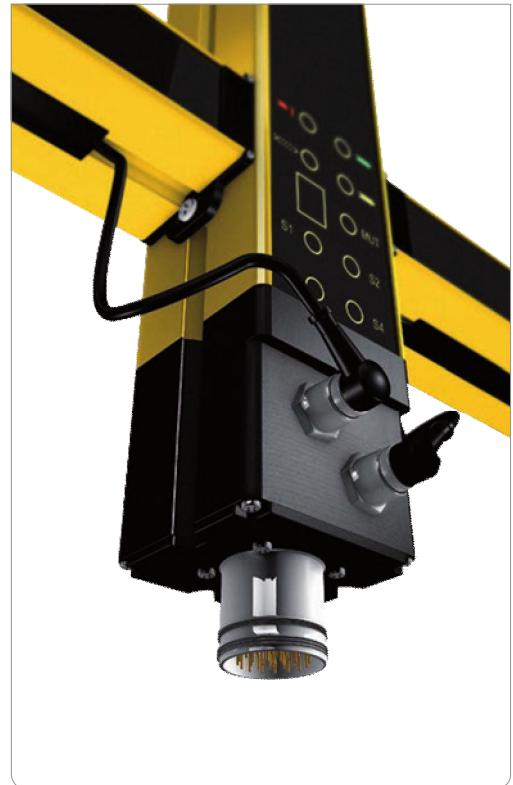
JANUS

The Janus type 4 family of safety light curtains is the ideal solution for the protection of a vast number of high-risk industrial applications, in particular those requiring a high level of integration of the safety functions.

For example, in the models with built-in Muting function, Janus guarantees the independence of the light curtain from the control circuits of the system (often distant from the protected gate) and, where necessary, also the integration of the Muting sensors.

The features of the Janus range include:

- Settings of each function integrally performed via the main connector. No need of configuration via software.
- Integration of the main safety functions, including self-testing of the solid state outputs, external device monitoring (EDM) and the Start/Restart interlock function.
- Integration of the Muting function for the MI models and of the Muting sensors for the ML and MT models.
- The utmost reliability in the field, thanks to the rugged construction and to the high level of immunity to external interference (optical, EMC, etc.).


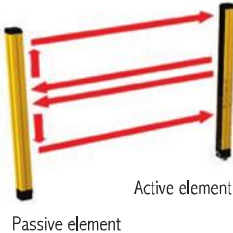

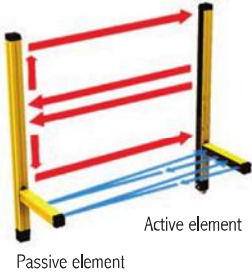


Safety level: **Type 4 – SIL 3 – SILCL 3 – PL e – Cat. 4**

- 2006/42/CE "Machinery Directive"
- 2004/108/CE "Electromagnetic Compatibility (EMC)"
- 2006/95/CE "Low Voltage Directive (LVD)"
- IEC/EN 61496-1 Ed. 2.1, IEC/TS 61496-2 Ed. 2 "Safety of machinery - Electro-sensitive protective equipment - General requirements and tests"
- EN ISO 13849-1 "Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design"
- IEC/EN 62061 "Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- IEC 61508 "Functional safety of electrical/electronic/programmable electronic safety-related systems"
- IEC/TS 62046 Ed. 2 "Safety of machinery – Application of protective equipment to detect the presence of persons"
- UL (C+US) mark for USA and Canada
- ANSI / UL 1998 "Safety Software in Programmable Components".


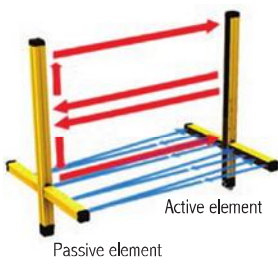


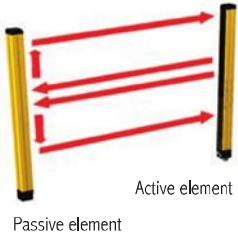


THE JANUS RANGE

<p>JANUS M Built-in Muting Function</p>		<p>MI SERIES</p> <p>The MI series features dedicated connections for connecting external Muting sensors of any type such as photocells, proximity sensors, limit switches, etc.; it can manage the Muting function in both two-way and one-way mode.</p> <p>A wide range of models with protected height from 310 mm to 1810 mm with resolution of 30, 40, 90 mm and models with 2, 3, 4 beams provides the solution to any application problem.</p>	<p>JANUS MI Range: selectable 6 or 16 m</p>
		<p>JANUS MI TRX and TRXL SERIES</p> <p>Janus MI TRX and MI TRXL is composed of an active element and of a passive retro-reflector element requiring no wiring.</p> <p>It features dedicated connections for connecting external muting sensors of any type such as photocells, proximity sensors, limit switches, etc. The MI series can manage the muting function in both two-way and one-way mode.</p> <p>Models with 2, 3, 4 beams provide the solution to any application problem in access control.</p>	<p>JANUS MI Long Range Range: selectable 30 or 60 m</p>
		<p>JANUS ML SERIES</p> <p>The ML series, with 2 or 3 beams for body detection, uses an original system of horizontal arms (one for the emitter and one for the receiver) with built-in pre-wired and pre-aligned photoelectric Muting sensors which do not require any adjustment.</p> <p>The arms can be adjusted in height in order to create a detection plane that is more or less angled, with the purpose to achieve correct and constant detection of the material in transit and therefore reliable operation of the protection system.</p> <p>This ensures the maximum speed and simplicity of installation. The ML series manages the Muting function in one-way mode and is particularly suitable for protecting the outfeed gates of palletizing systems.</p>	<p>JANUS ML Built-in muting sensors with crossed beams ▶ See page 92</p> <p>JANUS ML S2 Special models for the correct detection of transparent object. Built-in muting sensors with parallel beams ▶ See page 92</p>
		<p>JANUS ML TRX, ML TRX G and ML TRX V SERIES</p> <p>Also this series uses an original system of horizontal arms (one for the emitter and one for the receiver) with built-in, pre-wired and pre-aligned, photoelectric muting sensors which do not require any adjustment.</p> <p>Both the light grid and the sensor arms are composed of an active, emitter/receiver element and of a passive, retro-reflector element, requiring no wiring.</p> <p>The ML TRX series manages the muting function in one-way mode and is particularly suitable for protecting the outfeed gates of palletizing systems.</p>	<p>JANUS ML TRX</p> <p>JANUS ML TRX G (Glass models) with special built-in Muting sensors to optimise correct and consistent detection of glass and transparent materials in general.</p> <p>JANUS ML TRX V Models with longer built-in muting arms available for high-speed conveyors.</p>

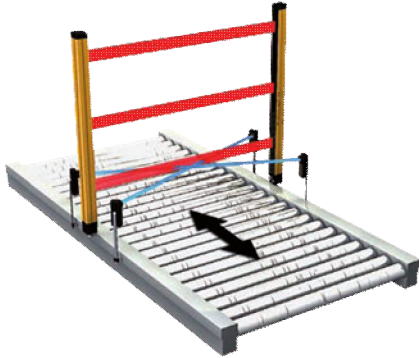
CONTINUE

JANUS

JANUS M Built-in Muting Function	 <p style="text-align: center;">JANUS MT SERIES</p> <p>The MT series features four horizontal arms (two for the emitter and two for the receiver) with built-in pre-wired and pre-aligned photoelectric Muting sensors that do not require any adjustment.</p> <p>The MT series manages the Muting function in two-way mode for the protection of the infeed/outfeed gates in palletizing systems.</p>	<p style="text-align: center;">JANUS MT</p> <p>Built-in muting sensors with crossed beams</p> <p>▶ See page 93</p> <p style="text-align: center;">JANUS MT S4</p> <p>The MT series also includes MT S4 special models for the correct detection of transparent objects.</p> <p>Built-in muting sensors with parallel beams</p> <p>▶ See page 93</p>
	 <p style="text-align: center;">JANUS MT TRX, MT TRX G and MT TRX V</p> <p>Janus MT TRX and MT TRX G features four horizontal arms (two for the emitter and two for the receiver) with built-in pre-wired and pre-aligned photoelectric muting sensors that do not require any adjustment.</p> <p>Both the light grid and the sensor arms are composed of an active, emitter/receiver element and of a passive, retro-reflector element, requiring no wiring.</p> <p>The MT TRX series manages the muting function in two-way mode for the protection of the infeed/outfeed gates in palletizing systems.</p>	<p style="text-align: center;">JANUS MT TRX</p> <p style="text-align: center;">JANUS MT TRX G</p> <p>(Glass models) with special built-in Muting sensors to optimise correct and consistent detection of glass and transparent materials in general</p> <p style="text-align: center;">JANUS MT TRX V</p> <p>Models with longer built-in muting arms available for high-speed conveyors</p>
JANUS MM TRX	 <p style="text-align: center;">JANUS MM TRX</p> <p>Janus MM TRX is a modular system with 2, 3 and 4 beams which permits to add pre-wired muting arms in order to get either a ML TRX (one way) or a MT TRX (entry/exit) model with a few simple steps. SL TRX and ST TRX are the pre-wired muting arms and can be ordered separately.</p> <p>Janus MM TRX can also be used with external Muting sensors, with 2 or 4 sensors logic.</p> <p>Muting logics for models MM TRX are:</p> <ul style="list-style-type: none"> • one-way (only exit), together with SL TRX • two-way (entry/exit) together with SL TRX and ST TRX. <p>Max. range is 6 m (3,5 m if used with SL TRX and ST TRX).</p>	
JANUS J Models, without Muting Function	 <p style="text-align: center;">JANUS J</p> <p>Models with 2, 3, 4 beams.</p> <p style="text-align: center;">JANUS J - Long Range and Long Range M12</p> <p>Models with 2, 3, 4 beams and models with 40 mm resolution and protected height from 610 to 1210 mm.</p> <p>Long Range models with 2, 3 and 4 beams are also available in M12 version with a M12 8-pole connector for the receiver.</p> <p style="text-align: center;">JANUS J LRH M12, J LRH M12 ILP</p> <p>Models with 2, 3 and 4 beams Max. range up to 80 meters</p>	<p style="text-align: center;">JANUS J</p> <p>Range: selectable 6 or 16 m</p> <p style="text-align: center;">JANUS J - LR, LR M12</p> <p>Range: selectable 30 or 60 m</p> <p style="text-align: center;">JANUS J LRH M12</p> <p>Range: selectable 40 or 80 m</p> <p style="text-align: center;">JANUS J LRH M12 ILP</p> <p>With integrated laser pointer</p>
	 <p style="text-align: center;">JANUS J TRX, TRXL SERIES</p> <p>Janus J TRX and J TRXL are safety light grids with 2, 3, 4 beams consisting of an active element (emitter/receiver) and a retro-reflector passive element which does not require electrical connections.</p> <p>JANUS series J TRX and TRXL are the simplest and quickest installation solutions for detection of a person in access control in hazardous areas, and the ideal solutions for all applications in which it is difficult or costly to cable electrical lines.</p>	<p style="text-align: center;">Janus J TRX</p> <p>M12 8-pole connector</p> <p style="text-align: center;">Janus J TRX L</p> <p>M23 19-pole connector</p>

