

# Technical data sheet

## Bar code positioning system

Part no.: 50144062  
FBPS 617i 17 SM 110



For illustration purposes only

### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Diagrams
- Part number code
- Notes
- Accessories



## Technical data

### Basic data

|             |                                                                                                                                                                       |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Series      | FBPS 600i                                                                                                                                                             |
| Order guide | ATTENTION! Only bar code tapes from the accessories of the FBPS 600i may be used<br><br>ATTENTION! The two clock lines of an SSI connection must be in twisted pairs. |

### Functions

|           |                         |
|-----------|-------------------------|
| Functions | Safe position detection |
|-----------|-------------------------|

### Characteristic parameters

|                             |                                     |
|-----------------------------|-------------------------------------|
| SIL                         | 3, EN 61508                         |
| SILCL                       | 3, IEC/EN 62061                     |
| Performance Level (PL)      | e, ISO / EN ISO 13849-1:2015        |
| PFH <sub>D</sub>            | < 9.5E-09 per hour                  |
| Mission time T <sub>M</sub> | 20 years, ISO / EN ISO 13849-1:2015 |
| Category                    | 4, ISO / EN ISO 13849-1:2015        |
| MTTF                        | 26 years                            |
| Error reaction time         | 10 ms (configurable)                |

### Optical data

|                          |                                                          |
|--------------------------|----------------------------------------------------------|
| Depth of field           | 50 ... 170 mm                                            |
| Light source             | Laser, Red                                               |
| Wavelength               | 655 nm                                                   |
| Laser class              | 1, in accordance with IEC 60825-1:2014 (EN 60825-1:2014) |
| Transmitted-signal shape | Continuous                                               |
| Light beam exit          | Lateral                                                  |

### Measurement data

|                           |                     |
|---------------------------|---------------------|
| Measurement range         | 0 ... 10,000,000 mm |
| Resolution                | 0.01 ... 1 mm       |
| Reproducibility (1 sigma) | 0.15 mm             |
| Measurement value output  | 1 ms                |
| Max. traverse rate        | 10 m/s              |

### Electrical data

|                    |                                                         |
|--------------------|---------------------------------------------------------|
| Protective circuit | Polarity reversal protection<br>Short circuit protected |
|--------------------|---------------------------------------------------------|

#### Performance data

|                               |                        |
|-------------------------------|------------------------|
| Supply voltage U <sub>B</sub> | 24 V, DC, -25 ... 25 % |
| Current consumption, max.     | 350 ... 400 mA         |
| Power consumption, max.       | 8.5 W                  |

#### Inputs

|                                    |            |
|------------------------------------|------------|
| Number of digital switching inputs | 1 Piece(s) |
|------------------------------------|------------|

#### Switching inputs

|      |                                                  |
|------|--------------------------------------------------|
| Type | Digital switching input, configurable (not safe) |
|------|--------------------------------------------------|

#### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

#### Switching outputs

|      |                                                   |
|------|---------------------------------------------------|
| Type | Digital switching output, configurable (not safe) |
|------|---------------------------------------------------|

### Interface

|      |                        |
|------|------------------------|
| Type | 2-channel SSI with CRC |
|------|------------------------|

### SSI

|                 |                |
|-----------------|----------------|
| Function        | Process        |
| Clock frequency | 80 ... 800 kHz |
| Data bit        | Adjustable     |

### Service interface

|      |     |
|------|-----|
| Type | USB |
|------|-----|

### USB

|          |                                                                     |
|----------|---------------------------------------------------------------------|
| Function | Configuration/parameterization via integrated web server<br>Service |
|----------|---------------------------------------------------------------------|

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 4 Piece(s) |
| Plug outlet           | Down       |

#### Connection 1

|          |                                                                    |
|----------|--------------------------------------------------------------------|
| Function | Functional earth (FE)<br>Signal IN<br>Signal OUT<br>Voltage supply |
|----------|--------------------------------------------------------------------|

|                       |           |
|-----------------------|-----------|
| Type of connection    | Connector |
| Designation on device | XD1 PWR   |
| Thread size           | M12       |
| Type                  | Male      |
| Material              | Metal     |
| No. of pins           | 5 -pin    |
| Encoding              | A-coded   |

