# Ositrack® RFID
Radio frequency identification
13.56 MHz

## Operating principle
RFID (Radio Frequency IDentification) is a term generally used for radio frequency identification systems. These frequencies range between 50 kHz and 2.5 GHz. The most widely used is 13.56 MHz.

The Ositrack® RFID identification system enables object traceability, identification (tracking) functions to be performed and access control.
The information is stored in an accessible memory using a simple radio frequency link. This memory is in the form of an electronic tag, which contains an antenna and an integrated circuit.
The tag contains the information associated with the object to which it is fixed. When a tag passes through the field generated by the reader/station, it detects the signal and exchanges the data (read or write) between its memory and the reader/station.
The applications are numerous:
- Logistics: dispatch, receipt, transit, etc.
- Tracking and sorting of baggage
- Automatic tolls
- Access control, etc.

The Ositrack® RFID system is also suited to difficult environments (humidity, temperature, mechanical shock, vibration, dust, etc.).

## Ositrack® RFID
Ositrack® is open to the majority of ISO 18000-3, ISO 15693 and ISO 14443 electronic tags.
Ositrack® integrates Modbus RTU, Uni-Telway and Modbus TCP/IP protocols.

The Ositrack® RFID offer comprises:
- 2 models of 13.56 MHz compact stations (read/write)
- 6 models of 13.56 MHz electronic tags
- 1 portable RFID diagnostics terminal
- 2 models of network connection boxes
- connection and mounting accessories.

### Setting-up
Ositrack® compact stations are simple to set-up:
- Integrated RFID and network functions
- No programming
- Automatic detection of the RFID electronic tags (read or write)
- Automatic setting of the communication parameters (speed, format, parity, protocol, etc.)
- Configuration of the network address (1 to 15) using badge included with the station
- Read/write compatibility with the majority of 13.56 MHz tags on the market
- Low sensitivity to metal environments.

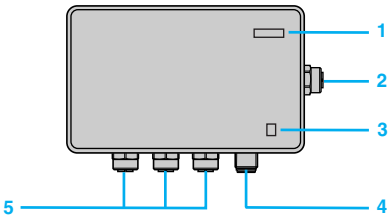
### Installation
The Ositrack® stations are compact and robust. They can easily be integrated in flexible manufacturing production lines:
- quick connection using M12 connector
- clip-on mounting.

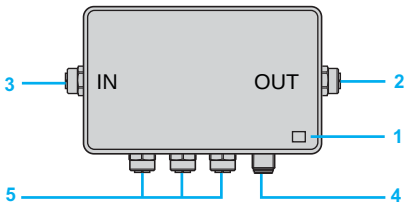
Ositrack® compact stations can be connected on Ethernet, Modbus and Uni-Telway networks and bus via a connection box.

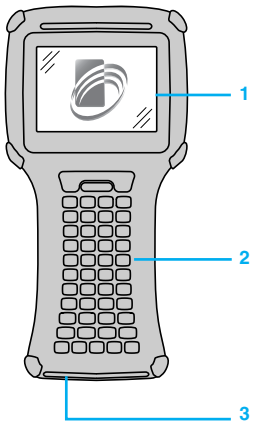
## Description
### Ositrack® 13.56 MHz compact stations *(1)*
Stations XGC S enable the reading and writing of 13.56 MHz RFID tags that comply to standards ISO 15693 and ISO 14443 A and B.
2 models of Ositrack® compact stations are available:
- Format C compact station: Station XGC S490●●●●:
- Dimensions (mm): 40 x 40 x 15
- Nominal sensing distance: 18 to 70 mm depending on associated tag
- Format D compact station: Station XGC S890●●●●:
- Dimensions (mm): 80 x 80 x 26
- Nominal sensing distance: 20 to 100 mm depending on associated tag.

*(1) For station and tag selection according to passing speeds, see page 30620-EN_Ver3.0/14.*

# Ositrack® RFID
Radio frequency identification
13.56 MHz




## Description (continued)

### Ositrack® RFID electronic tags *(1)*

■ **Electronic tags XGH B offer the following advantages:**
- □ fast access to the data,
- □ wide range of memory capacities,
- □ access security to the contents,
- □ operation without battery,
- □ positioning flexibility,
- □ and protection suited to the environmental conditions.

The nominal transmission distance is 18 to 100 mm depending on the model of the tag and associated compact station.

### Connection boxes

Two types of quick connection boxes are available:
- an Ositrack® Ethernet box **XGS Z33ETH** for Ethernet network
- an Ositrack® tap-off box **TCS AMT31FP** for Modbus and Uni-Telway communication bus.

■ **Ethernet box XGS Z33ETH**

The Ositrack® Ethernet box **XGS Z33ETH** enables connection of stations XGC S to the Ethernet network (Modbus TCP/IP protocol).
It enables, from a PLC or PC, access to the functions of stations XGC S:
- □ reading/writing of tags,
- □ control and checking,
- □ monitoring,
- □ diagnostics.

The Ethernet box **XGS Z33ETH** is fitted with M12 connectors. It is used to connect the supply, the Ethernet network and 1 to 3 stations XGC S.
It comprises a sealed metal enclosure fitted with:
1 Ethernet network signalling LEDs
2 One Ethernet M12 type, D coding, socket
3 One green LED indicator: power on
4 One power supply M12 type 4-pin male socket
5 3 x M12 type female, A coding, sockets for connecting 1 to 3 stations XGC S.

■ **Tap-off box TCS AMT31FP**

Tap-off box **TCS AMT31FP** enables stations XGC S to be connected to Modbus or Uni-Telway communication bus.
The tap-off box **TCS AMT31FP** is fitted with M12 connectors. It is used to connect the supply, the communication bus (Modbus) and 1 to 3 stations XGC S.
It comprises a sealed metal enclosure fitted with:
1 One green LED indicator: power on
2 One network output M12 type 5-pin female, A coding, socket
3 One network input M12 type 5-pin male, A coding, socket
4 One power supply M12 type 4-pin male, A coding, socket
5 3 x M12 type female, A coding, sockets for connecting 1 to 3 compact stations XGC S.

### Portable 13.56 MHz RFID diagnostics terminal

The portable terminal **XGS TP401** is designed for use in industrial applications. Its hardened structure combined with its numerous functions make it suitable for applications in arduous environments. It operates on Microsoft® Windows CE.NET Professional® version 4.2. The 13.56 MHz RFID function and Ositrack® software installed on the portable terminal enable maintenance operations to be performed on the electronic tags and compact stations.
Transfer of data to a PC is made via an RS 232 communication port.
The portable terminal **XGS TP401** comprises a:
1 Colour touchscreen
2 Keypad (45 keys)
3 RS 232 port

The following accessories are included with the terminal:
- a PC connecting cable,
- Ositrack® software (installed),
- a battery,
- a universal battery charger,
- 3 styluses,
- a protective cover,
- a user guide.

