Family datasheet VOXIO reader module

VOXIO-T (Touch Zarge)

| Black – with keypad | White – with keypad | Black – without keypad | White – without keypad |

- customized modifications possible -
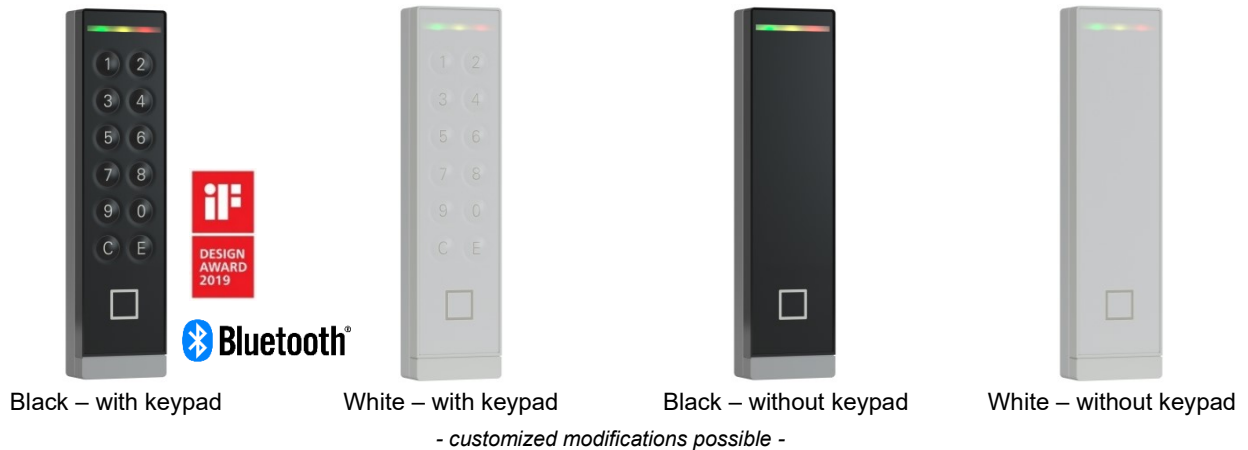
Product designation

Variant	RFID technology
VOXIO-T-1570-Z	Multi ISO reader (Basis LEGIC® SM6300) ▪ LEGIC® prime / advant ▪ MIFARE classic / DESfire / EV1 / EV2 / EV3 ▪ ISO 14443 A+B / ISO 15693 ▪ INSIDE secure ▪ Sony FeliCa subset (NFC Forum Type 3 Tag) ▪ ST SR series *Note: LEGIC media cannot be initialized!*

Interface

- RS 485

Fields of application

- Access control
- Time and attendance
- Data collection
- Parking systems
- General user identification

Special features

- Bluetooth® SIG certification
  (please see note in chapter „General Information" on the last page)
- Many mounting possibilities (e.g. door frames, wall-mounting, metallic surface)
- Housing made of plastic
- Backlit symbols and numbers
- Sabotage detection

- Signal elements
  - 3 LED fields (RGB multicolor)
  - Piezo buzzer for acoustic signalization
  - White backlight at reader's front part

Firmware / Software protocols

- phg_crypt
- Actively sending
- OSDP
- Customized modifications possible

Family datasheet VOXIO reader module
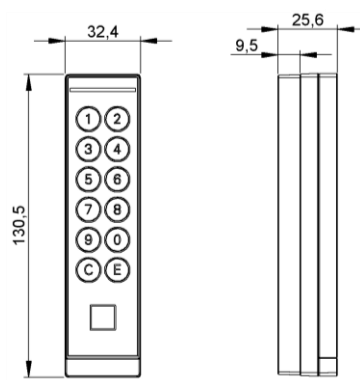
Technical data

Product designation	Nominal voltage [V_{DC}]	Nominal power [W]	Temperature ranges [°C]		Dimensions [mm]	Weight [g]
			Storage	Operation		
VOXIO-T-1570-Z	8 … 30	Typ: 0,7 … 1,0 Max: 2,8 … 3,6	-30 … +70	-30 … +70	see below	80

