



# IO-Link Parameter Datasheet

## Data Matrix positioning system (PXV)

PXV100Q-F213-IO-0.3M-V15

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DOCT-C121A - Version 1.00.001 / 2026-06-25

### General Information

| Device Identification |                    |
|-----------------------|--------------------|
| Vendor ID             | 1 (0x0001)         |
| Device ID             | 6291969 (0x600201) |

| Features               |     |
|------------------------|-----|
| Data Storage           | Yes |
| Block Parameterization | Yes |

| Communication Characteristics  |                             |
|--------------------------------|-----------------------------|
| IO-Link revision               | V1.1 (specification V1.1.5) |
| IO-Link backward compatibility | n/a                         |
| Data transmission rate         | COM3 (230.4 kbit/s)         |
| Min. cycle time                | 1,5 ms                      |
| Process data input             | 20 byte                     |
| Process data output            | 1 bit                       |
| SIO mode support               | no                          |
| Compatible master port type    | Class A, Class B (see Note) |

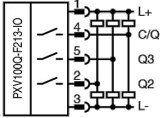
NOTE: For use at IO-Link master port Class B, use 3-pole adapter or 3-wire cable.

| Profile                            |                |
|------------------------------------|----------------|
| Firmware update                    | 49 (0x0031)    |
| Identification and Diagnosis - I&D | 16384 (0x4000) |
| Function Class - Locator           | 33025 (0x8101) |
| Function Class - Product URI       | 33026 (0x8102) |
|                                    |                |
|                                    |                |
|                                    |                |
|                                    |                |

### Supported Product Variants

| Product ID      | Product Name             | Description                                                                                                   | Connector                        |
|-----------------|--------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------|
| 70122726-100012 | PXV100Q-F213-IO-0.3M-V15 | F213, position range 100 km, resolution 1 mm, adjustable, Q2 and Q3 outputs, 300 mm PUR cable with M12, 5-pin | 300 mm PUR cable with M12, 5-pin |

### Connection

| Connection Diagram                                                                  | Description                                                                           |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  | <b>300 mm PUR cable with M12, 5-pin</b><br>1: L+<br>2: Q2<br>3: L-<br>4: C/Q<br>5: Q3 |

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| Process Data Input |          |                                              |           |        |                              |      |                                                                                                                                                      |
|--------------------|----------|----------------------------------------------|-----------|--------|------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Octet              | Bitoffs. | Name                                         | Data type | Length | Value                        | Unit | Description                                                                                                                                          |
| 19                 | 1        | Status - No Position Detected                | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that no position is detected.<br><br><i>Inactive</i><br><i>Active</i>                                                                      |
|                    | 2        | Status - Warnings Active                     | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that at least one of the warnings is currently active.<br><br><i>Inactive</i><br><i>Active</i>                                             |
|                    | 3        | Status - Event Marker Detected               | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that an event marker is detected.<br><br><i>Inactive</i><br><i>Active</i>                                                                  |
|                    | 4        | Reserved                                     |           | 1 bit  |                              |      | Reserved                                                                                                                                             |
|                    | 5        | Status - Overspeed                           | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that the current speed value exceeds the specified limit.<br><br><i>Inactive</i><br><i>Active</i>                                          |
|                    | 6        | Status - Illumination Off                    | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that the illumination is disabled by a remote control signal.<br><br><i>Inactive</i><br><i>Active</i>                                      |
|                    | 7        | Reserved                                     |           | 1 bit  |                              |      | Reserved                                                                                                                                             |
| 18                 | 8        | Warning - Code With Non-PXV Content          | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that a code with non-PXV content is found.<br><br><i>Inactive</i><br><i>Active</i>                                                         |
|                    | 9        | Warning - Sensor Too Close To Code Tape      | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that the sensor is too close to the code tape.<br><br><i>Inactive</i><br><i>Active</i>                                                     |
|                    | 10       | Warning - Sensor Too Far Away From Code Tape | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that the sensor is too far away from the code tape.<br><br><i>Inactive</i><br><i>Active</i>                                                |
|                    | 11       | Warning - Y Position Too High                | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that the Y position is too high. If active, the sensor is at the limit of its detection capabilities and is close to report 'no position'. |
|                    | 12       | Warning - Y Position Too Low                 | Boolean   | 1 bit  | <i>false</i><br><i>true</i>  |      | Indicates that the Y position is too low. If active, the sensor is at the limit of its detection capabilities and is close to report 'no position'.  |
|                    | 13       | Reserved                                     |           | 3 bit  |                              |      | Reserved                                                                                                                                             |
| 17                 | 16       | Number of Detected Codes                     | UInteger  | 8 bit  | 0 .. 255                     |      | Shows the current number of detected DataMatrix codes.                                                                                               |
| 16                 | 24       | Quality Value                                | UInteger  | 8 bit  | 1 .. 7                       |      | Shows the currently observed quality value.                                                                                                          |
| 12..15             | 32       | X Position Value                             | Integer   | 32 bit | -2147483648 ..<br>2147483647 |      | Shows the current value of the X position. Note that the conversion to the actual X position in millimeters depends on the configured resolution.    |
| 10..11             | 64       | Event Marker                                 | UInteger  | 16 bit | 1 .. 999<br>0                |      | Shows the currently detected event marker number.<br><br><i>None</i>                                                                                 |
| 8..9               | 80       | Speed Value                                  | Integer   | 16 bit | -32768 ..<br>32767           |      | Shows the current value of the speed. Note that the conversion to the actual speed in meters per second depends on the configured resolution.        |
| 6..7               | 96       | Y Position Value                             | Integer   | 16 bit | -32768 ..<br>32767           |      | Shows the current value of the Y position. Note that the conversion to the actual Y position in millimeters depends on the configured resolution.    |
| 4..5               | 112      | Angle                                        | Integer   | 16 bit | 0 .. 3600                    |      | Shows the current angle in tenths of a degree.                                                                                                       |
| 2..3               | 128      | Z Distance                                   | Integer   | 16 bit | -32768 ..<br>32767           |      | Shows the current Z distance in millimeters.                                                                                                         |