Muting type

MI – MI TRX – MI TRXL - MM TRX



Two-way Muting with 2 sensors

- Max. time between the 2 Muting activation signals: 4 sec.
- Possibility of use with photocells, proximity sensors, and limit switches.
- Max. Muting time-out time 30 sec. or 90 min. selectable.
- Muting enable input available (TRX models only).

Characteristics

- Suitable for the most common pallet infeed/outfeed applications.
- Moreover, the TRX models have also the "Muting enable input" function, which starts the Muting sequence only if necessary for the machine cycle, i.e. Muting enabled only when the conveyor is moving.

MI – MI TRX - MM TRX



Two-way sequential Muting with 4 sensors

- Max. time between the Muting activation signals: 4 sec. or infinite, selectable.
- Possibility to use with photocells, proximity sensors, and limit switches.
- Max. Muting time-out time 30 sec. or infinite, selectable.
- Muting enable input available (TRX models only).

Characteristics

- Correct Muting sequence even in the presence of pallets with reduced width and/or length or not centred with respect to the conveyor.
- Possibility of two-way transit of the pallets and simultaneous protection in the two directions against unauthorised access of personnel.
- Moreover, the TRX models have also the "Muting enable input" function, which starts the Muting sequence only if necessary for the machine cycle, i.e. Muting enabled only when the conveyor is moving.

MI – MI TRX - MM TRX



One-way Muting with 2 sensors

- Max. time between the 2 Muting activation signals: 4 sec.
- Possibility to use with photocells, proximity sensors, and limit switches.
- Max. Muting time-out time: 30 sec. or 90 min. selectable.

Characteristics

- The light curtain only enables the pallet outfeed.
- The Muting function can only be activated from inside the protected zone. No possibility to activate a Muting sequence from the outside.
- Elimination of bulk outside the protected area, as the Muting sensors are only present inside the area.
- Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.
- Moreover, the TRX models have also the "Muting enable input" function, which starts the Muting sequence only if necessary for the machine cycle, i.e. Muting enabled only when the conveyor is moving.

ML



One-way Muting with 2 sensors 2 Built-in Muting sensors with crossed beams

- Max. time between the 2 Muting activation signals: 4 sec.
- Operating range 1 ... 2.5 metres.
- Muting sensor elements adjustable in height and angle.
- Max. Muting time-out time: 30 sec. or 90 min. selectable.
- Versions with 2 or 3 beams.

Characteristics

- Reduced installation time and costs.
- Sensors positioned in compliance with the regulations regarding the geometry of Muting sensors (IEC TS 62046) and all the other safety parameters; this makes it possible to avoid dangers arising from positioning errors and from possible tampering.
- The light curtain only allows pallet outfeed.
- The Muting function can only be activated from inside the protected zone. No possibility to activate a Muting sequence from the outside.
- Elimination of bulk outside the protected area, as the Muting sensors are only present inside the area.
- Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.

ML S2 - ML TRX - ML TRX G – ML TRX V – MM TRX with SL TRX



One-way Muting with 2 sensors 2 Built-in Muting sensors with parallel beams

- Max. time between the 2 Muting activation signals: 4 sec.
- Operating range: 0 ... 2 meters for ML S2 and ML TRX G models, 0 ... 3,5 for ML TRX model.
- Muting sensor elements adjustable in height and angle.
- Max. Muting time-out time: 30 sec. or 90 min. selectable.
- Versions with 2 or 3 beams.
- Muting enable input available (TRX models only).

Characteristics

- Reduced installation time and costs.
- The light curtain only allows pallet outfeed.
- The Muting function can only be activated from inside the protected zone. No possibility to activate a Muting sequence from the outside.
- Elimination of bulk outside the protected area, as the Muting sensors are only present inside the area.
- Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.
- ML TRX G models especially designed for transparent material, ideal solution for glass and bottling industry.
- ML TRX V models for high-speed conveyors.
- Moreover, the TRX models have also the "Muting enable input" function, which starts the Muting sequence only if necessary for the machine cycle, i.e. Muting enabled only when the conveyor is moving.

MT



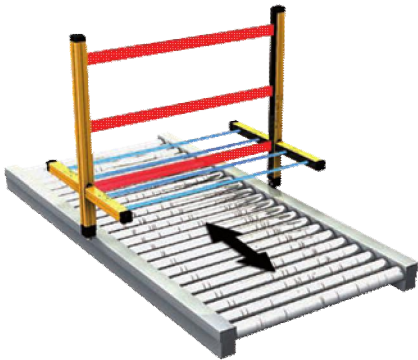
Two-way Muting with 2 sensors **2 Built-in Muting sensors with crossed beams**

- Max. time between the 2 Muting activation signals: 4 sec.
- Operating range: 1 ... 2,5 metres.
- Muting sensor elements adjustable in height and angle.
- Max. Muting time-out time: 30 sec. or 90 min. selectable.
- Versions with 2 or 3 beams.

Characteristics

- Reduced installation time and costs.
- Standard solution for the most common pallet infeed/outfeed applications.

MT S4 – MT TRX – MT TRX G – MT TRX V – MM TRX with SL TRX and ST TRX



Two-way sequential Muting with 4 sensors **4 Built-in Muting sensors with parallel beam**

- Max. time between the Muting activation signals: 4 sec. or infinite, selectable.
- Operating range: 0 ... 2 meters for MT S4, and 0 ... 3,5 meters for MT TRX models.
- Muting sensor elements adjustable in height and angle.
- Max. Muting time-out time: 30 sec. or infinite, selectable.
- Versions with 2 or 3 beams.

Characteristics

- Correct Muting sequence even in the presence of a pallet with reduced width and/or length or not centred with respect to the conveyor.
- Possibility of two-way transit of the pallets and simultaneous protection in the two directions against unauthorized access of personnel.
- MT TRX G models especially designed for transparent material, ideal solution for glass and bottling industry.
- MT TRX V models for High-speed conveyors.
- Moreover, the TRX models have also the "Muting enable input" function, which starts the Muting sequence only if necessary for the machine cycle, i.e. Muting enabled only when the conveyor is moving.

JANUS M

WITH MUTING FUNCTION

MAIN FEATURES

Built-in Muting function in all the models.

Ideal for palletizer applications.

MI models with front M12 connectors for external Muting sensors, with operating logic with 2 or 4 sensors.

Patented ML and MT models with Muting sensors built into pre-wired and pre-aligned arms, adjustable in height and angle.

ML: pallet outfeed only. MT: pallet infeed and outfeed.

Broad flexibility of configuration for the Muting time-outs; two types of override selectable. Configuration is carried out via hardware by means of the main connector.

Use of unshielded cables up to 100 m.

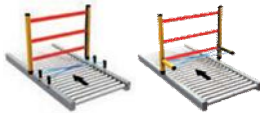
MI Long Range models available with range up to 60 m for hand protection with resolution 40 mm and body detection with 2, 3, 4 beams.

MJB Connection Box for quick connection of the light curtains and providing the main commands necessary for their operation close to the protected gate.



Solutions Table

**"L" Logic
Crossed beams**



Suitable solution for any applications of pallet exit.

**"L" Logic
Parallel beams**



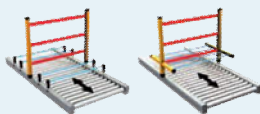
Suitable solution for transparent material: glass and bottling industry of pallet exit.

**"T" Logic
Crossed beams**



Suitable solution for the most common pallet infeed/outfeed applications. Ideal solution in case of a continuous flow of pallets even without separation between the pallets.

**"T" Logic
Parallel beams**



Suitable solution for transparent material and application with presence of a pallet with reduced width or not centred with respect to the conveyor. Through the verification of the 4 sensors, allows to set infinite muting time-out.

Please note: this configuration needs a separation between two consecutive pallets equal to the distance between the two external muting sensors.

Models ML and MT are quick and easy to install. Also, they are complying with regulatory requirements on Muting sensor geometry and all other safety-related parameters, as per IEC TS 62046 and other current standards.