Protection class: IP 66 (higher IP protection class available on request, see Page 5)
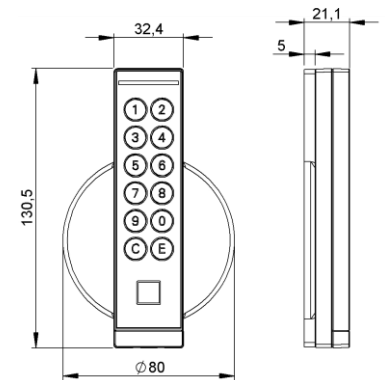
Dimensions:
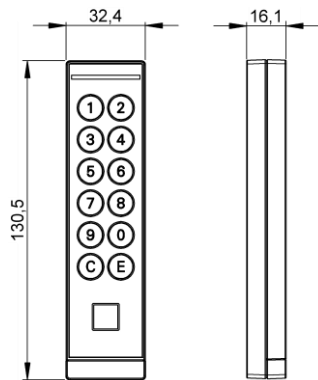
Variant 1: Mounting with mounting plate

Variant 2: Mounting with surface mounted housing

Variant 3: Mounting with flush-mounted covering

Family datasheet VOXIO reader module

Supported transponder media

ℹ The support of the transponder media listed below generally depends on the respective variant or reading technology (hardware platform) and on the respective reader firmware. The list of transponder media is without guarantee of completeness. Further information is available on request

Transpondertyp	VOXIO-T-1570-Z (LEGIC SM6300)
LEGIC MIM 256	X
LEGIC MIM 1024	X
LEGIC ATC256-MV410 (ISO 15693)	X
LEGIC ATC2048-MP110 (ISO 14443A)	X
LEGIC ATC4096-MP310 (ISO 14443A)	X
LEGIC ATC4096-MP311 (ISO 14443A)	
LEGIC AFS4096-JP11 (ISO 14443A)	X
LEGIC ATC1024-MV010 (ISO 15693)	X
LEGIC ATC1024-MV110 (ISO 15693)	X
LEGIC CTC4096-MP410 (Prime)	X
LEGIC CTC4096-MP410 (ISO 14443A)	X
LEGIC CTC4096-MM410 (Prime)	X
LEGIC CTC4096-MM410 (ISO 14443A)	X
LEGIC CTC4096-MM410 (ISO 15693)	X
ISO 14443A-Transponder (UID/CSN)	X
ISO 15693-Transponder (UID/CSN)	X
SONY FeliCa subset	X
INSIDE Secure (UID/CSN)	X
MIFARE Classic	X
MIFARE DESFire EV1 / EV2 / EV3	X
Transparent, ISO14443A	
Transparent, ISO14443A Layer 3	X
Transparent, ISO14443A/B Layer 4 subset	X
Transparent, ISO15693 Layer 3	X
Transparent, NFC Forum Type 2 Tag	X
Transparent, NFC Forum Type 3 Tag	X
hitag 1	
hitag 2	
hitag S	
EM4200	
EM4550	

Family datasheet VOXIO reader module

Pin assignment 4-pin connection terminal

The laying and assembly of the connecting cable is described in the chapter "Installation". Lay the connecting cable according to the desired variant and prepare for connection.

Pin No.	Description
1	+Ub (8 bis 30 V_{DC})
2	GND
3	RS485 Data „A"
4	RS485 Data „B"

Allowed cross-section of the connecting cable
        Connection line solid core: 0,25 … 0,75 mm²
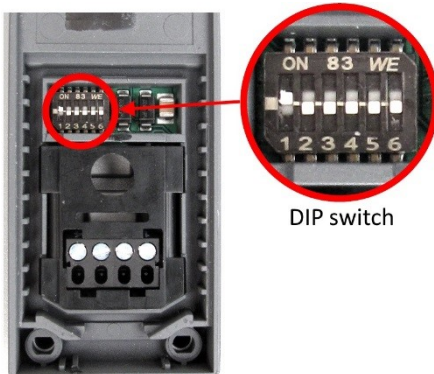   Connection line multi-wired: 0,25 … 0,75 mm²
Cable ends stranded wire or wire end ferrule (without insulation).

Attention! The wiring of the reader module have to be carried out in a de-energised state, i.e. the supply voltage may be switched on only after the complete assembly.