| Process Data Input |          |               |           |        |            |      |                                        |
|--------------------|----------|---------------|-----------|--------|------------|------|----------------------------------------|
| Octet              | Bitoffs. | Name          | Data type | Length | Value      | Unit | Description                            |
| 0..1               | 144      | Frame Counter | UInteger  | 16 bit | 0 .. 65535 |      | Shows the current frame counter value. |

| Process Data Output |          |                      |           |        |                                 |      |                                                                                                                                  |
|---------------------|----------|----------------------|-----------|--------|---------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------|
| Octet               | Bitoffs. | Name                 | Data type | Length | Value                           | Unit | Description                                                                                                                      |
| 0                   | 0        | Illumination Control | Boolean   | 1 bit  | <br><i>true</i><br><i>false</i> |      | Controls the illumination. If disabled, the sensor front LEDs are temporarily disabled.<br><br><i>Disabled</i><br><i>Enabled</i> |

**NOTE:**

The process data input content can also be read via parameter 'Process Data Input' at index 40 (0x28).

The process data output content can also be read via parameter 'Process Data Output' at index 41 (0x29).

## Parameter Data

| Identification |                             |        |           |               |                                        |                                                                                                                                                                                   |    |   |   |
|----------------|-----------------------------|--------|-----------|---------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|
| Index          | Parameter                   | Access | Data type | Length        | Default                                | Description                                                                                                                                                                       | DS | R |   |
| 16 (0x10)      | Vendor Name                 | ro     | String    | 13 byte       | Pepperl+Fuchs                          | The vendor name that is assigned to a Vendor ID.                                                                                                                                  |    |   |   |
| 17 (0x11)      | Vendor Text                 | ro     | String    | 29 byte       | www.pepperl-fuchs.com/io-link          | Additional information about the vendor.                                                                                                                                          |    |   |   |
| 18 (0x12)      | Product Name                | ro     | String    | 24 byte       | See table 'Supported Product Variants' | Complete product name.                                                                                                                                                            |    |   |   |
| 19 (0x13)      | Product ID                  | ro     | String    | 15 byte       | See table 'Supported Product Variants' | Vendor-specific product or type identification (e.g., item number or model number).                                                                                               |    |   |   |
| 20 (0x14)      | Product Text                | ro     | String    | 30 byte       | Data Matrix positioning system         | Additional product information for the device.                                                                                                                                    |    |   |   |
| 21 (0x15)      | Serial Number               | ro     | String    | max. 16 byte  |                                        | Unique, vendor-specific identifier of the individual device.                                                                                                                      |    |   |   |
| 22 (0x16)      | Hardware Revision           | ro     | String    | max. 64 byte  |                                        | Unique, vendor-specific identifier of the hardware revision of the individual device.                                                                                             |    |   |   |
| 23 (0x17)      | Firmware Revision           | ro     | String    | max. 64 byte  |                                        | Unique, vendor-specific identifier of the firmware revision of the individual device.                                                                                             |    |   |   |
| 24 (0x18)      | Application-specific Tag    | rw     | String    | max. 32 byte  |                                        | Possibility to mark a device with user- or application-specific information.                                                                                                      | Y  | F |   |
| 25 (0x19)      | Function Tag                | rw     | String    | max. 32 byte  |                                        | Possibility to mark a device with function-specific information.                                                                                                                  | Y  | F |   |
| 26 (0x1A)      | Location Tag                | rw     | String    | max. 32 byte  |                                        | Possibility to mark a device with location-specific information.                                                                                                                  | Y  | F |   |
| 27 (0x1B)      | Product URI                 | ro     | String    | max. 100 byte |                                        | Provides a unique instance identification compliant to DIN-SPEC 91406.                                                                                                            |    |   |   |
| 192 (0xC0)     | Installation Tag            | rw     | String    | max. 32 byte  |                                        | Provides the possibility to mark the device with the installation or initial commissioning data or date. Note: this entry will not be transferred to a new device on replacement. |    |   | F |
| 17342 (0x43BE) | Hardware Identification Key | ro     | String    | max. 32 byte  |                                        | Identifies the hardware for compatibility check with the firmware to be installed.                                                                                                |    |   |   |