*(1) For station and tag selection according to passing speeds, see page 30620-EN_Ver3.0/14.*

# Ositrack® RFID
Radio frequency identification
13.56 MHz

## Characteristics of Ositrack® compact stations

| Station type | | | XGC S4901201 | XGC S8901201 |
|---|---|---|---|---|
| **Certifications** | | | UL, FCC part 15c | |
| **Conformity to standards** | | | CE, EN 301489-1, EN 301489-3, ETS 300330-1 and ETS 300330-2 | |
| **Ambient air temperature** | For operation | **°C** | - 25…+ 55 | |
| | For storage | **°C** | - 40…+ 85 | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 | |
| **Vibration resistance** | Conforming to EN 60068.2.27 | | 2 mm from 5 to 29.5 Hz / 7 gn from 29.5 to 150 Hz | |
| **Shock resistance** | Conforming to EN 60068.2.6 | | 30 g/11 ms | |
| | Conforming to EN 50102 | | Degree IK 02 | |
| **Resistance to interference** | Conforming to IEC 61000 | | Resistance to electrostatic discharge, radiated electromagnetic fields, fast transients, electrical surges, conducted and induced interference and network frequency magnetic fields. | |
| **Dimensions, W x H x D** | | **mm** | C format: 40 x 40 x 15 | D format: 80 x 80 x 26 |
| **RFID frequency** | | **MHz** | 13.56 | |
| **Type of associated tag** | | | ISO 15693 and ISO 14443 standard tags.<br>Automatic detection of the type of tag | |
| **Nominal sensing distance** | Depending on associated tag | **mm** | 18 to 70 | 20 to 100 |
| **Nominal supply voltage** | | **V** | ⎓ 24 PELV (Protective Extra Low Voltage) | |
| **Supply voltage limits (including ripple)** | | **V** | ⎓ 19.2…29 | |
| **Consumption** | | **mA** | < 60 | |
| **Serial links** | Type | | RS 485 | |
| | Protocol | | Modbus RTU or Uni-Telway | |
| | Speed | **Bauds** | 9600…115 200 (automatic detection) | |
| **Display** | | | 1 dual colour LED for the communication network:<br>Modbus/Uni-Telway<br>1 dual colour LED for the RFID communication<br>(Presence of tag / Station/tag dialogue) | |
| **Connections** | | | M12, 5-pin male, shielded connector. Only for connection to the communication network and the supply. | |
| **Tightening torque** | Screws | **Nm** | < 1 | < 3 |

## Characteristics of electronic tags

| Tag type | | | XGH B444345 | XGH B445345 | XGH B90E340 | XGH B320345 | XGH B221346 | XGH B211345 |
|---|---|---|---|---|---|---|---|---|
| **Ambient air temperature** | For operation | **°C** | - 25…+ 70 | | - 25…+ 50 | - 25…+ 70 | | |
| | For storage | **°C** | - 40…+ 85 | | - 40…+ 55 | - 40…+ 85 | | |
| **Degree of protection** | | | IP 68 | | IP 65 | | IP 68 | |
| **Standard supported** | | | ISO 14443 | | ISO 15693 | | | |
| **Vibration resistance** | Conforming to EN 60068.2.27 | | 2 mm from 5 to 29.5 Hz / 7 gn from 29.5 to 150 Hz | | | | | |
| **Shock resistance** | Conforming to EN 60068.2.6 | | 30 g/11 ms | | | | | |
| | Conforming to EN 50102 | | Degree IK 02 | | | | | |
| **Dimensions** | | **mm** | 40 x 40 x 15 | 40 x 40 x 15 | 54 x 85.5 x 1 | Ø 30 x 3 | 26 x 26 x 13 | M18 x 1 x 12 |
| **Housing material** | | | PBT | PBT | PVC | PC | PBT | PBT |
| **Fixing method** | | | Screw or clip | Screw or clip | – | Screw | Screw or clip | Screw in |
| **Memory capacity** | | **bytes** | 3 408 | 13 632 | 256 | 112 | 256 | |
| **Type of memory** | | | EEPROM | | | | | |
| **Type of operation** | | | Read/Write | | | | | |
| **Type of associated station** | | | XGC S●●●●●●● | | | | | |
| **Nominal sensing distance** (Read/Write) | With station XGC S49 | **mm** | 33 | 30 | 70 | 48 | 40 | 18 |
| | With station XGC S89 | **mm** | 48 | 40 | 100 | 65 | 55 | 20 |
| **Number of read cycles** | | | Unlimited | | | | | |
| **Number of write cycles** | Guaranteed minimum | | 100 000 per data bit throughout the temperature range | | | | | |
| | At 30 °C | | 2.5 million (typical value) | | | | | |
| **Read time** | | **ms** | 9.25 + 0.375 x n *(1)* | 16.25 + 0.375 x n *(1)* | 12 + 0.825 x n *(1)* | | | |
| **Write time** | | **ms** | 13 + 0.8 x n *(2)* | 20 + 0.8 x n *(2)* | 20 + 11.8 x n *(2)* | 12 + 5.6 x n *(2)* | 20 + 11.8 x n *(2)* | 19 + 4.1 x n *(2)* |
| **Data retention time** | | | 10 years | | | | | |
| **Mounting on metal support** | | | Yes *(2)* | | No | | Yes *(2)* | No |

*(1) n = number of 16-bit words.*
*(2) Installation precautions: see pages 30620-EN_Ver3.0/14 and 30620-EN_Ver3.0/15.*