Function DIP switch

DIP switch (6-pole)

DIP switch

DIP switch (6-pole, S1 to S6)	
DIP switch	**Function**
S1	Depends on the firmware e.g. configuration of the reader's address, baud rate, terminating resistor for RS 485
S2	
S3	
S4	
S5	
S6	
The appropriate wiring diagram is provided to each reader. It also includes the DIP switch configurations	

Sabotage detection

The sabotage detection works only by the help of an integrated 3D acceleration sensor. After commissioning (Power ON), this sensor is calibrated to the current installation position of the reader. This calibration process takes approx. 60 seconds. It must be ensured that the reader is not moved during this time, otherwise an incorrect reference calibration value will be adopted, and this could result in false triggers during operation.

Note: Before commissioning, it must be ensured that the reader is in the correct installation position! It must be furthermore ensured that the reader is only supplied with electricity after it has been fully assembled!

Sabotage detection is triggered if the reader is moved in any spatial axis after commissioning. The sensitivity of the sabotage detection is fixed and cannot be changed.

The sabotage sensor withstands vibrations. This means that the reader with activated sabotage monitoring can also be attached to non-stationary systems or machines.

Attention! When installing on portable systems (e.g. crane), false triggers occur due to their changes in position. In this case, sabotage detection should not be evaluated.

Version with protection class IP 68

In its IP 68 version, this reader offers increased protection against water. The 6 meter long connection cable is permanently connected to the reader (cannot be detached). The back of the reader is sealed. The following picture shows this construction.
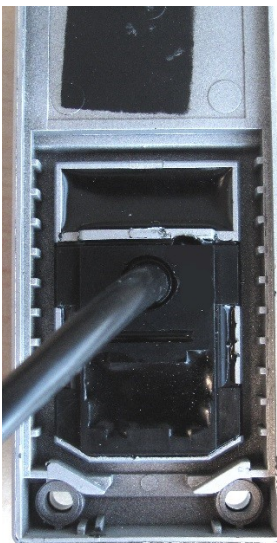
Meaning of the colors of the connection cable

Color	Description
Brown	+Ub (8 … 30 V_{DC})
Black	GND
Blue	RS485 Data „A"
White	RS485 Data „B"

Note: It is no longer possible to make changes to the DIP switch afterwards! Therefore, the position of all DIP switches must be determined at an early stage (at the latest when ordering the readers)!

Family datasheet VOXIO reader module

Installation

Screws for the fixing of the reader module on the mounting plate are already put into the equivalent holes:

2x M3x12 (DIN14580) (2x fixed on the housing) -> DIN 14580 (reduced screw head), Torx T10

If no IP protection class required, it is possible to install also individual cables instead of sheathed cables.

- 4-wired, without sheathed cables
- Dismantle length: 20 - 25 mm
- Strip length: 4 mm

Sheathed cable in conjunction with rubber grommet the cable diameter must be 3,5 … 5,5 mm to reach the IP protection class IP 66 (see following figure). Higher IP protection classes available on request.

Variant 1: Flush-mounted wiring of the connection line through the door frame or wall
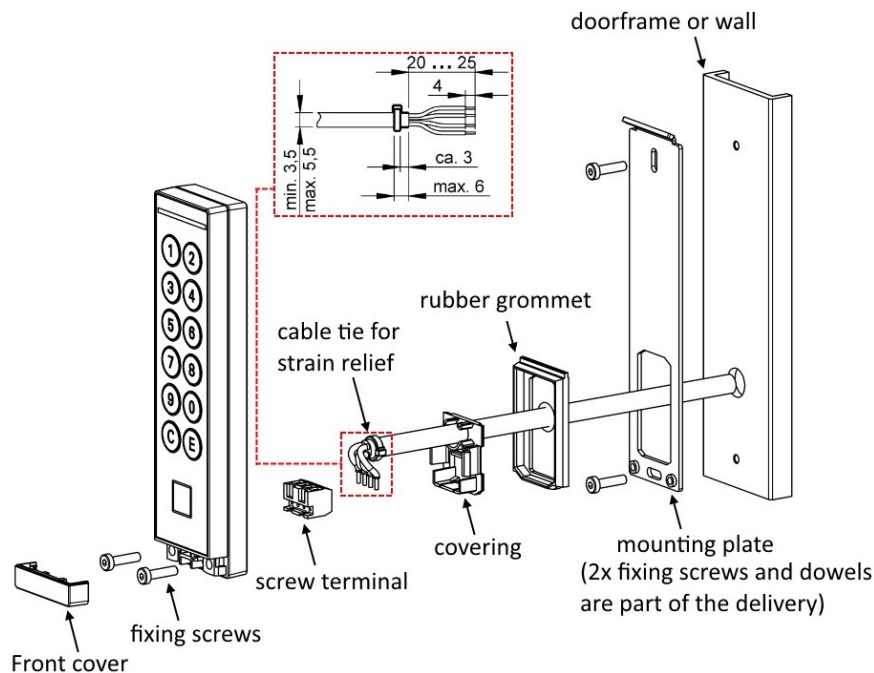
> **Attention! The cable in the wall hole must be moveable for the mounting and installation process. If this is not ensured, a professional flush mounting is not possible and a surface-mounted housing (optional accessory) must be used, see following page!**