| Diagnosis |                        |        |                     |         |          |         |                                                              |      |                                                                                                                                                                                                   |    |   |
|-----------|------------------------|--------|---------------------|---------|----------|---------|--------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|
| Index     | Parameter              | Access | Data type           | Length  | Bitoffs. | Default | Value                                                        | Unit | Description                                                                                                                                                                                       | DS | R |
| 36 (0x24) | Device Status          | ro     | UInteger            | 8 bit   |          |         | <br><i>0</i><br><i>1</i><br><i>2</i><br><i>3</i><br><i>4</i> |      | Indicator for the current device condition and diagnosis state.<br><i>Device is OK</i><br><i>Maintenance required</i><br><i>Out of specification</i><br><i>Functional check</i><br><i>Failure</i> |    |   |
| 37 (0x25) | Detailed Device Status | ro     | Array <sup>S0</sup> | 18 byte |          |         |                                                              |      | List of all currently pending events in the device.                                                                                                                                               |    |   |
| .1        | Element 1              | ro     | Octetstr            | 3 byte  | 120      |         |                                                              |      |                                                                                                                                                                                                   |    |   |
| .2        | Element 2              | ro     | Octetstr            | 3 byte  | 96       |         |                                                              |      |                                                                                                                                                                                                   |    |   |
| .3        | Element 3              | ro     | Octetstr            | 3 byte  | 72       |         |                                                              |      |                                                                                                                                                                                                   |    |   |
| .4        | Element 4              | ro     | Octetstr            | 3 byte  | 48       |         |                                                              |      |                                                                                                                                                                                                   |    |   |
| .5        | Element 5              | ro     | Octetstr            | 3 byte  | 24       |         |                                                              |      |                                                                                                                                                                                                   |    |   |
| .6        | Element 6              | ro     | Octetstr            | 3 byte  | 0        |         |                                                              |      |                                                                                                                                                                                                   |    |   |

| Diagnosis                   |                                     |               |                  |               |                 |                |                          |             |                                                                                                                                                                                                                                                              |           |          |
|-----------------------------|-------------------------------------|---------------|------------------|---------------|-----------------|----------------|--------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|
| <i>Index</i><br><i>.sub</i> | <i>Parameter</i>                    | <i>Access</i> | <i>Data type</i> | <i>Length</i> | <i>Bitoffs.</i> | <i>Default</i> | <i>Value</i>             | <i>Unit</i> | <i>Description</i>                                                                                                                                                                                                                                           | <i>DS</i> | <i>R</i> |
| 176 (0xB0)                  | Device Characteristics              | ro            | Record           | 10 byte       |                 |                |                          |             | Shows the relevant key characteristics of the device for use in applications.                                                                                                                                                                                |           |          |
| .1                          | X Position Measurement Range        | ro            | UInteger         | 32 bit        | 48              |                | 0 .. 2 <sup>32</sup> - 1 | km          | Shows the value of the specified X position measurement range.                                                                                                                                                                                               |           |          |
| .2                          | Speed Measurement Range             | ro            | UInteger         | 16 bit        | 32              |                | 0 .. 65535               | m/s         | Shows the value of the specified speed measurement range.                                                                                                                                                                                                    |           |          |
| .3                          | Supply Current Requirement          | ro            | UInteger         | 16 bit        | 16              |                | 0 .. 65535               | mA          | Shows the maximum specified supply current for the device excluding load.                                                                                                                                                                                    |           |          |
| .4                          | Evaluation Frequency                | ro            | UInteger         | 16 bit        | 0               |                | 0 .. 65535               | Hz          | Shows the value of the specified evaluation frequency.                                                                                                                                                                                                       |           |          |
| 224 (0xE0)                  | Operating Hours                     | ro            | UInteger         | 32 bit        |                 |                | 0 .. 2 <sup>32</sup> - 1 | h           | Shows the overall hours of operation since initial commissioning.                                                                                                                                                                                            |           |          |
| 225 (0xE1)                  | Temperature Indicator               | ro            | UInteger         | 8 bit         |                 |                | 0<br>1<br>2<br>3<br>4    |             | Indicates operation at critical device internal temperatures or excess of specification limits.<br><i>Operating condition OK</i><br><i>Close to upper limit</i><br><i>Upper limit exceeded</i><br><i>Close to lower limit</i><br><i>Lower limit exceeded</i> |           |          |
| 226 (0xE2)                  | Temperature Monitor                 | ro            | Record           | 9 byte        |                 |                |                          |             | Contains parameters showing current and past conditions of temperature exposure since initial commissioning.                                                                                                                                                 |           |          |
| .1                          | Overtemperature Operating Hours     | ro            | UInteger         | 32 bit        | 40              |                | 0 .. 2 <sup>32</sup> - 1 | h           | Shows the overall hours of powered operation above the specified device internal temperature range since initial commissioning.                                                                                                                              |           |          |
| .2                          | Overtemperature Exceeded Counter    | ro            | UInteger         | 16 bit        | 24              |                | 0 .. 65535               |             | Shows the increment of overruns of the specified device internal temperature range in powered operation since initial commissioning.                                                                                                                         |           |          |
| .3                          | Maximum Device Internal Temperature | ro            | Integer          | 8 bit         | 16              |                | -128 .. 127              | °C          | Shows the maximum observed device internal temperature in powered operation since initial commissioning.                                                                                                                                                     |           |          |
| .4                          | Minimum Device Internal Temperature | ro            | Integer          | 8 bit         | 8               |                | -128 .. 127              | °C          | Shows the minimum observed device internal temperature in powered operation since initial commissioning.                                                                                                                                                     |           |          |
| .5                          | Device Internal Temperature         | ro            | Integer          | 8 bit         | 0               |                | -128 .. 127              | °C          | Shows the currently observed device internal temperature.                                                                                                                                                                                                    |           |          |
| 227 (0xE3)                  | Power Monitor                       | ro            | Record           | 16 byte       |                 |                |                          |             | Contains parameters showing current and past conditions of power cycles since initial commissioning.                                                                                                                                                         |           |          |
| .1                          | Power Cycles                        | ro            | UInteger         | 32 bit        | 96              |                | 0 .. 2 <sup>32</sup> - 1 |             | Shows the number of power cycles since initial commissioning.                                                                                                                                                                                                |           |          |
| .2                          | Maximum Uptime                      | ro            | UInteger         | 32 bit        | 64              |                | 0 .. 2 <sup>32</sup> - 1 | s           | Shows the maximum observed powered operating time between power cycles in seconds since initial commissioning.                                                                                                                                               |           |          |
| .3                          | Average Uptime                      | ro            | UInteger         | 32 bit        | 32              |                | 0 .. 2 <sup>32</sup> - 1 | s           | Shows the average observed powered operating time between power cycles in seconds since initial commissioning.                                                                                                                                               |           |          |
| .4                          | Uptime                              | ro            | UInteger         | 32 bit        | 0               |                | 0 .. 2 <sup>32</sup> - 1 | s           | Shows the current operating time since the last power cycle in seconds.                                                                                                                                                                                      |           |          |