#### Connection 2

|                       |               |
|-----------------------|---------------|
| Function              | SSI channel A |
| Type of connection    | Connector     |
| Designation on device | X1 SSI1       |
| Thread size           | M12           |
| Type                  | Male          |
| Material              | Metal         |
| No. of pins           | 5 -pin        |
| Encoding              | B-coded       |

#### Connection 3

|                       |               |
|-----------------------|---------------|
| Function              | SSI channel B |
| Type of connection    | Connector     |
| Designation on device | X2 SSI2       |
| Thread size           | M12           |
| Type                  | Male          |
| Material              | Metal         |
| No. of pins           | 5 -pin        |
| Encoding              | B-coded       |

#### Connection 4

|                       |                   |
|-----------------------|-------------------|
| Function              | Service interface |
| Type of connection    | USB               |
| Designation on device | XF0 SERVICE       |
| Connector type        | USB 2.0 Mini-B    |

## Technical data

### Mechanical data

|                       |                              |
|-----------------------|------------------------------|
| Design                | Cubic                        |
| Dimension (W x H x L) | 105 mm x 112.5 mm x 51.5 mm  |
| Housing material      | Metal                        |
| Metal housing         | Diecast aluminum             |
| Lens cover material   | Glass                        |
| Net weight            | 540 g                        |
| Housing color         | Silver                       |
|                       | Yellow                       |
| Type of fastening     | Dovetail grooves             |
|                       | Fastening on back            |
|                       | Mounting thread              |
|                       | Via optional mounting device |

### Operation and display

|                       |                 |
|-----------------------|-----------------|
| Type of display       | LED             |
| Type of configuration | Via web browser |

### Environmental data

|                                    |               |
|------------------------------------|---------------|
| Ambient temperature, operation     | -5 ... 60 °C  |
| Ambient temperature, storage       | -35 ... 70 °C |
| Relative humidity (non-condensing) | 90 %          |