Safety Level:

TYPE 4

SIL 3 – SILCL 3
PL e – Cat. 4

GENERAL TECHNICAL DATA

Safety level	Type 4 according to IEC/TS 61496-2 SIL 3 – SILCL 3 according to IEC 61508 - IEC 62061 PL e – Cat. 4 according to ISO 13849-1
Response time (ms)	7 ... 30
Safety outputs	2 PNP auto-controlled - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection
Light curtain status indication and weak signal output	PNP - 100 mA at 24 VDC
Signalling	7-segment display and LEDs for self-diagnosis and light curtain status
Muting lamp output (mandatory)	24 VDC; 0,5 ... 5 W
Start/Restart	selectable automatic or manual
External Device Monitoring	external device monitoring feedback input with enabling, selectable
Max. Muting time-out	30 sec. or 90 min. selectable (30 sec. or infinite selectable only for MT S4 and MI models with 4 sensors logic)
Override function	built-in override function with 2 operating modes, selectable: - manual action with hold to run - automatic with pulse command
Max. Override Time-out (min.)	15
Power supply (VDC)	24 ± 20%
Electrical connections MI-ML-MT models	emitter M12 5-pole - receiver: M23 19-pole - Muting sensors: M12 5-pole
Max. length electrical connections (m)	100
Operating temperature (°C)	-10 ... 55
Protection rating	IP 65
Cross-section dimensions (mm)	50 x 60
MI SERIES	
Protected heights (mm)	310 ... 1810 for light curtains with 40 and 90 mm resolution 310 ... 1210 for light curtains with 30 mm resolution
Resolutions available (mm)	30, 40, 90
Number of beams for access control	2, 3, 4
Max. range (m)	selectable 6 or 16
Max. range for Long Range models (m)	selectable 30 or 60
Muting logic	two-way with 2 or 4 sensors one-way with 2 sensors
Muting Sensors	external Muting sensors with relay or PNP output (dark-on logic)
ML SERIES	
Number of beams for access control	2, 3
Operating range (m)	1 ... 2,5 (0 ... 2 for ML S2)
Muting logic	one-way with 2 sensors
Muting Sensors	optoelectronics with 2 crossed or parallel beams built-in – pre-aligned – pre-wired, with adjustable height and angle
MT SERIES	
Number of beams for access control	2, 3
Operating range (m)	1 ... 2,5 (0 ... 2 for MT S4)
Muting logic	two-way with 2 sensors (models MT) two-way sequential with 4 sensors (models MT S4)
Muting Sensors	optoelectronics with 2 crossed or 4 parallel beams built-in – pre-aligned – pre-wired, with adjustable height and angle

JANUS M

WITH MUTING FUNCTION



MI e MI LR 2, 3, 4 beams	MI 2B	MI 3B	MI 4B	MI 2B LR	MI 3B LR	MI 4B LR
Ordering codes	1360660	1360661	1360662	1360670	1360671	1360672
Number of beams	2	3	4	2	3	4
Beam spacing (mm)	500	400	300	500	400	300
Protected height (mm)	510	810	910	510	810	910
Overall height (mm)	776	1076	1176	776	1076	1176
Max. range (m)	selectable 6 or 16			selectable 30 or 60		

ML 2, 3 beams	ML 2B	ML 3B	ML 2B S2	ML 3B S2	MT 2, 3 beams	MT 2B	MT 3B	MT 2B S4	MT 3B S4
Ordering codes	1360020	1360021	1360024	1360025	Ordering codes	1360030	1360031	1360034	1360035
Number of beams	2	3	2	3	Number of beams	2	3	2	3
Beam spacing (mm)	500	400	500	400	Beam spacing (mm)	500	400	500	400
Protected height (mm)	510	810	510	810	Protected heights (mm)	510	810	510	810
Overall height (mm)	776	1076	776	1076	Overall height (mm)	776	1076	776	1076
Muting sensors	2 crossed beams		2 parallel beams		Muting sensors	2 crossed beams		4 parallel beams	
Operating range (m)	1 ... 2,5		0 ... 2		Operating range (m)	1 ... 2,5		0 ... 2	

MI Resolution 30 mm	MI 303	MI 453	MI 603	MI 753	MI 903	MI 1053	MI 1203
Ordering codes	1360241	1360242	1360243	1360244	1360245	1360246	1360247
Protected height (mm)	310	460	610	760	910	1060	1210
Number of beams	16	24	32	40	48	56	64
Overall height (mm)	476	626	776	926	1076	1226	1376
Max. range (m)	selectable 6 or 16						



MI Resolution 40 mm	MI 304	MI 454	MI 604	MI 754	MI 904	MI 1054	MI 1204	MI 1354	MI 1504	MI 1654	MI 1804
Ordering codes	1360375	1360376	1360377	1360378	1360379	1360380	1360381	1360382	1360383	1360384	1360385
Protected height (mm)	310	460	610	760	910	1060	1210	1360	1510	1660	1810
Number of beams	10	15	20	25	30	35	40	45	50	55	60
Overall height (mm)	476	626	776	926	1076	1226	1376	1526	1676	1826	1976
Max. range (m)	selectable 6 – 16										

MI Long Range Resolution 40 mm	MI 604 LR	MI 904 LR	MI 1204 LR
Ordering codes	1360388	1360390	1360392
Protected height (mm)	610	910	1210
Number of beams	30	45	60
Overall height (mm)	776	1076	1376
Max. range (m)	selectable 30 or 60		

Model MI Resolution 90 mm	MI 309	MI 459	MI 609	MI 759	MI 909	MI 1059	MI 1209	MI 1359	MI 1509	MI 1659	MI 1809
Ordering codes	1360541	1360542	1360543	1360544	1360545	1360546	1360547	1360548	1360549	1360550	1360551
Protected height (mm)	310	460	610	760	910	1060	1210	1360	1510	1660	1810
Number of beams	5	7	9	11	13	15	17	19	21	23	25
Overall height (mm)	476	626	776	926	1076	1226	1376	1526	1676	1826	1976
Max. range (m)	selectable 6 or 16										

► "ACCESSORIES" on page 113

MAIN FEATURES

Built-in Muting function in all the models. Ideal for palletizer applications.

Models with passive retro-reflector element, MI TRX with front M12 connectors for external Muting sensors and operating logic with 2 or 4 sensors.

Models MI TRXL with single M23 connector and operating logic with 2 sensors.

Patented ML TRX and MT TRX models with passive retro-reflector elements and reflex Muting sensors built into pre-wired and pre-aligned arms, adjustable in height and angle.

Models ML TRX G e MT TRX G (Glass) with special built-in Muting sensors to optimise correct and consistent detection of glass and transparent materials in general.

Models ML TRX V e MT TRX V with longer built-in muting arms available for high-speed conveyors.

Note: ML TRX: pallet outfeed only, MT TRX: pallet infeed and outfeed.

MM TRX models with two, three and four beams with modular system which permits to add pre-wired muting arms so that the light grid can be used either as one-way (ML TRX) or as entry/exit (MT TRX) system with a few simple steps. MM TRX can also be used with external Muting sensors, with 2 or 4 sensors logic.

Broad flexibility of configuration for the Muting time-outs; two types of override selectable.

Input Muting enable and Muting state output available.

Configuration is carried out via hardware by means of the main connector.

Unshielded cables up to 100 m long are used.

MJB Connection Box for quick connection of the light curtains and providing the main commands necessary for their operation close to the protected gate.



JANUS ML TRX

ML TRX and MT TRX models are quick and easy to install. Also, they are complying with regulatory requirements on Muting sensor geometry and all other safety-related parameters, as per IEC TS 62046 and other current standards.



Safety Level:

TYPE 4

**SIL 3 – SILCL 3
PL e – Cat. 4**

JANUS M TRX

WITH MUTING FUNCTIONS AND PASSIVE RETRO-REFLECTOR ELEMENT

GENERAL TECHNICAL DATA

Safety level	Type 4 according to IEC/TS 61496-2 SIL 3 – SILCL 3 according to IEC 61508 - IEC 62061 PL e – Cat. 4 according to ISO 13849-1
Response time (ms)	≤ 7
Safety outputs	2 PNP - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection
Light curtain status indication and weak signal output	PNP - 100 mA at 24 VDC
Muting status indication output	PNP - 100 mA at 24 VDC
Muting lamp output	24 VDC; 0,5 ... 5 W
Muting enable input	0 or 24 VDC (Active Low)
Signalling	7-segment display and LEDs for self-diagnosis and light curtain status
Start/Restart	automatic or manual restart selectable
External Device Monitoring	external device monitoring feedback input with enabling, selectable
Max. muting time-out	30 sec. or 90 min. selectable and (30 sec. or infinite selectable only MT TRX and MI TRX models with 4 sensors logic)
Override function	built-in override function with 2 operating modes, selectable: manual action with hold to run / automatic with pulse command
Max. Override Time-out (min.)	15
Power supply (VDC)	24 ± 20%
Electrical connections MI TRX – ML TRX - MT TRX models	main connector: M23 19-pole - muting sensors: M12 5-pole
Electrical connections MI TRXL	unique connector: M23 19-pole
Max. length electrical connections (m)	100
Operating temperature (°C)	-10 ... 55
Protection rating	IP 65
Cross-section dimensions (mm)	50 x 60
MI TRX / MI TRXL SERIES	
Number of beams	2, 3, 4
Max. range (m)	6
Muting Logic	two-way with 2 or 4 sensors and one-way with 2 sensors two-way with 2 sensors
Muting Sensors	external muting sensors with relay or PNP output (dark-on logic)
MM TRX SERIES	
Number of beams	2, 3, 4
Max. range (m)	6 (3,5 when fitted with SL TRX and ST TRX)
Muting Logic	two-way with 2 or 4 external sensors and one-way with 2 external sensors
Muting Sensors	external muting sensors with relay or PNP output (dark-on logic). Reflex optoelectronics with 2 parallel beams Built-in - pre-aligned - pre-wired, with adjustable height and angle. Reflex optoelectronics with 4 parallel beams Built-in - pre-aligned - pre-wired, with adjustable height and angle.
ML TRX / ML TRX G / ML TRX V SERIES	
Number of beams	2, 3
Operating range ML TRX, ML TRX V (m)	0 ... 3,5
Operating range ML TRX G (m)	0 ... 2
Muting Logic	one-way with 2 sensors
Muting Sensors	reflex optoelectronics with 2 parallel beams built-in - pre-aligned - pre-wired, with adjustable height and angle