The installation has to be carried out according to the picture above. First the mounting plate will be fixed by the delivered screws on top and bottom on the door frame or wall (fixing holes see below). The connection cable is then assembled accordingly, connected to the screw terminal described in the chapter "Pin assignment 4-pin connection terminal", and attached to the reader. The reader is then hung on top of the mounting plate and fixed to the bottom of the reader with the two factory-mounted screws. Finally, the front cover is clipped onto the reader.

Fixing holes mounting plate
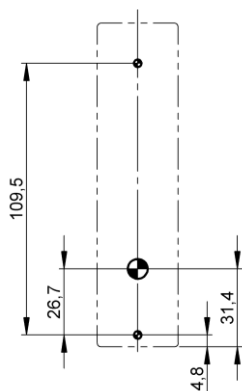
Fixing screws for the mounting plate:
- Max screw head diameter: 6,0 mm / Max screw head height: 4,0 mm
- Attached screws for wall mounting of the mounting plate:
  - 2x dowels S5 (recommended drill diameter: 5 mm)
  - 2x metal screws 2,9 x 13 (DIN 7981)
  - 2x Spax screws 3 x 25 mm
 - Cable tie 2,5 mm for strain relief

Family datasheet VOXIO reader module

Variant 2: Mounting of the reader module onto the surface-mounted housing

It is possible to lay the connecting cable through the surface-mounted housing of the reader (accessory, not included) either from above or from below as well as directly from the wall. For this purpose, predetermined breaking points and cavity on the surface-mounted housing are available.

> ℹ️ **The length of the connecting cable must be sufficient to be able to assemble and connect this to the reader! The connecting cable can be laid in a loop in the surface-mounted housing (see photo).**
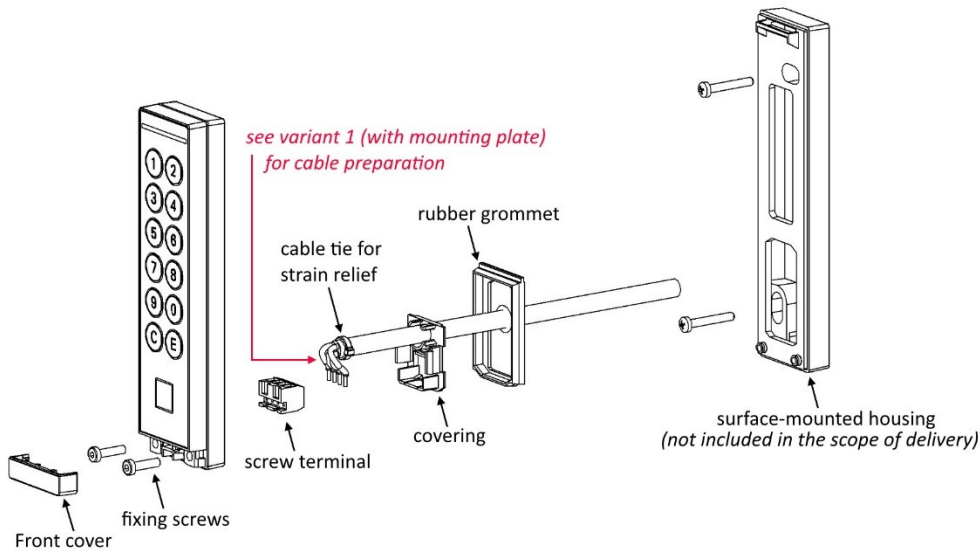
Connecting cable exemplarily laid from bottom in a loop

> ℹ️ **The surface-mounted housing is accessory and <u>not</u> included in the scope of delivery of the reader! If required, please order separately!**

The connection of the connecting cable is carried out according to variant with mounting plate (variant 1).