| Parameterization & Configuration |                             |               |                  |               |                 |                |                           |             |                                                                                                                    |           |          |
|----------------------------------|-----------------------------|---------------|------------------|---------------|-----------------|----------------|---------------------------|-------------|--------------------------------------------------------------------------------------------------------------------|-----------|----------|
| <i>Index</i><br><i>.sub</i>      | <i>Parameter</i>            | <i>Access</i> | <i>Data type</i> | <i>Length</i> | <i>Bitoffs.</i> | <i>Default</i> | <i>Value</i>              | <i>Unit</i> | <i>Description</i>                                                                                                 | <i>DS</i> | <i>R</i> |
| 64 (0x40)                        | X Position Substitute Value | rw            | Record           | 8 byte        |                 |                |                           |             | Defines the configuration parameters for the X position data when no position is detected.                         | Y         | FA       |
| .1                               | Specified Value             | rw            | Integer          | 32 bit        | 32              | 0              | -2147483648 .. 2147483647 |             | Defines the specified value, which is used if the corresponding substitute behavior is selected.                   | Y         | FA       |
| .2                               | Substitute Behavior         | rw            | UInteger         | 32 bit        | 0               | 1              | 0<br>1                    |             | Defines the substitute value in case no position is detected.<br><i>Last valid value</i><br><i>Specified value</i> | Y         | FA       |
| 65 (0x41)                        | Speed Substitute Value      | rw            | Record           | 8 byte        |                 |                |                           |             | Defines the configuration parameters for the speed data when no position is detected.                              | Y         | FA       |