MT TRX / MT TRX G / MT TRX V SERIES	
Number of beams	2, 3
Operating range MT TRX, MT TRX V (m)	0 ... 3,5
Operating range MT TRX G (m)	0 ... 2
Muting logic	two-way sequential with 4 sensors
Muting Sensors	reflex optoelectronics with 4 parallel beams built-in - pre-aligned - pre-wired, with adjustable height and angle



MI TRX – MI TRXL 2, 3, 4 beams	MI 2B TRX	MI 3B TRX	MI 4B TRX	MI 2B TRXL	MI 3B TRXL	MI 4B TRXL
Ordering codes	1360680	1360682	1360684	1360681	1360683	1360685
Number of beams	2	3	4	2	3	4
Beam spacing (mm)	500	400	300	500	400	300
Protected height (mm)	510	810	910	510	810	910
Overall height (mm)	776	1076	1176	741	1041	1141
Max. range (m)	6					

MM TRX 2, 3, 4 beams	MM 2B TRX	MM 3B TRX	MM 4B TRX
Ordering codes	1360690	1360691	1360692
Number of beams	2	3	4
Beam spacing (mm)	500	400	300
Protected height (mm)	510	810	910
Overall height (mm)	776	1076	1176
Operating range (m)	6 (3,5 when fitted with SL TRX and ST TRX)		

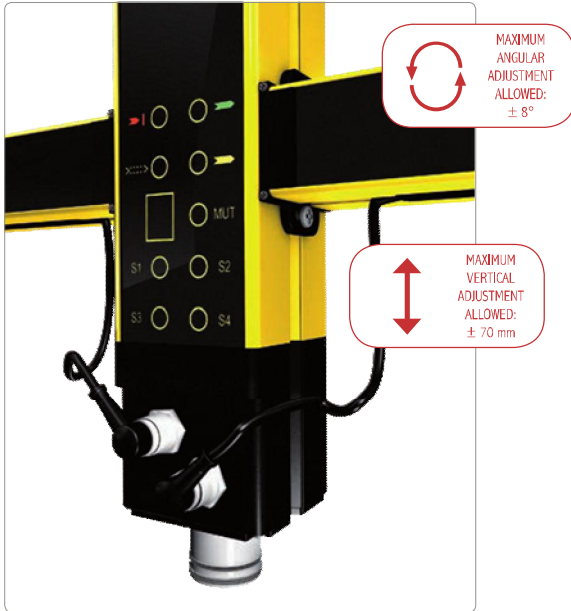
ML TRX – ML TRX G 2, 3 beams	ML 2B TRX	ML 2B TRX G	ML 3B TRX	ML 3B TRX G
Ordering codes	1360040	1360042	1360041	1360043
ML TRX V 2, 3 beams	ML 2B TRX V	-	ML 3B TRX V	-
Ordering codes	1360044	-	1360045	-
Number of beams	2	2	3	3
Beam spacing (mm)	500	500	400	400
Protected height (mm)	510	510	810	810
Overall height (mm)	776	776	1076	1076
Muting sensors	2 parallel beams	2 parallel beams (transparent material)	2 parallel beams	2 parallel beams (transparent material)
Operating range (m)	0 ... 3,5	0 ... 2	0 ... 3,5	0 ... 2

MT TRX – MT TRX G 2, 3 beams	MT 2B TRX	MT 2B TRX G	MT 3B TRX	MT 3B TRX G
Ordering codes	1360050	1360052	1360051	1360053
MT TRX V 2, 3 beams	MT 2B TRX V	-	MT 3B TRX V	-
Ordering codes	1360054	-	1360055	-
Number of beams	2	2	3	3
Beam spacing (mm)	500	500	400	400
Protected height (mm)	510	510	810	810
Overall height (mm)	776	776	1076	1076
Muting sensors	4 parallel beams	4 parallel beams (transparent material)	4 parallel beams	4 parallel beams (transparent material)
Operating range (m)	0 ... 3,5	0 ... 2	0 ... 3,5	0 ... 2

► "ACCESSORIES" on page 113

JANUS M - JANUS M TRX

SENSOR ELEMENT ADJUSTMENT - ML and MT versions

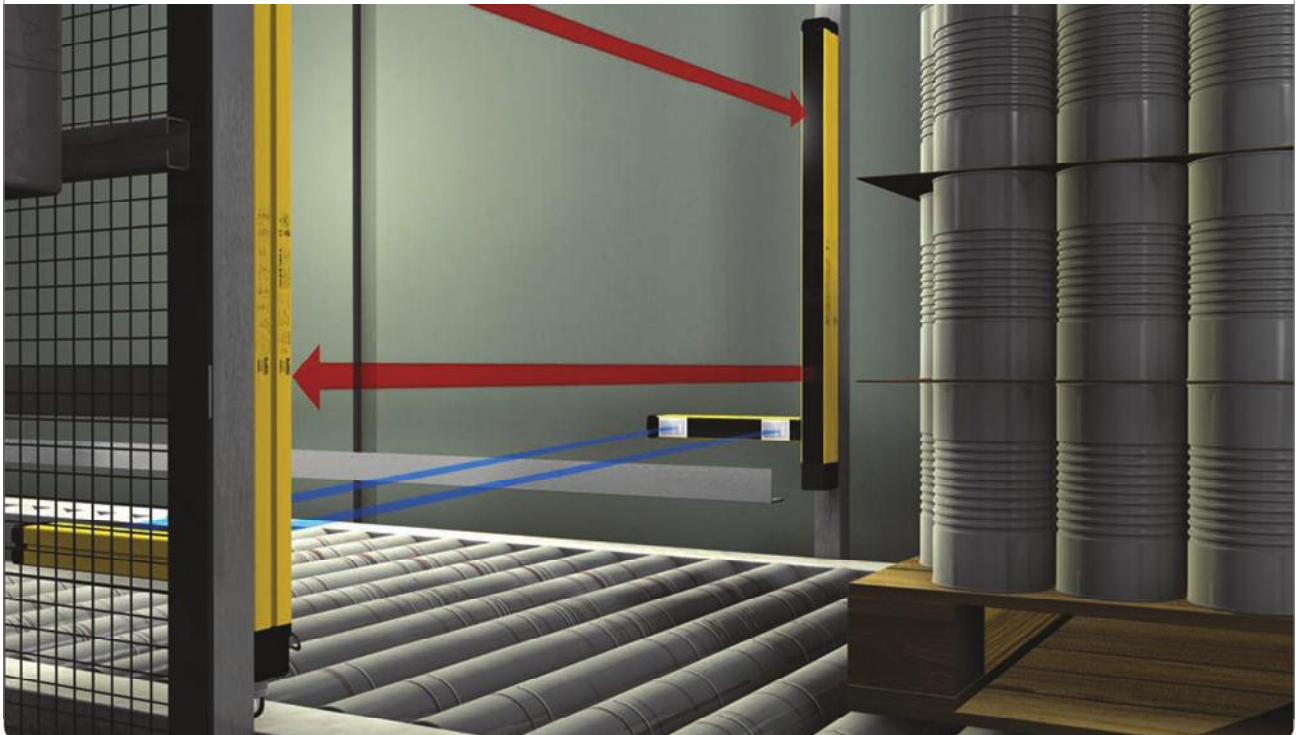


The sensor elements present in all Janus ML and MT versions are adjustable in height and angle.

This important and unique feature enables the inclination of the detection plane of the sensors to obtain correct and constant detection of irregular materials in transit.

Models ML TRX G e MT TRX G (Glass) with special built-in Muting sensors to optimise correct and consistent detection of glass and transparent materials in general.

Example of application of Janus ML TRX light curtain for protection of palletizer outfeed zone



MAIN FEATURES

Two self-testing solid state PNP safety outputs.
Built-in Start/Restart interlock, selectable.
Feedback input for control of external relays (EDM).
All configuration via hardware by means of main connector.
Use of unshielded cables up to 100 m long.

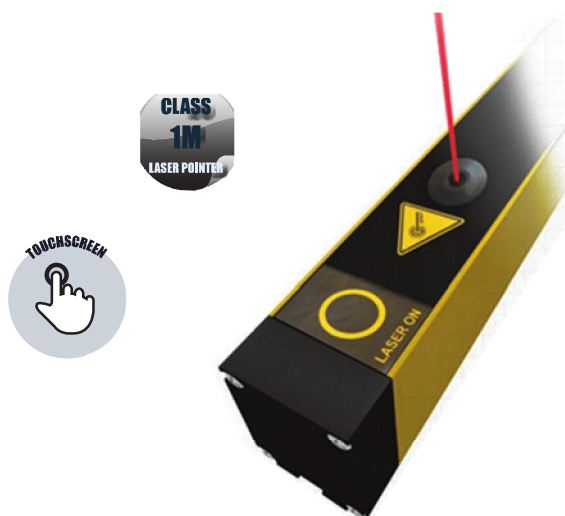
J Long Range models available, with range up to 60 m, for access control with 2, 3, 4 beams or with resolution 40 mm, also ideal for perimeter protection with the use of deflection mirrors.