## Characteristics of connection boxes

| Connection box type | | | Tap-off box TCS AMT31FP | Ethernet box XGS Z33ETH |
|---|---|---|---|---|
| **Certifications** | | | UL | |
| **Conformity to standards** | | | CE | |
| **Ambient air temperature** | For operation | **°C** | - 25…+ 55 | 0...+ 50 |
| | For storage | **°C** | - 40…+ 85 | - 40...+ 66 |
| **Relative humidity** | | **RH** | 30...95% without condensation | |
| **Degree of protection** | | | IP 65 | |
| **Supply voltage** | | **V** | ⎓ 24 PELV (limits 19.2 V...29 V). M12, 4-pin male, A coding, connector | |
| **Consumption** (connection box only) | | **W** | – | < 1 |
| **Station connection** | | | M12 5-pin female, A coding, connector | |
| **Electromagnetic interference** | Conforming to IEC 61000 | | Level 3 | |
| | Conforming to EN 55022 | | Class B | |
| **LED display** | | | Power on (green) | - Ethernet network activity (RUN, green)<br>- Collision detection (COL, red)<br>- Diagnostics (STS, yellow)<br>- Fault (Err, red)<br>- Power on (green) |
| **Transparent Ready Services** | Class | | – | A10 |
| | Basic Web server | | – | Available later |
| | Basic Ethernet TCP/IP communication service | | – | Modbus messaging (read/write of words) |
| **Ethernet connection** | Physical interface | | – | 10 BASE-T/100BASE-TX |
| | Transfer rate | | – | 10/100 Mbps |
| | Medium | | – | Ethernet cable with M12 connection, reference TCS ECL1M1●S2 (Telemecanique ConneXium range) |

## Characteristics of portable 13.56 MHz RFID diagnostics terminal

| | | | |
|---|---|---|---|
| **Conformity to standards** | | | CE, FCC class A, Part 15225 |
| **Ambient air temperature** | For operation | **°C** | 0 ... + 50 |
| | For storage | **°C** | - 25... + 55 |
| **Relative humidity** | | **RH** | 5...95% without condensation |
| **Degree of protection** | | | IP 65 |
| **Supply voltage** | | | 7.2 V NiMH type rechargeable battery (included with terminal)<br>External: ⎓ 11-18 V |
| **Operating time** | | | 4 hours continuous operation (tag dialogue) |
| **Operating system** | | | Microsoft Windows CE.NET Professional® version 4.2 |
| **Processor** | | | Intel technology Xscale PXA255 CPU, 400 MHz |
| **Memory** | RAM | | SDRAM 64 Mb |
| | Storage | | Internal compact Flash: 64 Mb standard (16 Mb reserved for operating system), expandable to 128 Mb + Slot for compact Flash card |
| **Display** | Screen | | Colour touchscreen: 72 mm x 54 mm, QVGA TFT |
| | Resolution | | 320 x 240 pixels |
| **Keypad** | | | 45 booted keys |
| **Signalling** | | | 5 LEDs + 1 charging LED |

# Ositrack® RFID
## Radio frequency identification
## 13.56 MHz

105909

*XGC S4901201*

105910

*XGH B44●345*

105914

*XGH B90E340*

105911

*XGH B221346*

105912

*XGH B211345*

105913

*XGH B320345*

### Compact stations, 13.56 MHz

| Description | Protocols | Dimensions mm | Reference | Weight kg |
|---|---|---|---|---|
| **Compact station C format** *(1)* M12 male connector on flying lead | Modbus RTU and Uni-Telway | 40 x 40 x 15 | **XGC S4901201** | 0.057 |
| **Compact station D format** *(1)* M12 male connector on flying lead | Modbus RTU and Uni-Telway | 80 x 80 x 26 | **XGC S8901201** | 0.257 |

### Electronic tags

| Tag type | Nominal sensing dist. according to station | | Dimensions mm | Sold in lots of | Unit reference | Weight kg |
|---|---|---|---|---|---|---|
| | XGC S49● | XGC S89● | | | | |
| **C format** 3 408 bytes | 33 mm | 48 mm | 40 x 40 x 15 | – | **XGH B444345** | 0.031 |
| **C format** 13 632 bytes | 30 mm | 40 mm | 40 x 40 x 15 | – | **XGH B445345** | 0.031 |
| **ISO badge** *(2)* 256 bytes | 70 mm | 100 mm | 54 x 85.5 x 1 | 10 | **XGH B90E340** | 0.005 |
| **Disc** 112 bytes | 48 mm | 65 mm | Ø 30 x 3 | 5 | **XGH B320345** | 0.005 |
| **E format** 256 bytes | 40 mm | 55 mm | 26 x 26 x 13 | 1 | **XGH B221346** | 0.025 |
| **Cylindrical** 256 bytes | 18 mm | 20 mm | M18 x 1 x 12 | 5 | **XGH B211345** | 0.020 |

*(1) Configuration badge XGS ZCNF01 included with station - installation guide to be ordered separately (reference DIA4ED3051001).*

*(2) Customised versions on request.*

# Ositrack® RFID
## Radio frequency identification 13.56 MHz

105915




*TCS AMT31FP*

## Connection boxes

| Description | For use with | Supply voltage | Reference | Weight kg |
|---|---|---|---|---|
| **Ethernet box 3-channel**<br>Integrated Ethernet port (10/100 Mbps)<br>Modbus TCP/IP protocol<br>Class A10 | Compact stations XGC S49● and XGC S89● | ⎓ 24 V | **XGS Z33ETH** | 1.060 |
| **Tap-off box 3-channel**<br>Modbus and Uni-Telway | Compact stations XGC S49● and XGC S89● | ⎓ 24 V | **TCS AMT31FP** | 1.060 |

105918



*XGS TP401*

PF540455



*XGS TP41CH*

## Ositrack® terminal and accessories

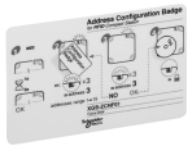
| Description | Application | Reference | Weight kg |
|---|---|---|---|
| **Portable 13.56 MHz RFID diagnostics terminal** *(1)* | Read/write operations on electronic tags and diagnostics on compact stations<br>Operating system:<br>Microsoft Windows CE.NET Professional® version 4.2 | **XGS TP401** | 0.943 |
| **Battery pack charger** | Portable terminal | **XGS TP41CH** | 0.675 |
| **Battery, 7.2 V NiMH** | Portable terminal | **XGS TP41BA** | 0.168 |
| **Compact Flash memory expansion** | Portable terminal<br>Capacity = 128 Mb | **XBT ZGM128** | 0.050 |

105920



*XGS TP41BA*

105921



*XGS ZCNF01*

## Configuration badge (replacement)

| Description | Application | Reference | Weight kg |
|---|---|---|---|
| **Badge** | Configuration of station addresses | **XGS ZCNF01** | 0.005 |

## Ositrack® documentation

| Description | Reference | Weight kg |
|---|---|---|
| **Ositrack® compact stations guide** | **DIA4ED3051001** | 0.130 |

*(1) Ositrack® software (installed), universal battery charger, PC connecting cable, 3 styluses, protective cover, battery and user guide included with terminal.*