| Parameterization & Configuration |                                 |               |                  |               |                 |                |                               |             |                                                                                                                                                                                                                                         |           |          |
|----------------------------------|---------------------------------|---------------|------------------|---------------|-----------------|----------------|-------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|
| <i>Index</i><br><i>.sub</i>      | <i>Parameter</i>                | <i>Access</i> | <i>Data type</i> | <i>Length</i> | <i>Bitoffs.</i> | <i>Default</i> | <i>Value</i>                  | <i>Unit</i> | <i>Description</i>                                                                                                                                                                                                                      | <i>DS</i> | <i>R</i> |
| .1                               | Specified Value                 | rw            | Integer          | 32 bit        | 32              | 0              | -32768 .. 32767               |             | Defines the specified value, which is used if the corresponding substitute behavior is selected.                                                                                                                                        | Y         | FA       |
|                                  | Substitute Behavior             | rw            | UInteger         | 32 bit        | 0               | 1              | 0<br>1                        |             | Defines the substitute value in case no position is detected.<br><i>Last valid value</i><br><i>Specified value</i>                                                                                                                      | Y         | FA       |
| 66 (0x42)                        | Y Position Substitute Value     | rw            | Record           | 8 byte        |                 |                |                               |             | Defines the configuration parameters for the Y position data when no position is detected.                                                                                                                                              | Y         | FA       |
| .1                               | Specified Value                 | rw            | Integer          | 32 bit        | 32              | 0              | -32768 .. 32767               |             | Defines the specified value, which is used if the corresponding substitute behavior is selected.                                                                                                                                        | Y         | FA       |
|                                  | Substitute Behavior             | rw            | UInteger         | 32 bit        | 0               | 1              | 0<br>1                        |             | Defines the substitute value in case no position is detected.<br><i>Last valid value</i><br><i>Specified value</i>                                                                                                                      | Y         | FA       |
| 80 (0x50)                        | Overspeed Value                 | rw            | Record           | 8 byte        |                 |                |                               |             | Defines the configuration parameters for the signaling of overspeed.                                                                                                                                                                    | Y         | FA       |
|                                  | Threshold for Output Q2 (Pin 2) | rw            | Integer          | 32 bit        | 32              | 125            | (2 .. 125)<br><br>0,2 .. 12,5 | m/s         | Defines the overspeed value for the speed data for output Q2 (pin 2). If the speed data reaches or exceeds the configured value, the overspeed warning is signaled at output Q2 (pin 2).<br>(Calculation: gradient 0.100, offset 0.000) | Y         | FA       |
|                                  | Threshold for Output Q3 (Pin 5) | rw            | Integer          | 32 bit        | 0               | 125            | (2 .. 125)<br><br>0,2 .. 12,5 | m/s         | Defines the overspeed value for the speed data for output Q3 (pin 5). If the speed data reaches or exceeds the configured value, the overspeed warning is signaled at output Q3 (pin 5).<br>(Calculation: gradient 0.100, offset 0.000) | Y         | FA       |
|                                  |                                 |               |                  |               |                 |                |                               |             |                                                                                                                                                                                                                                         |           |          |
| 81 (0x51)                        | Quality Value                   | rw            | Record           | 16 bit        |                 |                |                               |             | Defines the configuration parameters for the detection of quality value overruns.                                                                                                                                                       | Y         | FA       |
|                                  | Threshold for Output Q2 (Pin 2) | rw            | UInteger         | 8 bit         | 8               | 4              | 2 .. 7                        |             | Defines the threshold for the quality value for output Q2 (pin 2). If the quality value reaches or exceeds the configured threshold, the quality value warning is signaled at output Q2 (pin 2).                                        | Y         | FA       |
|                                  | Threshold for Output Q3 (Pin 5) | rw            | UInteger         | 8 bit         | 0               | 4              | 2 .. 7                        |             | Defines the threshold for the quality value for output Q3 (pin 5). If the quality value reaches or exceeds the configured threshold, the quality value warning is signaled at output Q3 (pin 5).                                        | Y         | FA       |
| 96 (0x60)                        | Measurement Evaluation          | rw            | Record           | 8 byte        |                 |                |                               |             | Defines parameters for the selection of measurement evaluation settings.                                                                                                                                                                | Y         | FA       |
|                                  | Extrapolation                   | rw            | UInteger         | 32 bit        | 32              | 1              | 0<br>1                        |             | Defines the setting for the extrapolation of the X position data.<br><i>Extrapolation off</i><br><i>Linear extrapolation</i>                                                                                                            | Y         | FA       |
|                                  | X Offset                        | rw            | Integer          | 32 bit        | 0               | 0              | -100000000 .. 100000000       | mm          | Defines the offset of the sensor in X direction.                                                                                                                                                                                        | Y         | FA       |
| 97 (0x61)                        | Resolution Settings             | rw            | Record           | 12 byte       |                 |                |                               |             | Defines the resolution of the position and speed values.                                                                                                                                                                                | Y         | FA       |
|                                  | X Position                      | rw            | UInteger         | 32 bit        | 64              | 1              | 0<br>1<br>2                   |             | Defines the resolution of the X position data.<br><i>0.1 mm</i><br><i>1 mm</i><br><i>10 mm</i>                                                                                                                                          | Y         | FA       |
|                                  | Speed                           | rw            | UInteger         | 32 bit        | 32              | 1              | 0<br>1<br>2                   |             | Defines the resolution of the speed data.<br><i>0.1 m/s</i><br><i>0.01 m/s</i><br><i>0.001 m/s</i>                                                                                                                                      | Y         | FA       |