Floor mounting columns FMC available.

MJ Box for quick connection of the light curtains and availability of the Restart command in the area of the protected gate

Janus J LRH M12 and J LRH M12 ILP models

Models with 2, 3 and 4 beams Max. range up to 80 meters use a M12 5-pole connector for the emitter and a M12 8-pole connector for the receiver.



Also available with integrated laser pointer (J LRH M12 ILP).

The laser used is a Class 1M according to the EN 60825-1: not dangerous to the eyes and skin.
One laser pointer per beams.



Safety Level:

TYPE 4

SIL 3 – SILCL 3
PL e – Cat. 4



TECHNICAL FEATURES

Safety level	Type 4 according to IEC/TS 61496-2 SIL 3 – SILCL 3 according to IEC 61508 - IEC 62061 PL e – Cat. 4 according to ISO 13849-1
Protected heights (mm)	510 ... 1210
Resolutions (mm)	40 (long range only)
Number of beams for body detection in access control	2, 3, 4
Max. range (m)	selectable 6 or 16 selectable 30 or 60 for long range models selectable 40 or 80 for extra long range models
Response time (ms)	7 ... 28,5
Safety outputs	2 PNP - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection
Light curtain status indication and weak signal output	PNP - 100 mA at 24 VDC
Signalling	seven-segment display and LEDs for light curtain's status and diagnostic

JANUS J

WITH BUILT-IN CONTROL FUNCTIONS

Start/Restart	automatic or manual restart selectable
External Device Monitoring	external device monitoring feedback input with enabling, selectable
Power supply (VDC)	24 ± 20%
Electrical connections	M12 5-pole for emitter and M23 19-pole for receiver M12 5-pole for emitter - M12 8-pole for receiver for J ... M12 models
Max. cable length (m)	100
Operating temperature (°C)	-10 ... 55
Protection rating	IP 65
Cross section (mm)	50 x 60
Laser pointer Max. power (mW)	<1 (class 1M according to the EN 60825-1)



J 2, 3, 4 beams	J 2B	J 3B	J 4B
Ordering codes	1360640	1360641	1360642
Number of beams	2	3	4
Beam spacing (mm)	500	400	300
Protected height (mm)	510	810	910
Overall height (mm)	741	1041	1141
Max. range (m)	selectable 6 or 16		



J Long Range 2, 3, 4 beams	J 2B LR	J 3B LR	J 4B LR
Ordering codes	1360630	1360631	1360632
J Long Range M12 2, 3, 4 beams	J 2B LR M12	J 3B LR M12	J 4B LR M12
Ordering codes	1360634	1360635	1360636
Number of beams	2	3	4
Beam spacing (mm)	500	400	300
Protected height (mm)	510	810	910
Overall height (mm)	741 - 736 (J ... M12 models)	1041 - 1036 (J ... M12 models)	1141 - 1136 (J ... M12 models)
Max. range (m)	selectable 30 or 60		



J LRH M12 2, 3, 4 beams	J 2B LRH M12	J 3B LRH M12	J 4B LRH M12
Ordering codes	1360637	1360638	1360639
J LRH M12 ILP 2, 3, 4 beams	J 2B LRH M12 ILP	J 3B LRH M12 ILP	J 4B LRH M12 ILP
Ordering codes	1360646	1360647	1360648
Number of beams	2	3	4
Beam spacing (mm)	500	400	300
Protected height (mm)	510	810	910
Overall height (mm)	736	1036	1136
Max. range (m)	selectable 40 or 80		



J Long Range Resolution 40 mm	J 604 LR	J 904 LR	J 1204 LR
Ordering codes	1360363	1360365	1360367
Protected height (mm)	610	910	1210
Number of beams	30	45	60
Overall height (mm)	741	1041	1341
Max. range (m)	selectable 30 or 60		

► "ACCESSORIES" on page 113

JANUS J TRX - J TRX L

WITH BUILT-IN CONTROL FUNCTIONS AND PASSIVE RETRO-REFLECTOR ELEMENT

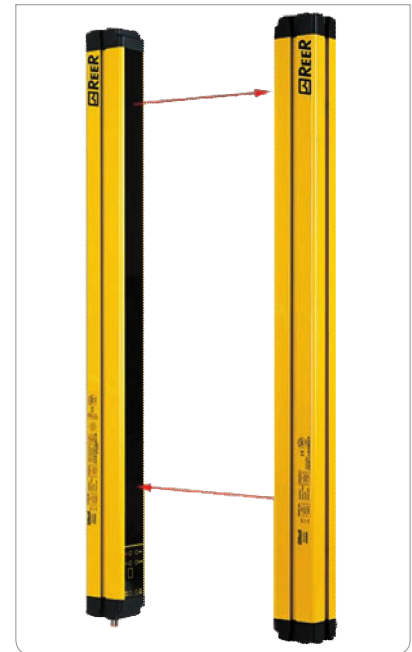
MAIN FEATURES

Passive retro-reflector element.
 Two self-testing solid state PNP safety outputs.
 Built-in Start/Restart interlock, selectable.
 Feedback input for control of external relays (EDM).
 All configuration via hardware by means of main connector. No need of configuration via software.
 Use of unshielded cables up to 100 m long.
 Electrical connection by means M12, 8-pole connectors for J TRX model and M23, 19-pole for J TRXL model.

MJ Box for quick connection of the light curtains and availability of the Restart command in the area of the protected gate (only for model J TRX L).

Janus J TRX and J TRXL are safety light grids with 2, 3, 4 beams consisting of an active element (emitter/receiver) and a retro-reflector passive element which does not require electrical connections.

JANUS series J TRX and TRXL are the simplest and quickest installation solutions for detection of a person in access control in hazardous areas, and the ideal solutions for all applications in which it is difficult or costly to cable electrical lines.



TECHNICAL FEATURES

Safety level	Type 4 according to IEC/TS 61496-2 SIL 3 – SILCL 3 according to IEC 61508 - IEC 62061 PL e – Cat. 4 according to ISO 13849-1
Number of beams for body detection in access control	2, 3, 4
Max. range (m)	6
Response time (ms)	≤ 7
Safety outputs	2 PNP auto-controlled - 500 mA at 24 VDC with short-circuit, overload, polarity reversal protection
Signalling	seven-segment display and LEDs for light curtain's status and diagnostic
Start/Restart	automatic or manual, selectable
External Device Monitoring	external device monitoring feedback input with enabling selectable
Power supply (VDC)	24 ± 20%
Electrical connections	M23 19-pole – J TRXL models M12 8-pole – J TRX model
Max. cable length (m)	100
Operating temperature (°C)	-10 ... 55
Protection rating	IP 65
Cross section (mm)	50 x 60

Safety level:

TYPE 4

SIL 3 – SILCL 3
PL e – Cat. 4



JANUS J TRX - J TRX L

WITH BUILT-IN CONTROL FUNCTIONS AND PASSIVE RETRO-REFLECTOR ELEMENT



J TRX / J TRXL 2, 3, 4 beams	J 2B TRX	J 3B TRX	J 4B TRX	J 2B TRXL	J 3B TRXL	J 4B TRXL
Ordering codes	1360650	1360656	1360655	1360651	1360652	1360653
Number of beams	2	3	4	2	3	4
Beam spacing (mm)	500	400	300	500	400	300
Protected height (mm)	510	810	910	510	810	910
Overall height (mm)	736	1041	1141	741	1041	1141
Connector	M12 8-pole	M12 8-pole	M12 8-pole	M23 19-pole	M23 19-pole	M23 19-pole
Max. range (m)				6		

► "ACCESSORIES" on page 113

Connection boxes Janus MJB are accessory devices designed for quick, reliable connection of Janus light grids and to ensure that major operating controls needed for operation are available in the guarded area.

MAIN FEATURES

- Lighted button for light curtain Start/Restart with green LED for indicating output status and weak signal
- Key selector controlling the override function
- Indicator lamp for Muting function active
- Connector for connection to the light curtain
- Dip switches for configuration of light curtain functions
- 2 Built-in safety relay with guided contacts driven and controlled by the light curtain
- Internal terminal blocks for cable connections
- Selector for connection of external Muting lamp
- Selector for internal or external relay control
- Electrical connection through cable gland
- Versions without Start/Restart and Override commands for connection with Janus J light curtain without Muting.



Complying with:

- 2004/108/EC "Electromagnetic Compatibility (EMC)"
- 2006/95/EC "Low Voltage Directive (LVD)"
- UL (C+US) mark for USA and Canada.

TECHNICAL FEATURES

MODELS	MJB 1	MJB 2	MJB 3	MJB 4
Ordering codes	1360930	1360931	1360932	1360933
Override command	yes	no	yes	no
Built-in Muting lamp	yes	no	yes	no
Safety relay output	Relay - 2 contact NO 2A - 250 VAC		Relay - 2 contact NO + 1 NC * 2A - 250 VAC	
Connectors	M23 19-pole for receiver / light curtain connection M12 5-pole for emitter / light curtain connection (not used with TRX light curtains)			
Start/Restart button	yes			
Dimensions - h x w x d (mm)	110 x 180 x 110			

* In MJB 3 and MJB 4 boxes each NO safety output line is interrupted twice by the two relays.