# Ositrack® RFID
## Radio frequency identification 13.56 MHz

105925

TCS MCN1FQM2

105927

TCS MCN1F9M2P

105924

TCS ECL1M3M●●●

535803

TCS ESU051F0

535625

TCS EAAF11F13F00

540456

TCS CTN011M11F

## Connection accessories

| Description | Application | Length m | Reference | Weight kg |
|---|---|---|---|---|
| **Modbus network connection accessories** | | | | |
| **Modbus shielded connecting cable, black, IP 67 M12 connectors, male/female, A coding** *(1)* | RS485 connection between a compact station and a tap-off box TCS AMT31FP or between 2 tap-off boxes | 1 | **TCS MCN1M1F1** | 0.080 |
| | | 2 | **TCS MCN1M1F2** | 0.115 |
| | | 5 | **TCS MCN1M1F5** | 0.270 |
| | | 10 | **TCS MCN1M1F10** | 0.520 |
| **Modbus shielded pre-wired M12 connector, IP 67, female/bare wires, A coding** *(1)* | Connection between tap-off box TCS AMT31FP and Modbus/Uni-Telway network (TSX SCA50) | 2 | **TCS MCN1F2** | 0.115 |
| | | 5 | **TCS MCN1F5** | 0.270 |
| | | 10 | **TCS MCN1F10** | 0.520 |
| **Modbus shielded connecting cable, black, M12/SUB-D15, A coding** | Connection between tap-off box TCS AMT31FP and Modbus/Uni-Telway network (TSX SCA62) | 2 | **TCS MCN1FQM2** | 0.270 |
| **Modbus shielded connecting cable, black, M12/Mini-DIN 8-way, A coding** | Modbus connection between tap-off box TCS AMT31FP and a PLC (Twido...) | 2 | **TCS MCN1F9M2P** | 0.350 |
| **Modbus SL serial link cable** (Shielded dual twisted pair RS485 main cables) | Modbus SL serial link | 100 | **TSX CSA100** | 5.680 |
| | | 200 | **TSX CSA200** | 10.920 |
| | | 500 | **TSX CSA500** | 30.000 |
| **Ethernet connection accessories** | | | | |
| **Ethernet connecting cable, green, M12 ConneXium** *(2)* **2 M12 4-pin connectors, D coding** | Connection between the Ethernet box XGS Z33ETH and an M12 Ethernet switch TCS ESU051F0 | 1 | **TCS ECL1M1M1S2** | 0.080 |
| | | 2 | **TCS ECL1M1M2S2** | 0.115 |
| | | 5 | **TCS ECL1M1M5S2** | 0.270 |
| | | 10 | **TCS ECL1M1M10S2** | 0.520 |
| **Ethernet shielded connecting cable, ConneXium** *(2)*, **M12 male D coding/RJ45, 4-pin** | Connection between the Ethernet box and the Ethernet network | 1 | **TCS ECL1M3M1S2** | 0.075 |
| | | 3 | **TCS ECL1M3M3S2** | 0.110 |
| | | 5 | **TCS ECL1M3M5S2** | 0.265 |
| | | 10 | **TCS ECL1M3M10S2** | 0.515 |
| | | 40 | **TCS ECL1M3M40S2** | 2.000 |
| **M12 Ethernet switch IP 67, ConneXium** *(2)* | – | – | **TCS ESU051F0** | 0.210 |
| **Adaptor M12 female/RJ45** | Ethernet connection | – | **TCS EAAF11F13F00** | – |
| **Other connection accessories** | | | | |
| **Pre-wired M12 4-pin female connector, A coding** *(1)* | ⎓ 24 V supply to connection boxes XGS Z33ETH and TCS AMT31FP | 2 | **XGS Z08L2** | 0.115 |
| | | 5 | **XGS Z08L5** | 0.270 |
| | | 10 | **XGS Z08L10** | 0.520 |
| **Shielded M12 5-pin female, A coding, connector** | – | – | **FTX CN12F5** | 0.050 |
| **Shielded M12 5-pin male, A coding, connector** | – | – | **FTX CN12M5** | 0.050 |
| **Network "T" connector, M12, 1 male/2 female 5-pin, A coding** | RS485 network | – | **TCS CTN011M11F** | 0.035 |
| **Supply connector, screw terminals, M12 straight, A coding** | – | – | **XZC C12FDM40B** | 0.020 |
| **Protective cap** (Sold in lots of 10) | M12 female connector | – | **FTX CM12B** | 0.100 |
| **Network terminator, M12 male, 120 Ω** | – | – | **FTX CNTL12** | 0.010 |

*(1) Holder for identification legend included with product.*
*(2) Other ConneXium connection accessories: please refer to www.telemecanique.com.*

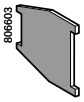
# Ositrack® RFID
Radio frequency identification
13.56 MHz




*XGS Z3P*

## Mounting accessories

| Description | For use with | Reference | Weight kg |
|---|---|---|---|
| **"Clip-on" 90° mounting bracket** | C format station: XGC S4901201<br>C format tags: XGH B44●345 | **XSZ BC90** | 0.060 |
| | Tags XGH B221346 | **XSZ BE90** | 0.060 |
| **"Clip-on" mounting plate** | C format station: XGC S4901201<br>C format tags: XGH B44●345 | **XSZ BC00** | 0.025 |
| | Tags XGH B221346 | **XSZ BE00** | 0.025 |
| **Mounting plate** | Connection boxes TCS AMT31FP and XGS Z33ETH | **XGS Z3P** | 0.195 |




*XGS Z05*

## Complementary accessories

| Description | Sold in lots of | Unit reference | Weight kg |
|---|---|---|---|
| **Key for screwing in/unscrewing Ø 18 mm cylindrical tag** | 5 | **XGS Z05** | 0.011 |
| **Identification legend for 23 x 4 mm connecting cables** | 200 | **XGS Z08MKW** | 0.056 |




*ABL 8MEM24003*

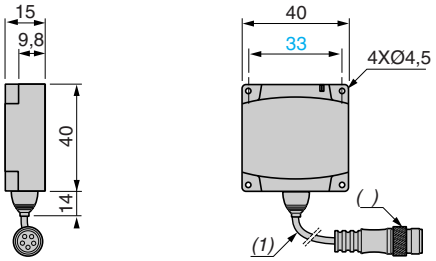
## Power supplies

| Description | Output voltage | Nominal power | Nominal current | Reference | Weight |
|---|---|---|---|---|---|
| | ⎓ V | W | A | | kg |
| **Regulated power supply 100/240 V** | 24 | 7 | 3 | **ABL8 MEM24003** | 0.180 |
| | | 30 | 1.2 | **ABL8 MEM24012** | 0.520 |