| Parameterization & Configuration |                                     |               |                      |               |                 |                |                                         |             |                                                                                                                                                                                                                    |           |          |
|----------------------------------|-------------------------------------|---------------|----------------------|---------------|-----------------|----------------|-----------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|
| <i>Index</i><br><i>.sub</i>      | <i>Parameter</i>                    | <i>Access</i> | <i>Data type</i>     | <i>Length</i> | <i>Bitoffs.</i> | <i>Default</i> | <i>Value</i>                            | <i>Unit</i> | <i>Description</i>                                                                                                                                                                                                 | <i>DS</i> | <i>R</i> |
| .3                               | Y Position                          | rw            | UInteger             | 32 bit        | 0               | 1              | 0<br>1<br>2                             |             | Defines the resolution of the Y position data.<br>0.1 mm<br>1 mm<br>10 mm                                                                                                                                          | Y         | FA       |
| 98 (0x62)                        | Orientation                         | rw            | UInteger             | 32 bit        |                 | 2              | 0<br>1<br>2<br>3                        |             | Defines the orientation of the sensor in relation to the code tape.<br>0°<br>180°<br>0° or 180°<br>0°, 90°, 180°, or 270°                                                                                          | Y         | FA       |
| 99 (0x63)                        | Event Marker Position               | rw            | UInteger             | 8 bit         |                 | 0              | 0<br>1                                  |             | Defines the mounting position of the event marker.<br>Event marker instead of code tape<br>Event marker next to code tape                                                                                          | Y         | FA       |
| 112 (0x70)                       | Input Data Source                   | rw            | UInteger             | 32 bit        |                 | 1              | 0<br>1                                  |             | Selects the fieldbus protocol or the hardware as the input data source.<br>Hardware<br>Protocol                                                                                                                    | Y         | FA       |
| 113 (0x71)                       | Output Type Q2 (Pin 2)              | rw            | UInteger             | 8 bit         |                 | 96             | 32<br>64<br>96                          |             | Defines the output type at Q2 (pin 2).<br>PNP<br>NPN<br>Push-pull                                                                                                                                                  | Y         | FA       |
| 114 (0x72)                       | Output Type Q3 (Pin 5)              | rw            | UInteger             | 8 bit         |                 | 96             | 32<br>64<br>96                          |             | Defines the output type at Q3 (pin 5).<br>PNP<br>NPN<br>Push-pull                                                                                                                                                  | Y         | FA       |
| 117 (0x75)                       | Function Q2 (Pin 2)                 | rw            | UInteger             | 8 bit         |                 | 0              | 0<br>6<br>2<br>5<br>1<br>4<br>12<br>135 |             | Defines the I/O function at Q2 (pin 2).<br>No function<br>Output - No position<br>Output - Warning<br>Output - Event<br>Output - Overspeed<br>Output - Quality<br>Output - Sync out<br>Input - Illumination on/off | Y         | FA       |
| 119 (0x77)                       | Function Q3 (Pin 5)                 | rw            | UInteger             | 8 bit         |                 | 0              | 0<br>6<br>2<br>5<br>1<br>4<br>12<br>135 |             | Defines the I/O function at Q3 (pin 5).<br>No function<br>Output - No position<br>Output - Warning<br>Output - Event<br>Output - Overspeed<br>Output - Quality<br>Output - Sync out<br>Input - Illumination on/off | Y         | FA       |
| 120 (0x78)                       | Event Configuration                 | rw            | Record <sup>S0</sup> | 16 bit        |                 |                |                                         |             | Defines which event sources can trigger events.                                                                                                                                                                    | Y         | FA       |
| .3                               | Warning - Overspeed                 | rw            | Boolean              | 1 bit         | 2               | false          | true<br>false                           |             | Enabled: an event is generated if the speed data exceeds the specified limit.<br>Enabled<br>Disabled                                                                                                               | Y         | FA       |
| .4                               | Warning - No Position               | rw            | Boolean              | 1 bit         | 3               | false          | true<br>false                           |             | Enabled: an event is generated if no position is detected.<br>Enabled<br>Disabled                                                                                                                                  | Y         | FA       |
| .5                               | Warning - Code With Non-PXV Content | rw            | Boolean              | 1 bit         | 4               | false          | true<br>false                           |             | Enabled: an event is generated if a non-PXV code is found.<br>Enabled<br>Disabled                                                                                                                                  | Y         | FA       |

| Parameterization & Configuration |                                              |               |                  |               |                 |                |                             |             |                                                                                                                                             |           |          |
|----------------------------------|----------------------------------------------|---------------|------------------|---------------|-----------------|----------------|-----------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|
| <i>Index</i><br><i>.sub</i>      | <i>Parameter</i>                             | <i>Access</i> | <i>Data type</i> | <i>Length</i> | <i>Bitoffs.</i> | <i>Default</i> | <i>Value</i>                | <i>Unit</i> | <i>Description</i>                                                                                                                          | <i>DS</i> | <i>R</i> |
| .6                               | Warning - Sensor Too Close To Code Tape      | rw            | Boolean          | 1 bit         | 5               | false          | <i>true</i><br><i>false</i> |             | Enabled: an event is generated if the sensor is too close to the code tape.<br><i>Enabled</i><br><i>Disabled</i>                            | Y         | FA       |
| .7                               | Warning - Sensor Too Far Away From Code Tape | rw            | Boolean          | 1 bit         | 6               | false          | <i>true</i><br><i>false</i> |             | Enabled: an event is generated if the sensor is too far away from the code tape.<br><i>Enabled</i><br><i>Disabled</i>                       | Y         | FA       |
| .8                               | Warning - Y Position Too High                | rw            | Boolean          | 1 bit         | 7               | false          | <i>true</i><br><i>false</i> |             | Enabled: an event is generated if the Y position is too high and the sensor is close to 'No position'.<br><i>Enabled</i><br><i>Disabled</i> | Y         | FA       |
| .9                               | Warning - Y Position Too Low                 | rw            | Boolean          | 1 bit         | 8               | false          | <i>true</i><br><i>false</i> |             | Enabled: an event is generated if the Y position is too low and the sensor is close to 'No position'.<br><i>Enabled</i><br><i>Disabled</i>  | Y         | FA       |
| .10                              | Warning - Illumination Off                   | rw            | Boolean          | 1 bit         | 9               | false          | <i>true</i><br><i>false</i> |             | Enabled: an event is generated if the illumination is disabled by a remote control signal.<br><i>Enabled</i><br><i>Disabled</i>             | Y         | FA       |