### Certifications

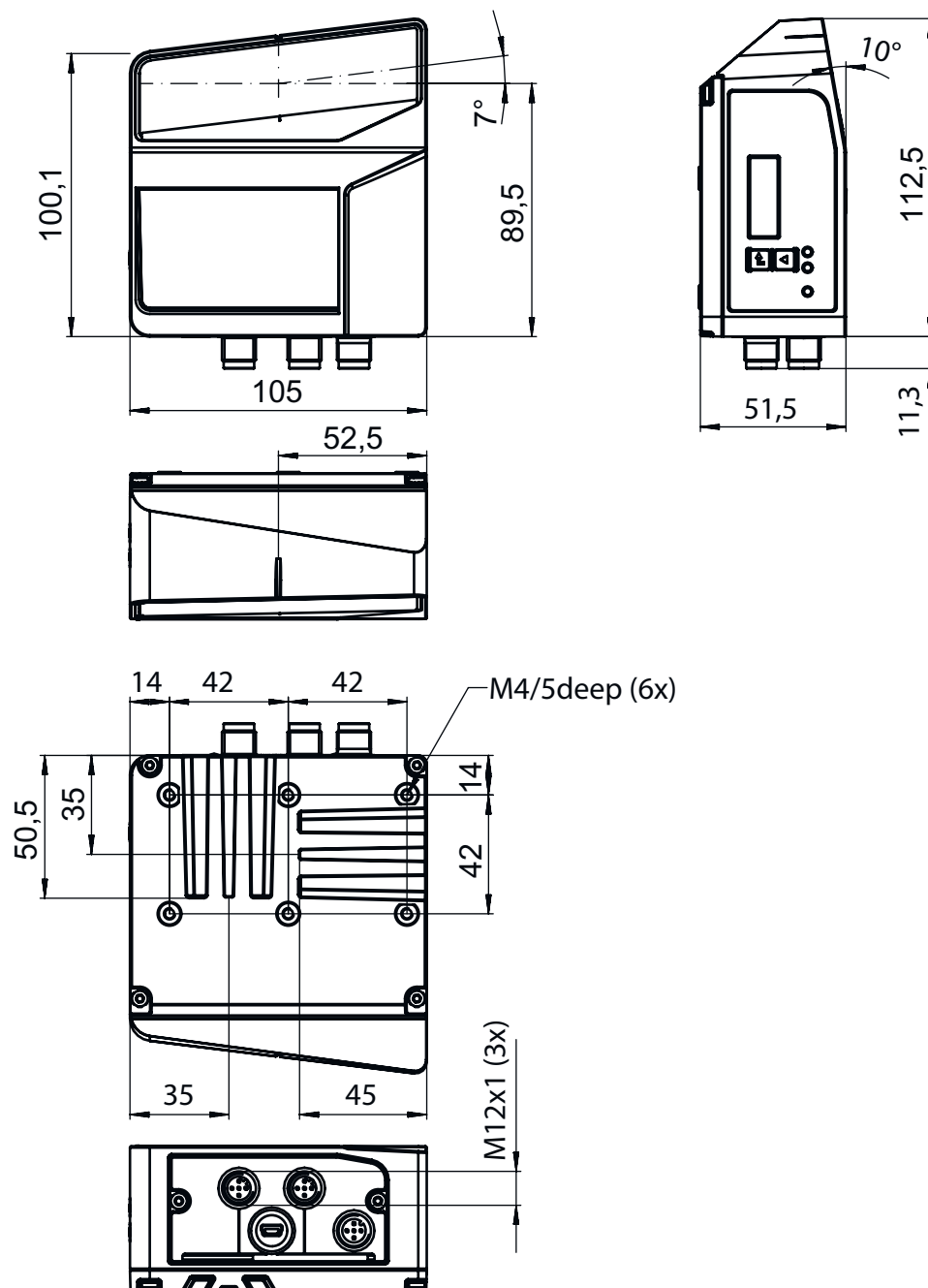
|                      |                                                            |
|----------------------|------------------------------------------------------------|
| Degree of protection | IP 65, EN 60529 with various connectors or screwed-on caps |
| Protection class     | III                                                        |
| Approvals            | c TÜV NRTL US                                              |
|                      | CSA                                                        |
|                      | TÜV Süd                                                    |
|                      | UL                                                         |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 84714900 |
| ECLASS 5.1.4          | 27280190 |
| ECLASS 8.0            | 27280190 |
| ECLASS 9.0            | 27280190 |
| ECLASS 10.0           | 27280190 |
| ECLASS 11.0           | 27280190 |
| ECLASS 12.0           | 27280106 |
| ECLASS 13.0           | 27280106 |
| ECLASS 14.0           | 27280106 |
| ECLASS 15.0           | 27280106 |
| ETIM 5.0              | EC001825 |
| ETIM 6.0              | EC001825 |
| ETIM 7.0              | EC001825 |
| ETIM 8.0              | EC001825 |
| ETIM 9.0              | EC001825 |
| ETIM 10.0             | EC001825 |

## Dimensioned drawings

All dimensions in millimeters



## Electrical connection

### Connection 1

### XD1 PWR

Function

Functional earth (FE)

Signal IN

Signal OUT

Voltage supply

## Electrical connection

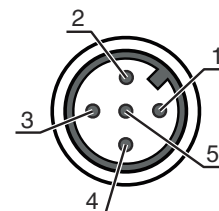
### Connection 1

### XD1 PWR

|                    |           |
|--------------------|-----------|
| Type of connection | Connector |
| Thread size        | M12       |
| Type               | Male      |
| Material           | Metal     |
| No. of pins        | 5 -pin    |
| Encoding           | A-coded   |

| Pin | Pin assignment |
|-----|----------------|
|-----|----------------|

|   |        |
|---|--------|
| 1 | VIN    |
| 2 | SWO 1  |
| 3 | GNDIN  |
| 4 | SWIN 1 |
| 5 | FE     |



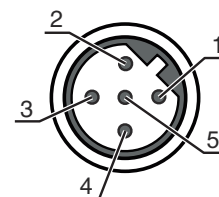
### Connection 2

### X1 SSI1

|                    |               |
|--------------------|---------------|
| Function           | SSI channel A |
| Type of connection | Connector     |
| Thread size        | M12           |
| Type               | Male          |
| Material           | Metal         |
| No. of pins        | 5 -pin        |
| Encoding           | B-coded       |