The installation is carried out according to the picture above. The reader is hung in the surface-mounted housing just like onto the mounting plate and fixed with the two factory-mounted screws. Finally, the front cover is clipped onto the reader.

Fixing holes surface-mounted housing
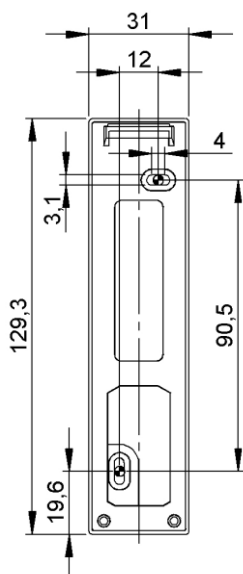
Fixing screws for the surface-mounted housing:
- Max screw head diameter: 6,0 mm / Max screw head height: 4,0 mm
- Attached screws for wall mounting of the mounting plate:
  - 2x dowels S5 (recommended drill diameter: 5 mm)
  - 2x metal screws 2,9 x 13 (DIN 7981)
  - 2x Spax screws 3 x 25 mm
  - Cable tie 2,5 mm for strain relief
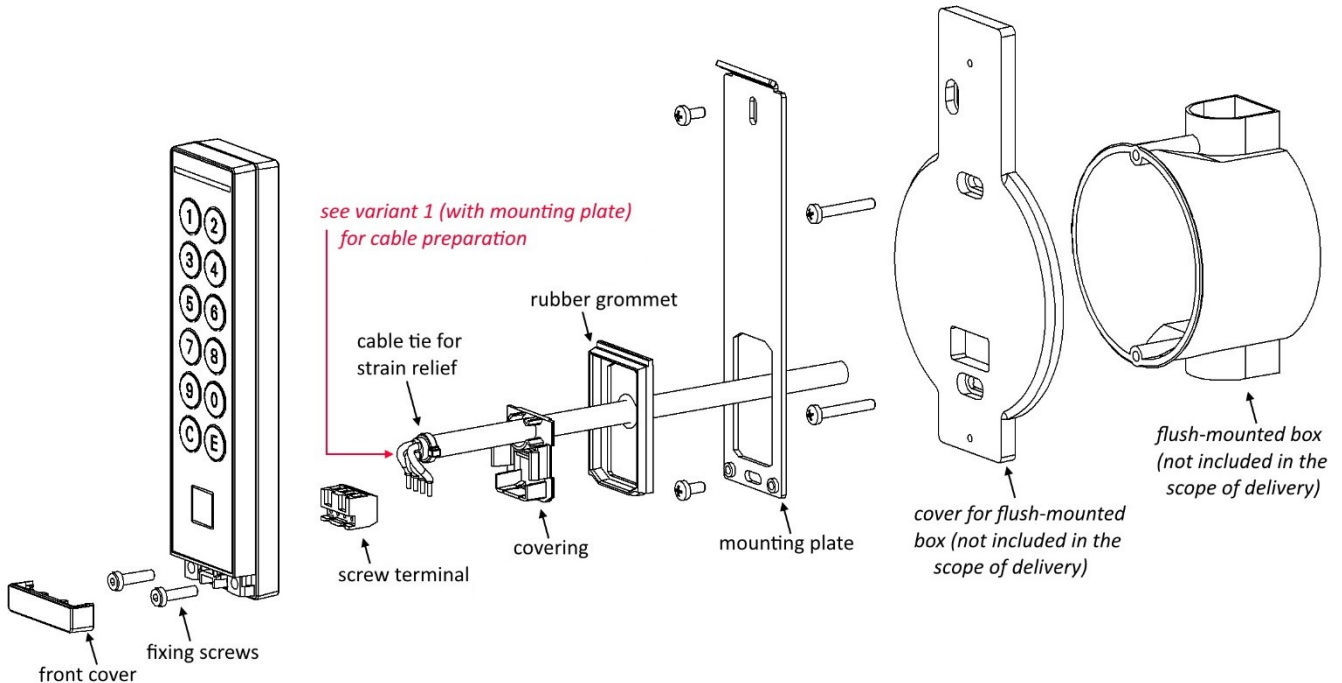
Family datasheet VOXIO reader module