| Observation                 |                          |               |                  |               |                 |                |                                                          |             |                                                                                                                                                                                                   |           |          |
|-----------------------------|--------------------------|---------------|------------------|---------------|-----------------|----------------|----------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|
| <i>Index</i><br><i>.sub</i> | <i>Parameter</i>         | <i>Access</i> | <i>Data type</i> | <i>Length</i> | <i>Bitoffs.</i> | <i>Default</i> | <i>Value</i>                                             | <i>Unit</i> | <i>Description</i>                                                                                                                                                                                | <i>DS</i> | <i>R</i> |
| 36 (0x24)                   | Device Status            | ro            | UInteger         | 8 bit         |                 |                | <i>0</i><br><i>1</i><br><i>2</i><br><i>3</i><br><i>4</i> |             | Indicator for the current device condition and diagnosis state.<br><i>Device is OK</i><br><i>Maintenance required</i><br><i>Out of specification</i><br><i>Functional check</i><br><i>Failure</i> |           |          |
| 236 (0xEC)                  | Observation Data         | ro            | Record           | 20 byte       |                 |                |                                                          |             | Provides a set of relevant data suitable for observation purposes.                                                                                                                                |           |          |
| .1                          | Frame Counter            | ro            | UInteger         | 16 bit        | 144             |                |                                                          |             | Shows the current frame counter value.                                                                                                                                                            |           |          |
| .2                          | Z Distance               | ro            | Integer          | 16 bit        | 128             |                | -32768 .. 32767                                          | mm          | Shows the current Z distance in millimeters.                                                                                                                                                      |           |          |
| .3                          | Angle                    | ro            | Integer          | 16 bit        | 112             |                | (0 .. 3600)<br>0,0 .. 360,0                              | °           | Shows the current angle in tenths of a degree.<br>(Calculation: gradient 0.100, offset 0.000)                                                                                                     |           |          |
| .4                          | Y Position Value         | ro            | Integer          | 16 bit        | 96              |                | -32768 .. 32767                                          |             | Shows the current value of the Y position. Note that the conversion to the actual Y position in millimeters depends on the configured resolution.                                                 |           |          |
| .5                          | Speed Value              | ro            | Integer          | 16 bit        | 80              |                | -32768 .. 32767                                          |             | Shows the current value of the speed. Note that the conversion to the actual speed in meters per second depends on the configured resolution.                                                     |           |          |
| .6                          | Event Marker             | ro            | UInteger         | 16 bit        | 64              |                | 1 .. 999<br><i>0</i>                                     |             | Shows the currently detected event marker number.<br><i>None</i>                                                                                                                                  |           |          |
| .7                          | X Position Value         | ro            | Integer          | 32 bit        | 32              |                | -2147483648 .. 2147483647                                |             | Shows the current value of the X position. Note that the conversion to the actual X position in millimeters depends on the configured resolution.                                                 |           |          |
| .8                          | Quality Value            | ro            | UInteger         | 8 bit         | 24              |                | 1 .. 7                                                   |             | Shows the currently observed quality value.                                                                                                                                                       |           |          |
| .9                          | Number of Detected Codes | ro            | UInteger         | 8 bit         | 16              |                |                                                          |             | Shows the current number of detected DataMatrix codes.                                                                                                                                            |           |          |

| Observation  |                  |               |                  |               |                 |                |              |             |                                                                                                                                     |           |          |
|--------------|------------------|---------------|------------------|---------------|-----------------|----------------|--------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|
| <i>Index</i> | <i>Parameter</i> | <i>Access</i> | <i>Data type</i> | <i>Length</i> | <i>Bitoffs.</i> | <i>Default</i> | <i>Value</i> | <i>Unit</i> | <i>Description</i>                                                                                                                  | <i>DS</i> | <i>R</i> |
| .10          | Warnings         | ro            | UInteger         | 8 bit         | 8               |                |              |             | Shows warning bits that are made up of the subordinate indications (see structure of the corresponding octet in the PD input data). |           |          |
| .11          | Status           | ro            | UInteger         | 8 bit         | 0               |                |              |             | Shows status bits that are made up of the subordinate indications (see structure of the corresponding octet in the PD input data).  |           |          |

NOTE 1: The parameter data provide the attributes DS (Data Storage) and R (Reset behavior). The following rules apply:  
DS: Parameter marked with 'Y' (yes) are exchanged with the master via the data storage mechanism.  
R: Parameter marked with 'F' are reset to the factory default value upon reception of the command 'Back-to-box'.  
R: Parameter marked with 'A' are reset to the default value upon reception of the command 'Application Reset'.  
NOTE 2: Parameter with datatype Record or Array, which are marked with 'S0' can only be accessed over subindex 0 (whole parameter object). Subindex access to single items is not possible.