All MJB connection boxes can work with any kind of Janus light curtain (with or without Muting)

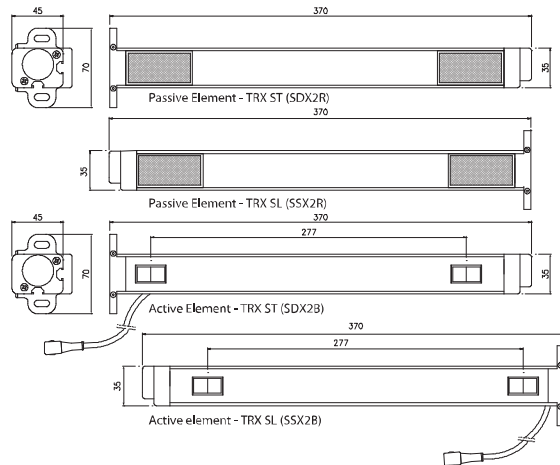
JANUS SL TRX e ST TRX

ACCESSORY MUTING SENSOR ELEMENTS FOR JANUS MM

MAIN FEATURES

Janus SL TRX muting arm, with active and passive retro-reflector elements, in combination with Janus MM TRX models form a one-way access control system with L logic (only exit).

Together with Janus SL TRX and ST TRX muting arms, Janus MM TRX models become a two-way access control system with T logic (entry/exit).



TECHNICAL FEATURES

MODELS	SL TRX	ST TRX
Ordering Codes	1360695	1360696
Optoelectronics sensors	2 parallel beams	2 parallel beams
Operating range (m)	0 ... 3,5	0 ... 3,5

Note for ordering

- To form a L logic system you need:
Light curtain JANUS MM TRX + SL TRX
- To form a T logic system you need:
Light curtain JANUS MM TRX + SL TRX + ST TRX

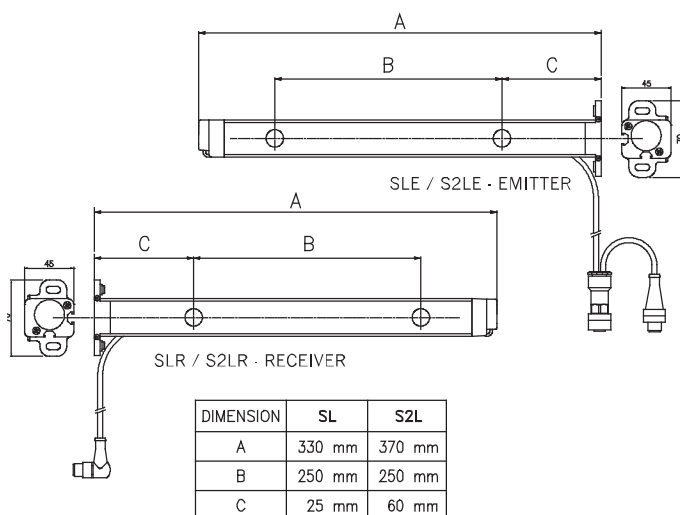
JANUS SL

ACCESSORY MUTING SENSOR ELEMENTS FOR JANUS MI

MAIN FEATURES

The SL series accessory Muting sensor elements (arms) can be combined with the Janus MI light curtain model, making it possible to create an "L" barrier with built-in sensors with 30, 40, 90 mm resolution and protected height from 310 to 1810 mm.

The SL and S2L models have 2 built-in sensors, pre-wired and pre-aligned, with crossed or parallel beams.



TECHNICAL FEATURES

MODELS	SL	S2L
Ordering Codes	1360060	1360061
Optoelectronics sensors	2 crossed beams	2 crossed beams
Operating range (m)	1 ... 2,5	0 ... 2

DIMENSIONS (mm)

J Models									
DIMENSION	16 m range			Long Range					
	2B	3B	4B	600	900	1200	2B	3B	4B
A (TX-RX)	736	1036	1136	736	1036	1336	736	1036	1136
B (Protected height)	510*	810*	910*	610	910	1210	510*	810*	910*
C (1 st beam position)	120			76					

MI Models																	
DIMENSION	16 m range												Long Range				
	300	450	600	750	900	1050	1200	1350	1500	1650	1800	2B	3B	4B	2B	3B	4B
A (TX)	436	586	736	886	1036	1186	1336	1486	1636	1786	1936	736	1036	1136	736	1036	1136
A (RX)	476	626	776	926	1076	1226	1376	1526	1676	1826	1976	776	1076	1176	776	1076	1176
B (Protected height)	310	460	610	760	910	1060	1210	1360	1510	1660	1810	510*	810*	910*	510*	810*	910*
C (1 st beam position)	72											120			76		

ML, MT Models		
DIMENSION	2B	3B
A (TX-RX)	776	1076
C (1 st beam position)	120	

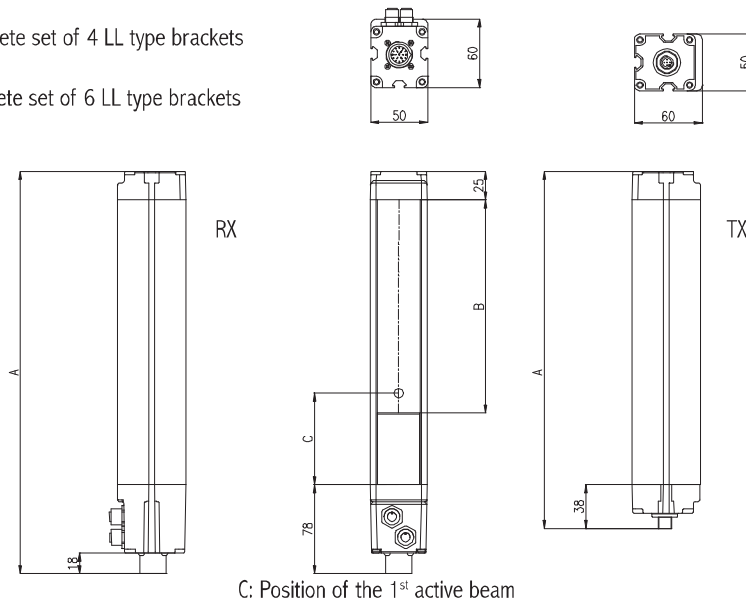
* for these models the protected height is only indicative and is calculated based on the beams spacing.

JANUS MI

Mounting:

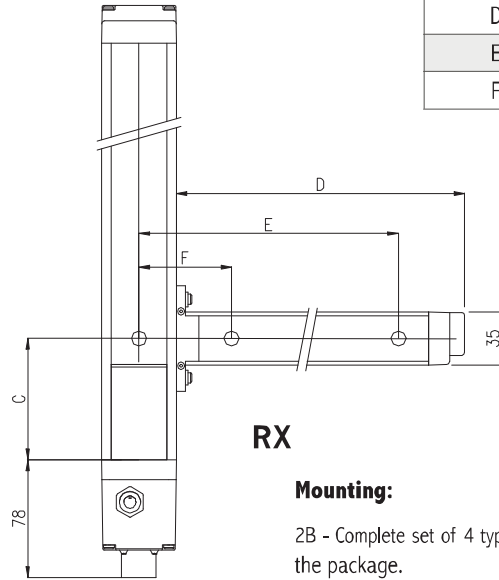
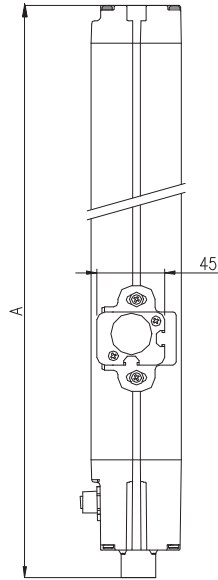
Models with $A < 1050$ - Complete set of 4 LL type brackets included in the package.

Models con $A \geq 1050$ - Complete set of 6 LL type brackets included in the package.



JANUS

JANUS ML



DIMENSIONS	ML
D	330
E	300
F	50

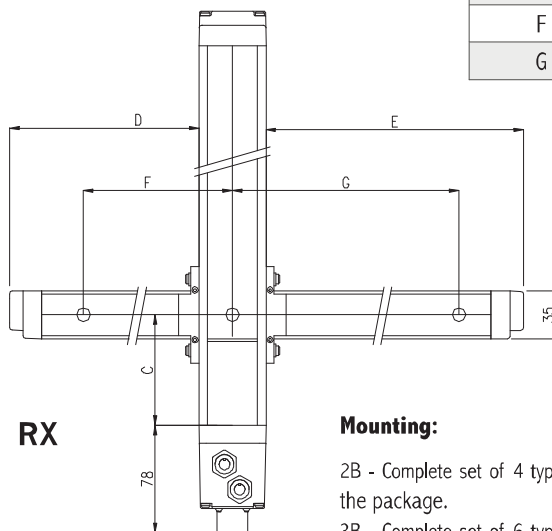
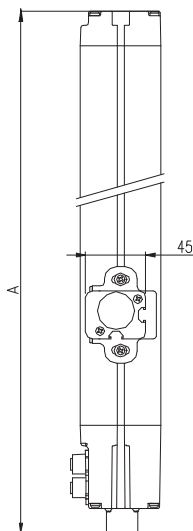
RX

Mounting:

2B - Complete set of 4 type LL brackets included in the package.

3B - Complete set of 6 type LL brackets included in the package.