| Pin | Pin assignment |
|-----|----------------|
|-----|----------------|

|   |       |
|---|-------|
| 1 | DATA+ |
| 2 | DATA- |
| 3 | CLK+  |
| 4 | CLK-  |
| 5 | FE    |



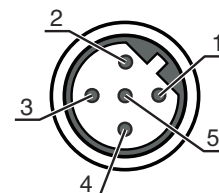
### Connection 3

### X2 SSI2

|                    |               |
|--------------------|---------------|
| Function           | SSI channel B |
| Type of connection | Connector     |
| Thread size        | M12           |
| Type               | Male          |
| Material           | Metal         |
| No. of pins        | 5 -pin        |
| Encoding           | B-coded       |

| Pin | Pin assignment |
|-----|----------------|
|-----|----------------|

|   |       |
|---|-------|
| 1 | DATA+ |
| 2 | DATA- |
| 3 | CLK+  |
| 4 | CLK-  |
| 5 | FE    |



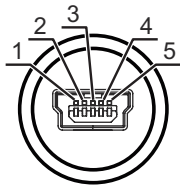
### Connection 4

### XF0 SERVICE

|                    |                   |
|--------------------|-------------------|
| Function           | Service interface |
| Type of connection | USB               |
| Connector type     | USB 2.0 Mini-B    |

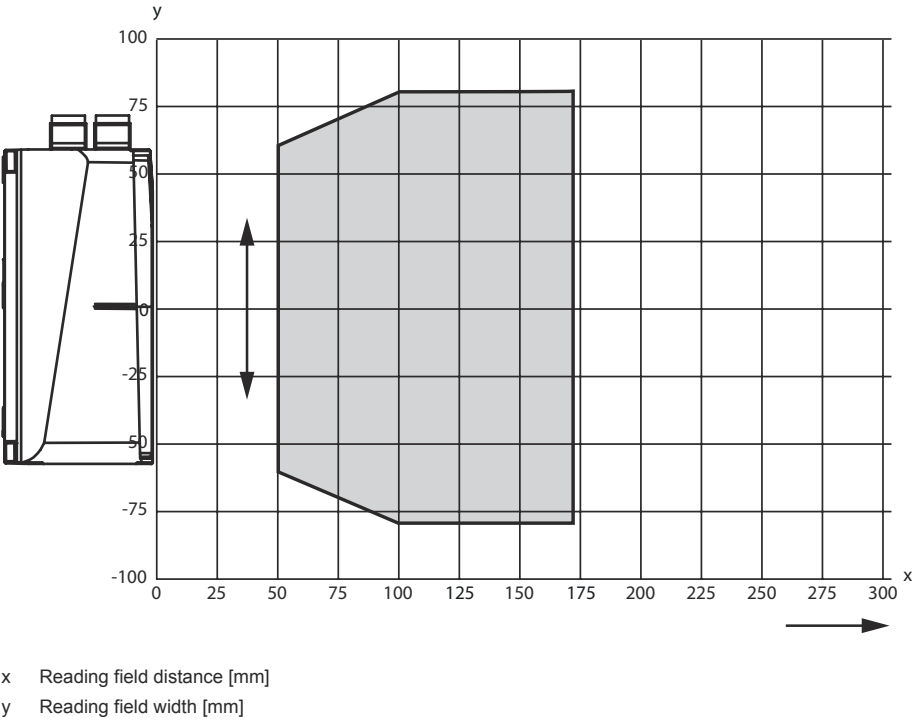
Electrical connection

| Pin | Pin assignment |
|-----|----------------|
| 1   | VB             |
| 2   | D-             |
| 3   | D+             |
| 4   | ID             |
| 5   | GND            |



Diagrams

Reading field curve



x Reading field distance [mm]  
y Reading field width [mm]

Part number code

Part designation: **FBPS 6XXi WW SM XXX Y Z**

|             |                                                                                                                          |
|-------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>FBPS</b> | <b>Operating principle</b><br>FBPS: Fail-safe bar code positioning system                                                |
| <b>6XXi</b> | <b>Series/interface (integrated fieldbus technology)</b><br>607i: 2-channel standard SSI<br>617i: 2-channel SSI with CRC |
| <b>WW</b>   | <b>Series/interface (integrated fieldbus technology)</b><br>07i: 2-channel standard SSI<br>17i: 2-channel SSI with CRC   |
| <b>SM</b>   | <b>Scanning principle / optics</b><br>S: line scanner (single line)<br>M: Medium Density (medium distance)               |