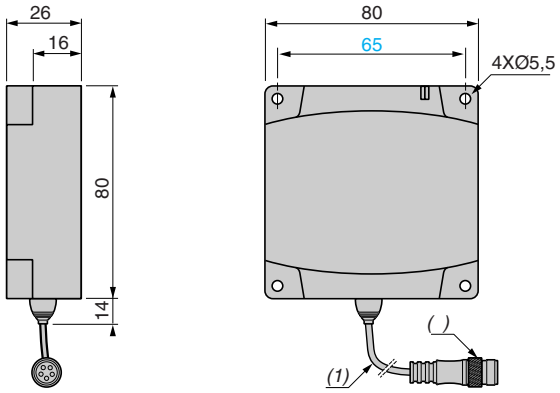
# Ositrack® RFID
Radio frequency identification
13.56 MHz

## Compact stations

### XGC S4901201




### XGC S8901201

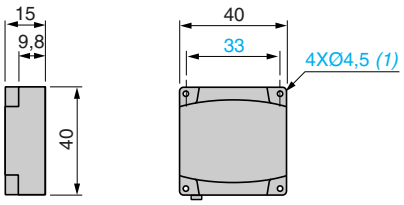



*(1) For CHC type screws.*
*(2) Shielded cable (length: 20 cm).*
*(3) M12 5-pin male, A coding, shielded connector.*

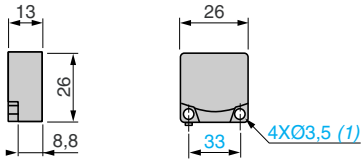
## Read/write electronic tags

### Square format tags

#### XGH B44●345



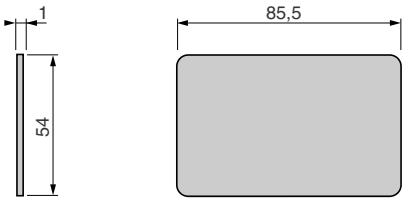

#### XGH B221346




*(1) For CHC type screws.*

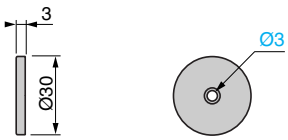
### Rectangular format tags

#### XGH B90E340

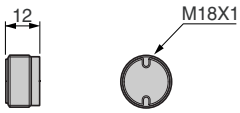



### Cylindrical format tags

#### XGH B320345

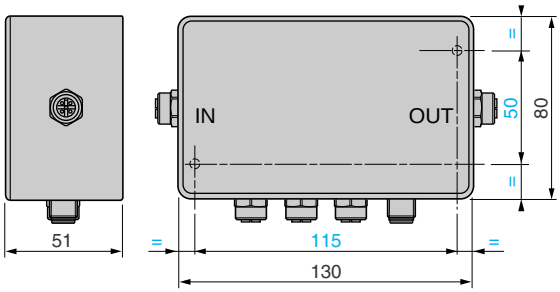



#### XGH B211345

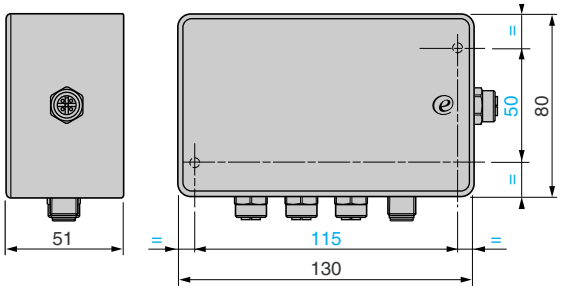



## Connection boxes *(1)*

### TCS AMT31FP

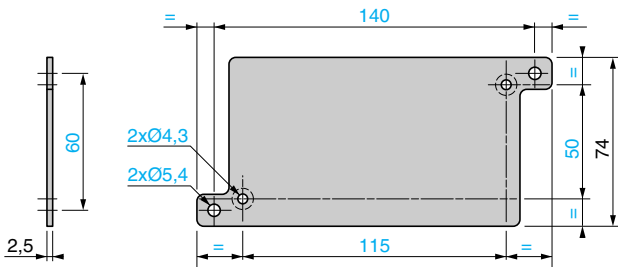



### XGS Z33ETH



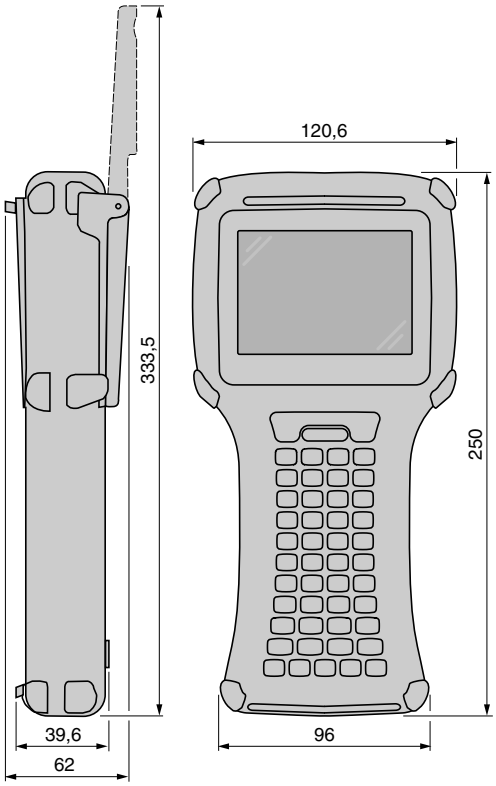

*(1) Allow a 110 mm clearance zone for connecting the cables.*

### Mounting plate XGS Z3P



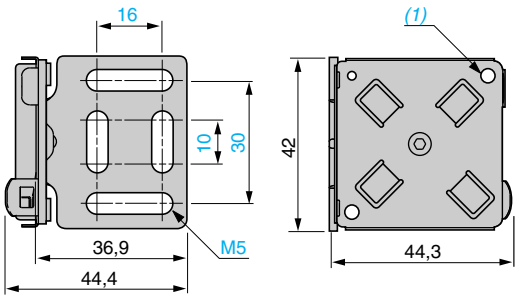
## Ositrack® RFID portable diagnostics terminal