Variant 3: Mounting of the reader module onto the cover for flush-mounted box

If the connecting cable is in a flush-mounted box, it is possible to conceal the flush-mounted box with the flush-mounted cover (accessory, not included in delivery).

This must be a flush-mounted box or cavity wall box with a standard hole spacing of 60 mm!

> **ℹ** **The length of the connecting cable in the flush-mounted box must be sufficient to allow it to be assembled and connected to the reader!**

see variant 1 (with mounting plate) for cable preparation

rubber grommet

cable tie for strain relief

screw terminal

covering

mounting plate

cover for flush-mounted box (not included in the scope of delivery)

flush-mounted box (not included in the scope of delivery)

fixing screws

front cover

> **ℹ** **The cover for the flush-mounted box is accessory and <u>not</u> included in the scope of delivery of the reader! If required, please order separately!**

The connection of the connecting cable is carried out according to variant with mounting plate (variant 1).

The installation is carried out according to the picture above. First, the cover for flush-mounted box is fixed by two fixing screws to the flush-mounted box. Afterwards, the mounting plate is fixed to the cover for flush-mounted box by two fastening screws. The reader is then mounted on the mounting plate and fixed with the two factory-mounted fixing screws of the reader. Finally, the front cover is clipped onto the reader.

Family datasheet VOXIO reader module

General information

Note on the use of Bluetooth brands on branding products of the VOXIO-T (Touch Zarge)

Only Bluetooth SIG Inc. (Bluetooth Special Interest Group) members may use the "Bluetooth trademarks" (text and logo) as agreed in the Bluetooth Trademark License Agreement (BTLA). If the brands are used in conjunction with a product, that product must have gone through and completed the Bluetooth qualification process.

If a company markets a phg-certified device with BLE function under its own name and logo (so-called branding), it must register or list this at the Bluetooth SIG Inc. However, an "adopter membership" must be applied for in advance.

When listing, a reference must be made to the phg listing. It is best to use BQC (Bluetooth Qualification Consultants). These can be found on the Bluetooth website (https://www.bluetooth.com/develop-with-bluetooth/qualification-listing/qualification-consultants/).

For branding with the Bluetooth label or using the designation "Bluetooth" the "Bluetooth Brand Guide.pdf" must be used. Available on the Bluetooth website (https://www.bluetooth.com/de/develop-with-bluetooth/marketing-branding/).

Influences (reduction) of the reading distance

An influence of the reading distance can have more reasons.

This is a list of facts that reduce the reading distance:

- Shielding the data carrier by metal materials, e.g. EC card in the wallet, key tag on a bunch of keys
- No optimum coupling, i.e. the antenna surface of the data carrier is vertical (90°) to the reader's antenna surface
- Data carrier itself
  - key tag (small active antenna surface)
  - poor resonance of the data carrier (IC card / key tag)
  - combined ID card (e.g. LEGIC® / inductive, mifare/inductive, etc.)
- Metal in the "active" surface of the HF field. The transmitting energy is reduced. This point is mainly relevant, when the reader components are integrated in metal cover plates (including metal pillars etc.).

Conformity statement

This product complies to the common legal requirements if used according to regulations. We provide you the EU declaration of conformity on demand.

Care and cleaning instruction

The use of hard or sharp objects (rings, fingernails etc.) can cause scratches and damage the device.
Wipe the device with a soft lint-free cloth, or one that has been lightly dampened with water.
The use of caustic liquids such as benzene, thinners, alcohol, solvents, or any kind of abrasive cleaners will lead to surface deterioration and damage.

Waste Disposal

This product **must not** be disposed in normal household waste!