JANUS MT



DIMENSIONS	MT
D	230
E	330
F	200
G	300

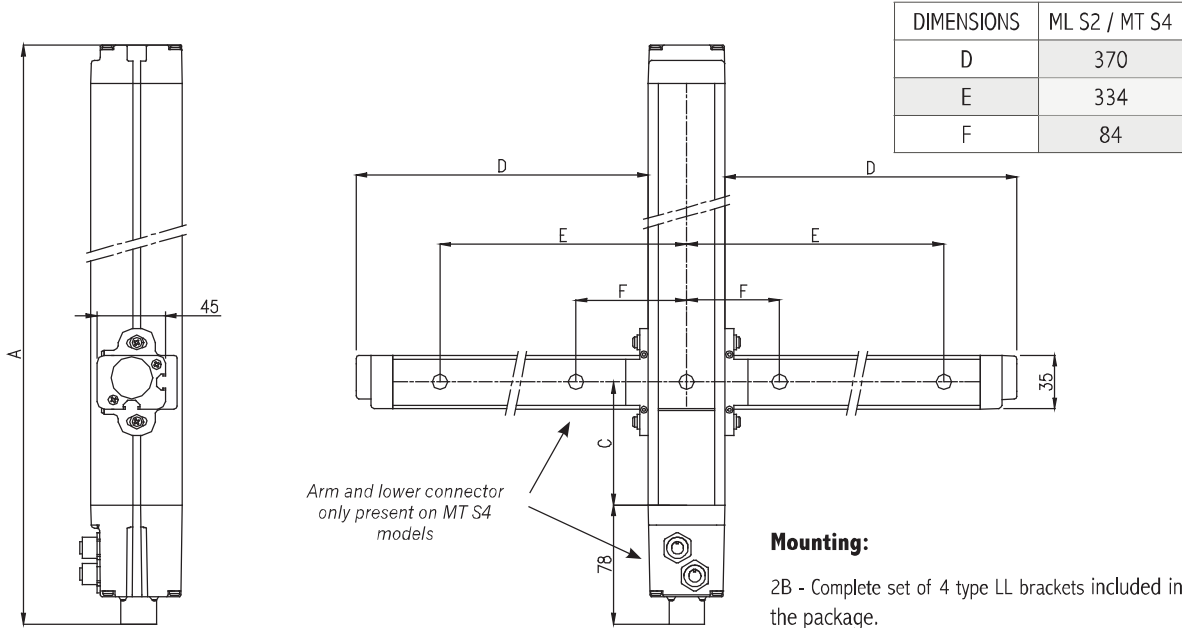
RX

Mounting:

2B - Complete set of 4 type LL brackets included in the package.

3B - Complete set of 6 type LL brackets included in the package.

JANUS "ML S2" - "MT S4"

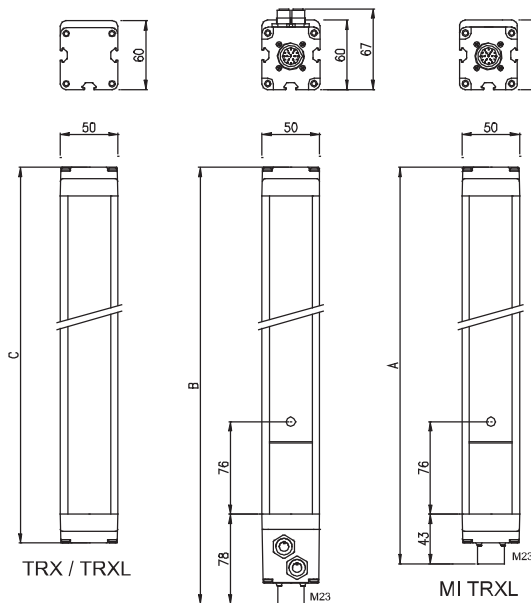


Mounting:

2B - Complete set of 4 type LL brackets included in the package.

3B - Complete set of 6 type LL brackets included in the package.

JANUS MI TRX – MI TRX L



Passive Element

Active Element

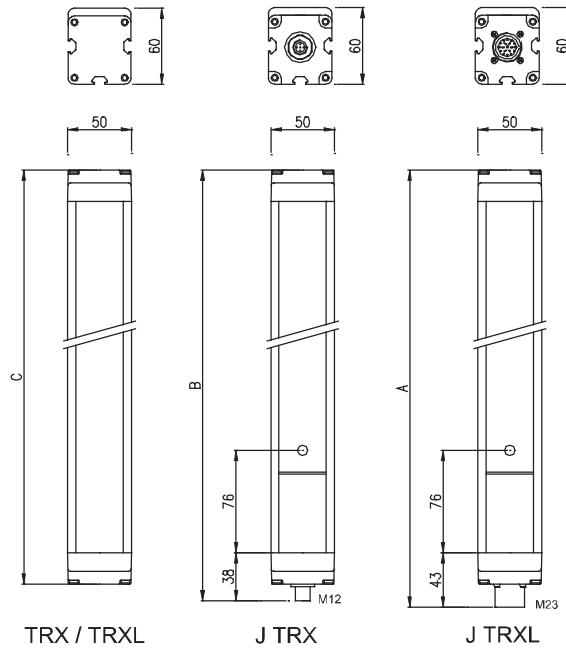
Active Element

DIMENSIONS	2B	3B	4B
A	741	1041	1141
B	776	1076	1176
C	723	1023	1123

Mounting:

2B, 3B, 4B - Complete set of 2 type LH brackets included in the package.

JANUS J TRX – J TRXL



DIMENSIONS	2B	3B	4B
A	741	1041	1141
B	736	1036	1136
C	723	1023	1123

TRX / TRXL

J TRX

J TRXL

Passive Element

Active Element

Active Element

Mounting:

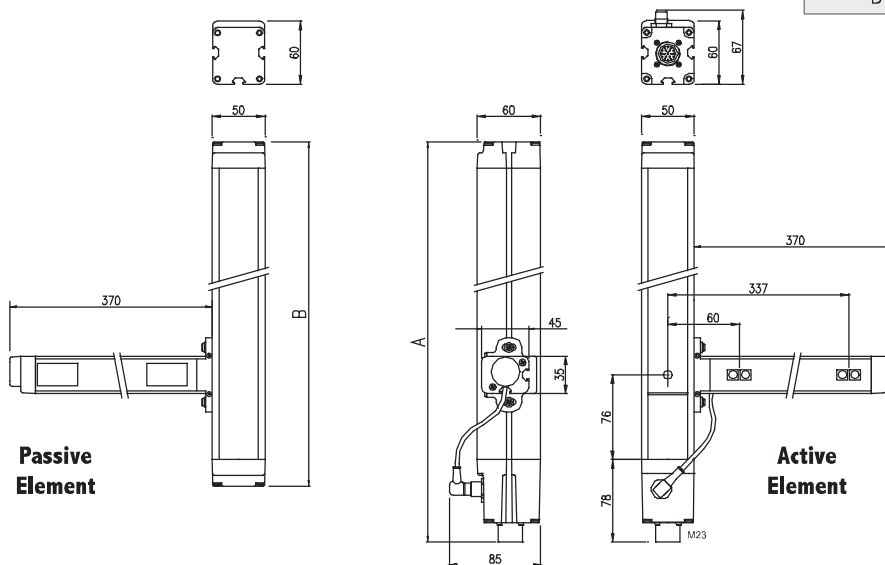
2B, 3B, 4B - Complete set of 2 type LH brackets included in the package

JANUS ML TRX – ML TRX G

Mounting:

2B - Complete set of 4 type LL brackets included in the package.

3B - Complete set of 6 type LL brackets included in the package.