## Part number code

|     |                                                                                             |
|-----|---------------------------------------------------------------------------------------------|
| XXX | <b>Plug outlet</b><br>100: lateral<br>110: bottom                                           |
| Y Z | <b>Special equipment</b><br>n/a: no special equipment<br>D: With display<br>H: with heating |

## Note



↗ A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Notes

**Observe intended use!**

The protection of personnel and the device cannot be guaranteed if the device is operated in a manner not complying with its intended use.

↗ Only use the product in accordance with its intended use.

↗ Leuze electronic GmbH + Co. KG is not liable for damages caused by improper use.

↗ Before commissioning the device, read the operating instructions. Knowledge of the operating instructions is an element of proper use.

**ATTENTION! LASER RADIATION – CLASS 1 LASER PRODUCT**

The device satisfies the requirements of IEC/EN 60825-1:2014 safety regulations for a product of **laser class 1** and complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

↗ Observe the applicable statutory and local laser protection regulations.

↗ The device must not be tampered with and must not be changed in any way.  
There are no user-serviceable parts inside the device.  
Repairs must only be performed by Leuze electronic GmbH + Co. KG.

## Accessories

## Connection technology - Connection cables

|                                                                                                                                                                                                                                                                                                                                                          | Part no. | Designation        | Article          | Description                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><br><br> | 50104172 | KB SSI/IBS-2000-BA | Connection cable | Suitable for interface: SSI, Interbus-S<br>Connection 1: Connector, M12, Axial, Female, B-coded, 5 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 2.000 mm<br>Sheathing material: PUR |
|                                                                                                                                                                                                                                                                                                                                                          | 50133859 | KD S-M12-5A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: Yes<br>Cable length: 2.000 mm<br>Sheathing material: PUR                                            |

## Accessories

|                                                                                   | Part no. | Designation        | Article          | Description                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|----------|--------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50133839 | KD U-M12-5A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 5 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2.000 mm<br>Sheathing material: PUR |

## Connection technology - Connectors

|                                                                                   | Part no. | Designation | Article   | Description                                                |
|-----------------------------------------------------------------------------------|----------|-------------|-----------|------------------------------------------------------------|
|  | 50020501 | KD 095-5A   | Connector | Connection: Connector, M12, Axial, Female, A-coded, 5 -pin |

## Mounting technology - Mounting brackets

|                                                                                    | Part no. | Designation | Article         | Description                                                                                                                                                                                   |
|------------------------------------------------------------------------------------|----------|-------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50121433 | BT 300 W    | Mounting device | Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Adjustable<br>Material: Metal |

## Mounting technology - Other

|                                                                                     | Part no. | Designation | Article         | Description                                                                                                                                                           |
|-------------------------------------------------------------------------------------|----------|-------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50124941 | BTU 0300M-W | Mounting device | Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable, Groove mounting, Suited for M4 screws<br>Material: Metal<br>Shock absorber: No |

## Bar code tape

|                                                                                    | Part no. | Designation      | Article       | Description                                            |
|------------------------------------------------------------------------------------|----------|------------------|---------------|--------------------------------------------------------|
|  | 50144173 | BCB G30 H25 L010 | Bar code tape | Dimensions: 25 mm x 10,000 mm<br>Grid dimension: 30 mm |
|  | 50104792 | BCB G30 H47 L010 | Bar code tape | Dimensions: 47 mm x 10,000 mm<br>Grid dimension: 30 mm |

Accessories

Services

|                                                                                  | Part no. | Designation | Article          | Description                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------|----------|-------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | S981001  | CS10-S-110  | Start-up support | Details: Performed at location of customer's choosing, duration: max. 10 hours.<br>Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. |
|  | S981005  | CS10-T-110  | Product training | Details: Location and content to be agreed upon, duration: max. 10 hours.<br>Conditions: Price not including travel costs and, if applicable, accommodation expenses.                                                          |

Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.