| Command Interface |                  |               |                  |               |                   |                                                                                                                                       |
|-------------------|------------------|---------------|------------------|---------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <i>Index</i>      | <i>Parameter</i> | <i>Access</i> | <i>Data type</i> | <i>Length</i> | <i>Value</i>      | <i>Description</i>                                                                                                                    |
| 2 (0x2)           | System Command   | wo            | UInteger         | 8 bit         | See command value | Command interface for applications. A positive acknowledge indicates the complete and correct finalization of the requested function. |

| <i>Command Value</i> | <i>Command</i>    | <i>Description</i>                                                                                                                                                                                                                               | <i>Message</i>                                                                                                                                                                                                                       |
|----------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 126 (0x7E)           | Locator Start     | The visual indicators of the device are switched to the localization display pattern, which makes it easier to spot a device in an application.                                                                                                  | The localization indication is started and is active for 10 minutes. Press the 'Locator Stop' button to end this display mode or press the 'Locator Start' button again to extend the duration of the display by further 10 minutes. |
| 127 (0x7F)           | Locator Stop      | The localization indication pattern is stopped. The optical indicators of the device will show again the device specific states of operation.                                                                                                    | The localization indication has been stopped. Press the 'Locator Start' button to restart the localization indication.                                                                                                               |
| 129 (0x81)           | Application Reset | The parameters of the technology-specific application are set to default values. Identification parameters remain unchanged. An upload to the data storage of the master will be executed, if activated in the port configuration of the master. |                                                                                                                                                                                                                                      |
| 131 (0x83)           | Back-to-box       | The parameters of the device are set to factory default values and communication will be inhibited until the next power cycle. Note: Directly detach the device from the master port!                                                            |                                                                                                                                                                                                                                      |

| Error Codes |                        |                                                  |                                                                                                               |
|-------------|------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <i>Code</i> | <i>Additional code</i> | <i>Name</i>                                      | <i>Description</i>                                                                                            |
| 128 (0x80)  | 17 (0x11)              | Index not available                              | Read or write access attempt to a non-existing index.                                                         |
| 128 (0x80)  | 18 (0x12)              | Subindex not available                           | Read or write access attempt to a non-existing subindex of an existing index.                                 |
| 128 (0x80)  | 32 (0x20)              | Service temporarily not available                | Parameter not accessible due to the current state of the technology-specific application.                     |
| 128 (0x80)  | 33 (0x21)              | Service temporarily unavailable - local control  | Parameter not accessible. The device is currently in an ongoing, locally controlled operation.                |
| 128 (0x80)  | 34 (0x22)              | Service temporarily unavailable - device control | Parameter not accessible. The technology-specific application is currently in a remotely triggered operation. |
| 128 (0x80)  | 35 (0x23)              | Access denied                                    | Write access to a read-only parameter or read access to write-only parameter.                                 |
| 128 (0x80)  | 48 (0x30)              | Parameter value out of range                     | Written parameter value is outside of the permitted value range.                                              |
| 128 (0x80)  | 49 (0x31)              | Parameter value above limit                      | Written parameter value is above its specified value range.                                                   |
| 128 (0x80)  | 50 (0x32)              | Parameter value below limit                      | Written parameter value is below its specified value range.                                                   |
| 128 (0x80)  | 51 (0x33)              | Parameter length overrun                         | Written parameter is longer than specified.                                                                   |
| 128 (0x80)  | 52 (0x34)              | Parameter length underrun                        | Written parameter is shorter than specified.                                                                  |
| 128 (0x80)  | 53 (0x35)              | Function unavailable                             | Written command is not supported by the technology-specific application.                                      |
| 128 (0x80)  | 54 (0x36)              | Function temporarily unavailable                 | Written command is unavailable due to the current state of the technology-specific application.               |
| 128 (0x80)  | 64 (0x40)              | Invalid parameter set                            | Written single parameter value collides with other existing parameter settings.                               |
| 128 (0x80)  | 65 (0x41)              | Inconsistent parameter set                       | Parameter set inconsistencies at the end of block parameter transfer. Device plausibility check failed.       |

| Event Codes    |             |                                                                 |                                                             |
|----------------|-------------|-----------------------------------------------------------------|-------------------------------------------------------------|
| <i>Code</i>    | <i>Type</i> | <i>Name</i>                                                     | <i>Description</i>                                          |
| 25376 (0x6320) | Error       | Parameter error                                                 | Check datasheet and values                                  |
| 36163 (0x8D43) | Warning     | Device internal temperature outside specified temperature range | Check device environment for heat sources.                  |
| 36176 (0x8D50) | Warning     | Overspeed: speed value exceeds the specified limit              | Check application.                                          |
| 36177 (0x8D51) | Warning     | No position detected                                            | Check sensor adjustment, code tape position or application. |
| 36178 (0x8D52) | Warning     | Code with non-PXV content found                                 | Check or repair the code tape.                              |
| 36179 (0x8D53) | Warning     | Sensor too close to code tape                                   | Check device adjustment, code tape position or application. |
| 36180 (0x8D54) | Warning     | Sensor too far away from code tape                              | Check device adjustment, code tape position or application. |
| 36181 (0x8D55) | Warning     | Y position too high, the sensor is close to 'No position'       | Check device adjustment, code tape position or application. |
| 36182 (0x8D56) | Warning     | Y position too low, the sensor is close to 'No position'        | Check device adjustment, code tape position or application. |
| 36224 (0x8D80) | Warning     | Illumination off                                                | Code tape detection and measurement is not possible.        |