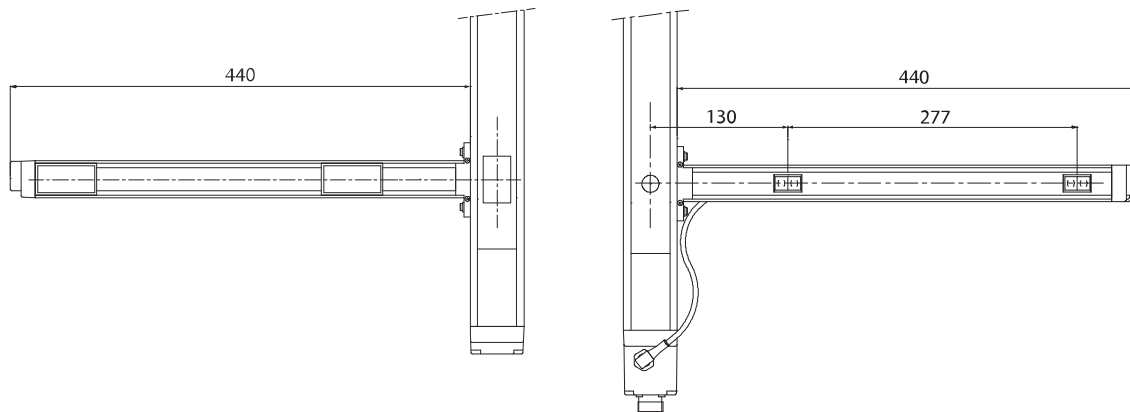


DIMENSIONS	2B	3B
A	776	1076
B	723	1023

Passive Element

Active Element

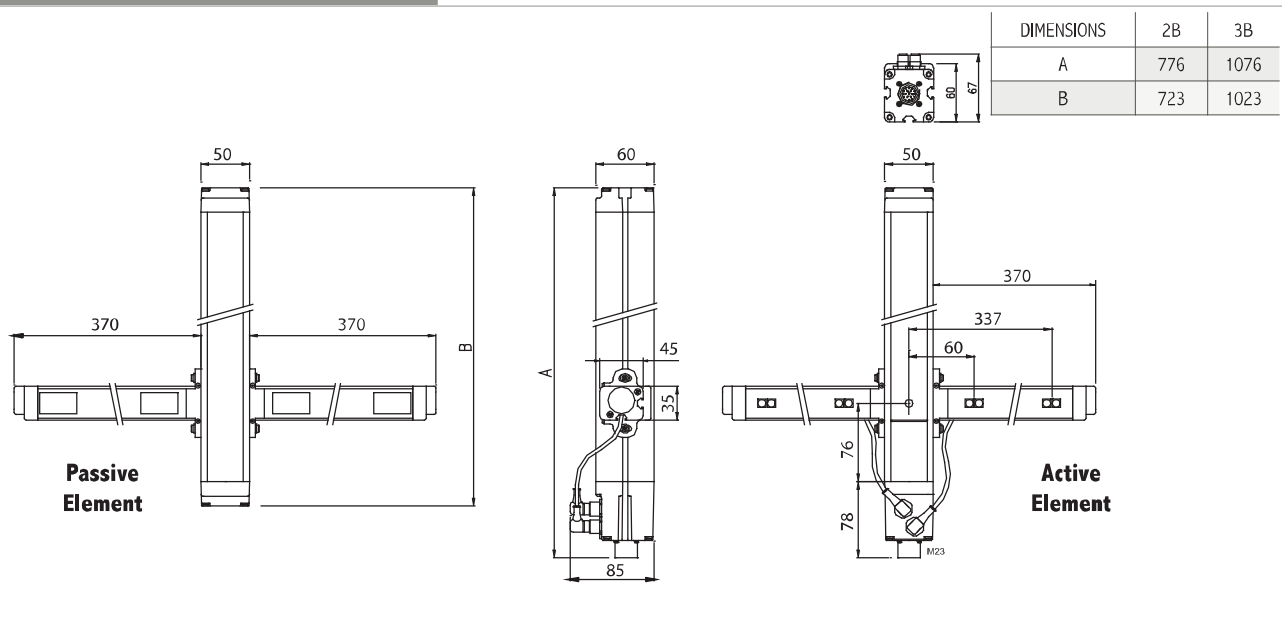
JANUS ML TRX V



Mounting:

- 2B - Complete set of 4 type LL brackets included in the package.
- 3B - Complete set of 6 type LL brackets included in the package.

JANUS MT TRX – MT TRX G

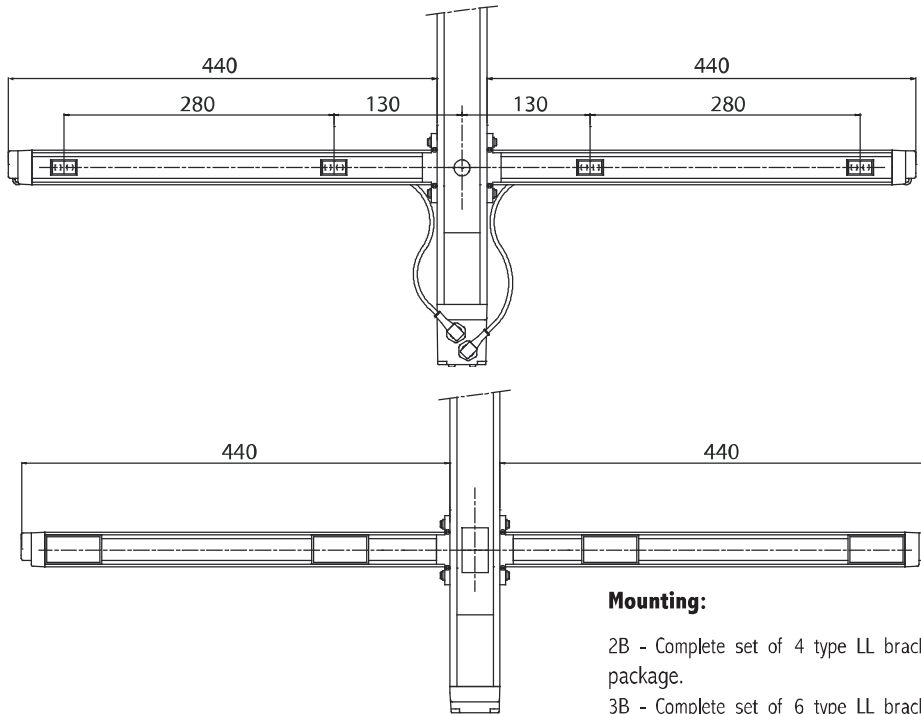


Mounting:

- 2B - Complete set of 4 type LL brackets included in the package.
- 3B - Complete set of 6 type LL brackets included in the package.

JANUS

JANUS MT TRX V



Mounting:

- 2B - Complete set of 4 type LL brackets included in the package.
- 3B - Complete set of 6 type LL brackets included in the package.



WARNING!

In perimeter and/or long-range applications and with the use of deflection mirrors, we recommend using the LAD 3 laser alignment device to obtain a simple, quick, and correct alignment of the light curtains

In perimeter and/or long-range applications and with the use of deflection mirrors, we recommend using the FMC adjustable floor mounting columns

If the light curtain system is subject to strong vibrations (applications on presses, etc.), it is necessary to use the special SAV vibration dampers, available as accessories, to prevent mechanical damage to the light curtain elements.

ORDERING INFORMATION

Each Janus light curtain comprises:

Emitter and Receiver pair, including integrated sensor (only for L and T models)
Emitter / Receiver active element + passive reflector element (only for models M TRX and J TRX)
Mounting brackets and T-nuts
CD-ROM containing the multi-language instruction manual complete with CE declaration of conformity
Quick installation guide

ACCESSORIES

For Janus light curtains the following accessories, to be ordered separately, are available:

AD SR Safety Relays	▶ See page 183
FMC floor mounting columns	▶ See page 220
SP deflection mirrors	▶ See page 223
LAD Laser alignment device	▶ See page 224
SAV vibrations dampers	▶ See page 225
MJB:	▶ See page 105
Additional arms SL and ST	▶ See page 106
Connectors	▶ See list hereunder:

CONNECTORS FOR RECEIVERS / TRX MODELS ACTIVE ELEMENTS

Models	Code	Description
CJ 3	1360950	M23 straight connector 19 poles pre-wired, cable 3 m
CJ 5	1360951	M23 straight connector 19 poles pre-wired, cable 5 m
CJ 10	1360952	M23 straight connector 19 poles pre-wired, cable 10 m
CJ 15	1360953	M23 straight connector 19 poles pre-wired, cable 15 m
CJ 20	1360954	M23 straight connector 19 poles pre-wired, cable 20 m
CJ 20L2	1360959	M23 straight connector 19 poles, pre-wired cable 20 m with 2 m long secondary cable for muting lamp
CJ 30	1360964	M23 straight connector 19 poles pre-wired, cable 30 m
CJ 30L2	1360979	M23 straight connector 19 poles, pre-wired cable 30 m with 2 m long secondary cable for muting lamp
CJ 35	1360965	M23 straight connector 19 poles pre-wired, cable 35 m
CJM 23	1360955	M23 straight connector, 19 poles, cable gland (to be soldered)

CONNECTORS FOR EMITTERS

Models	Code	Description
CD 5	1330950	M12 straight connector 5 poles pre-wired, cable 5 m
CD 10	1330956	M12 straight connector 5 poles pre-wired, cable 10 m
CD 15	1330952	M12 straight connector 5 poles pre-wired, cable 15 m
CD 20	1330957	M12 straight connector 5 poles pre-wired, cable 20 m
CD 25	1330949	M12 straight connector 5 poles pre-wired, cable 25 m
CD50	1330965	M12 straight connector 5 poles pre-wired, cable 50 m
CDM 9	1330954	M12 straight connector, 5 poles, with screw terminal, cable gland

CABLES WITH 2 CONNECTORS FOR JANUS RECEIVERS AND MJB BOXES CONNECTION

Models	Code	Description
CJBR 3	1360970	3 m pre-wired cable with 2 straight connectors, M23 19-pole
CJBR 5	1360971	5 m pre-wired cable with 2 straight connectors, M23 19-pole
CJBR 10	1360972	10 m pre-wired cable with 2 straight connectors, M23 19-pole

CABLES WITH 2 CONNECTORS FOR JANUS EMITTERS AND MJB BOXES CONNECTION

Models	Code	Description
CJBE 3	1360960	3 m pre-wired cable with 2 straight connectors, M12 5-pole
CJBE 5	1360961	5 m pre-wired cable with 2 straight connectors, M12 5-pole
CJBE 10	1360962	10 m pre-wired cable with 2 straight connectors, M12 5-pole
CJBE 25	1360963	25 m pre-wired cable with 2 straight connectors, M12 5-pole

JANUS

CONNECTORS FOR MUTING SENSORS - JANUS MI SERIES

Models	Code	Description
CI 95	1360982	M12 90° angled male connector, 5 poles, pre-wired cable 5 m
CIM 9	1360983	M12 90° angled male connector, 5 poles, with screw terminal, cable gland PG9

CONNECTORS FOR J TRX MODEL ACTIVE ELEMENT

Models	Code	Description
C8D 5	1330980	M12 straight connector, 8 poles, pre-wired cable 5 m
C8D 10	1330981	M12 straight connector, 8 poles, pre-wired cable 10 m
C8D 15	1330982	M12 straight connector, 8 poles, pre-wired cable 15 m
C8D 25	1330967	M12 straight connector, 8 poles, pre-wired cable 25 m
C8D 40	1330966	M12 straight connector, 8 poles, pre-wired cable 40 m
C8D 95	1330983	M12 90° angle connector, 8 poles, pre-wired cable 5 m
C8D 910	1330984	M12 90° angle connector, 8 poles, pre-wired cable 10 m
C8D 915	1330985	M12 90° angle connector, 8 poles, pre-wired cable 15 m
C8DM 11	1330987	M12 straight connector, 8 poles with screw terminal, PG9/11 cable gland
C8DM 911	1330979	M12 angle connector, 8 poles with screw terminal, PG9/11 cable gland

PHARO