**XGS TP401**



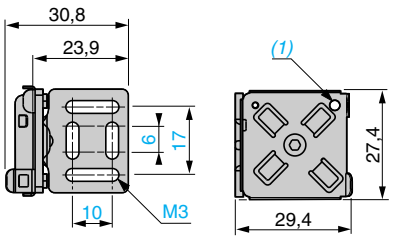

## Mounting brackets

**XSZ BC90**




*(1) Four M4 x 14 screws (included).*

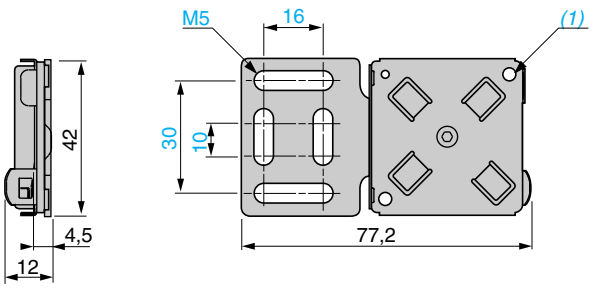
**XSZ BE90**




*(1) Two M3 x 12 screws (included).*

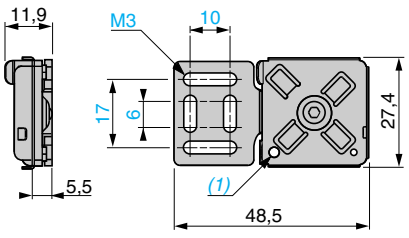
## Mounting plates

**XSZ BC00**




*(1) Four M4 x 14 screws (included).*

**XSZ BE00**

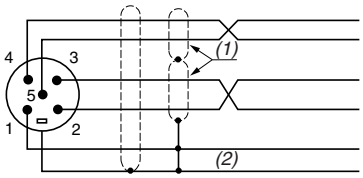



*(1) Two M3 x 12 screws (included).*

# Ositrack® RFID
Radio frequency identification
13.56 MHz

## Modbus connections

### Stations XGC S●901201




| Pin n° | Station - Modbus signal |
|---|---|
| 1 | Drain (Modbus-SHLD) |
| 2 | ⎓ + 24 V |
| 3 | 0 V/Modbus-GND |
| 4 | D0 |
| 5 | D1 |
| Connector casing | Shielding |

*(1) Shielding per pair.*
*(2) General cable shielding.*

### Tap-off box TCS AMT31FP

**Socket to station cabling**




| Pin n° | Signal |
|---|---|
| 1 – | Drain (Modbus-SHLD) |
| 2 Red | ⎓ + 24 V |
| 3 Black | 0 V/Modbus-GND |
| 4 White | D0 |
| 5 Blue | D1 |
| Connector casing | Shielding |

**Socket to power supply cabling**




| Pin n° | Signal |
|---|---|
| 1 | ⎓ + 24 V |
| 2 | ⎓ + 24 V |
| 3 | ⎓ 0 V |
| 4 | ⎓ 0 V |

**Socket to another connection box cabling**




| Pin n° | Signal |
|---|---|
| 1 | Drain (Modbus-SHLD) |
| 2 | – |
| 3 | 0 V/Modbus-GND |
| 4 | D0 |
| 5 | D1 |
| Connector casing | Shielding |

**Socket to industrial PLC cabling**




| Pin n° | Signal |
|---|---|
| 1 | Drain (Modbus-SHLD) |
| 2 | – |
| 3 | 0 V/Modbus-GND |
| 4 | D0 |
| 5 | D1 |
| Connector casing | Shielding |

## Cable connections

**TCS MCN1F●**



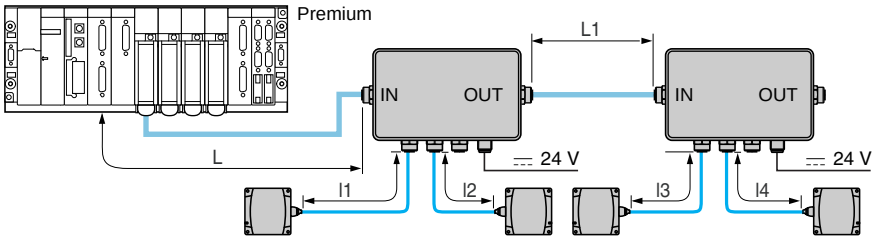

| Pin n° | Signal |
|---|---|
| 1 – | Drain (Modbus-SHLD) |
| 2 Red | ⎓ + 24 V |
| 3 Black | 0 V/Modbus-GND |
| 4 White | D0 |
| 5 Blue | D1 |
| Connector casing | Shielding |

**XGS Z08L**




| Pin n° | Signal |
|---|---|
| 1 Brown | ⎓ + 24 V |
| 2 White | ⎓ + 24 V |
| 3 Blue | ⎓ 0 V |
| 4 Black | ⎓ 0 V |

## Mounting example for Modbus network

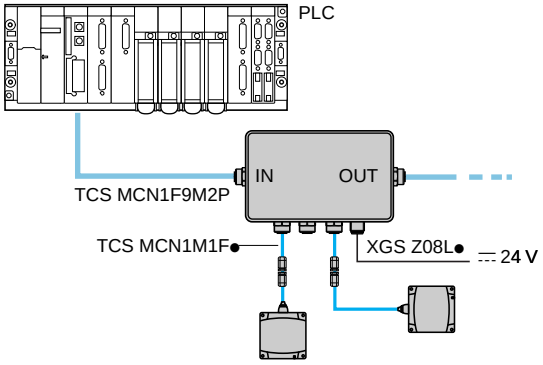



**Maximum length of bus**
The maximum length of the bus (L + L1 + l4) depends on the speed of the network:
- 9600 bauds: 1000 m,
- 19 200 bauds: 500 m.

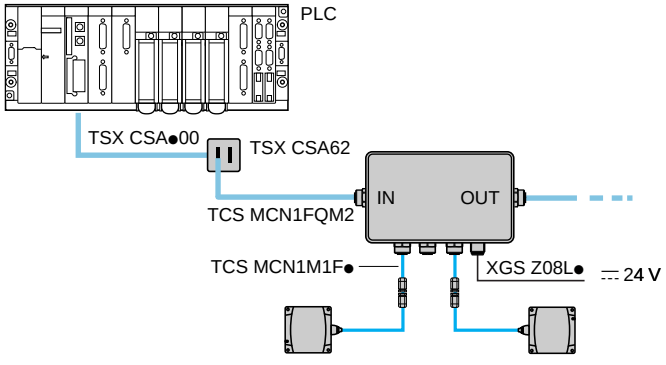
**Maximum length of tap-offs:**
l1, l2 and l3: 10 m.

## Example of connection to a Telemecanique PLC

### Direct connection




### Connection via a TSX SCA62



## Ethernet connection

### Ethernet box XGS Z33ETH

**Socket to station cabling**




| Pin n° | Signal |
|---|---|
| 1 – | Drain (Modbus-SHLD) |
| 2 Red | ⎓ + 24 V |
| 3 Black | 0 V/Modbus-GND |
| 4 White | D0 |
| 5 Blue | D1 |
| Connector casing | Shielding |

**Socket to power supply cabling**



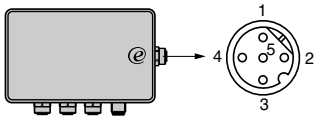

| Pin n° | Signal |
|---|---|
| 1 | ⎓ + 24 V |
| 2 | ⎓ + 24 V |
| 3 | ⎓ 0 V |
| 4 | ⎓ 0 V |

**Cable XGS Z08L connections**




| Pin n° | Signal |
|---|---|
| 1 Brown | ⎓ + 24 V |
| 2 White | ⎓ + 24 V |
| 3 Blue | ⎓ 0 V |
| 4 Black | ⎓ 0 V |

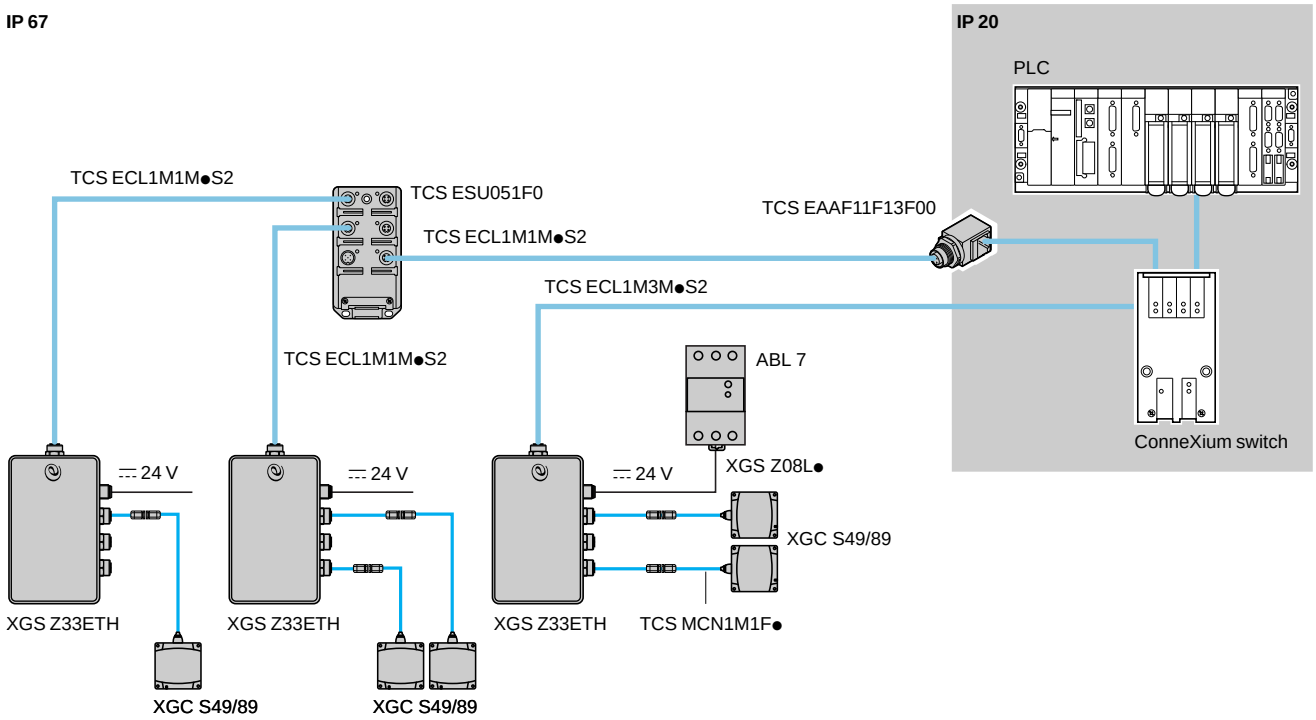
**Ethernet socket connection**




**Cable TCS ECL1M3M●●S2**

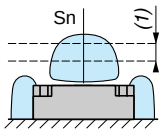
| M12 | Signal | | Signal | RJ45 |
|---|---|---|---|---|
| 1 | TD + | | TD + | 1 |
| 3 | TD – | | TD – | 2 |
| 2 | RD + | | RD + | 3 |
| 4 | RD – | | RD – | 6 |

## Connection example on Ethernet Modbus TCP/IP network



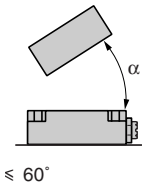
# Ositrack® RFID
Radio frequency identification
13.56 MHz

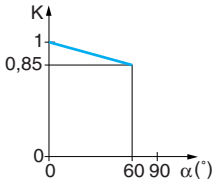
## Detection zones of compact stations




*(1) Recommended crossing zone: between 0.4 and 0.8 Sn.*

## Angular positioning between station and tag

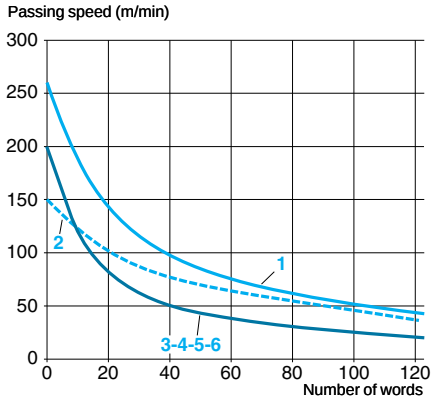


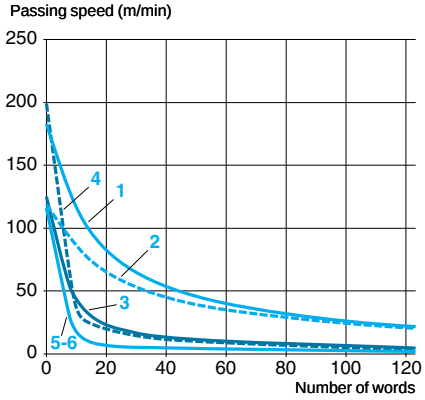

K = correction coefficient to be applied to the nominal sensing distance.
Read distance = nominal sensing distance x K.

## Station and tag selection according to passing speeds

### Read time with station XGC S49●●●●●

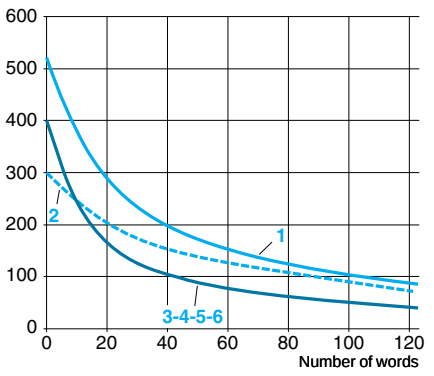



### Write time with station XGC S49●●●●●

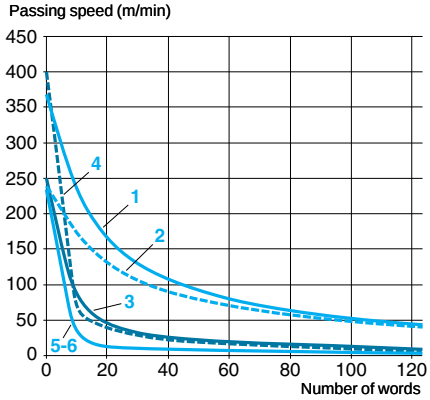



1 XGH B444345
2 XGH B445345
3 XGH B211345
4 XGH B320345
5 XGH B90E340
6 XGH B221346

### Read time with station XGC S89●●●●●




### Write time with station XGC S89●●●●

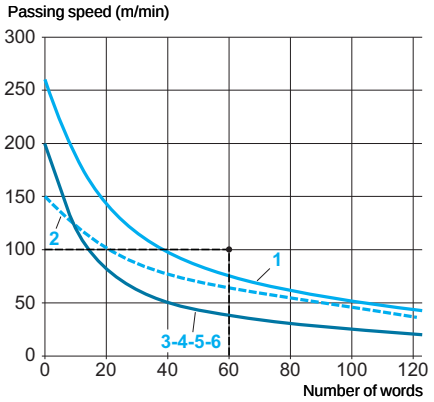



1 XGH B444345
2 XGH B445345
3 XGH B211345
4 XGH B320345
5 XGH B90E340
6 XGH B221346

## Application example

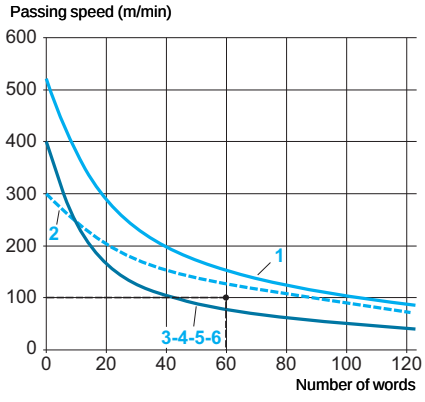
### Read time with station XGC S49●●●●●

On an assembly line, the object passing speed is 100 m/min. The application requires that 60 words be read.




Station XGC S49 cannot be used; no Ositrack® tag can be read under these conditions (Speed/Number of words).

### Read time with station XGC S89●●●●●

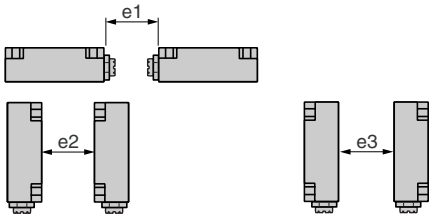



Station XGC S89 can be used; only tags XGH B444345 and XGH B445345 meet the requirements (Speed/Number of words).

## Minimum mounting distances between system components

### Distance between stations

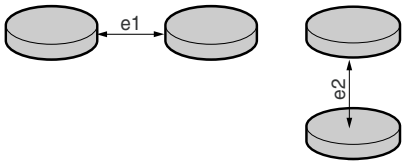
**Minimum distance between 2 identical stations in relation to their positioning and type of tag used (mm)**




| Tag | C format XGC S4 stations | | | D format XGC S8 stations | | |
|---|---|---|---|---|---|---|
| | e1 | e2 | e3 | e1 | e2 | e3 |
| XGH B90E340 | 310 | 550 | 120 | 430 | 750 | 280 |
| XGH B221346 | 200 | 320 | 100 | 280 | 530 | 260 |
| XGH B320345 | 140 | 360 | 110 | 310 | 540 | 240 |
| XGH B211345 | 210 | 180 | 60 | 200 | 370 | 170 |
| XGH B444345 | 90 | 190 | 30 | 310 | 400 | 160 |
| XGH B445345 | 110 | 170 | 30 | 310 | 380 | 160 |

### Distance between tags

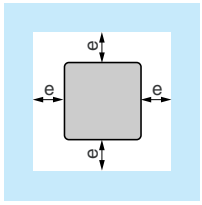
**Minimum distance between 2 identical tags in relation to their positioning and type of station used (mm)**



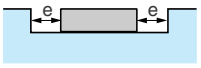

| Tag | C format XGC S4 stations | | D format XGC S8 stations | |
|---|---|---|---|---|
| | e1 | e2 | e1 | e2 |
| XGH B90E340 | 35 | 60 | 110 | 140 |
| XGH B221346 | 50 | 10 | 120 | 50 |
| XGH B320345 | 70 | 50 | 190 | 60 |
| XGH B211345 | 40 | 10 | 120 | 20 |
| XGH B444345 | 20 | 10 | 70 | 40 |
| XGH B445345 | 10 | 10 | 60 | 10 |

## Minimum permissible mounting distances in a metal structure

### Stations XGC S49/S89 and Tags XGH B221346/B444345/B445345




e ≥ 20 mm.

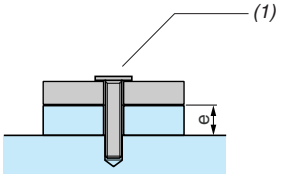



e ≥ 20 mm.

### Tags XGH B90E340 and XGH B211345

No metal parts within 25 mm of the tag.

### Tag XGH B320345




e ≥ 15 mm.

*(1) Tightening torque ≤ 1 N.m.*

| Tags | Nominal sensing distance (mm) | | Reduced sensing distance with presence of metal (mm) | |
|---|---|---|---|---|
| | XGC S49 | XGC S89 | XGC S49 | XGC S89 |
| XGH B90E340 | 70 | 100 | 58 | 80 |
| XGH B221346 | 40 | 55 | 30 | 33 |
| XGH B320345 | 48 | 65 | 45 | 56 |
| XGH B211345 | 18 | 20 | 16 | 15 |
| XGH B444345 | 33 | 48 | 28 | 34 |
| XGH B445345 | 30 | 40 | 24 | 28 |