



Digital Transmitter Family PR 1711/..

Operating Manual



Operating Manual

9499 050 71102

Edition 2

03.08.2004

For PR 1711/..

Release 2.12



CONTENTS

| | |
|--|-----------|
| 1 DESCRIPTION | 5 |
| 1.1 Interfaces..... | 6 |
| 1.1.1 Service interface..... | 6 |
| 1.1.2 Communication interface..... | 6 |
| 1.1.3 Analog output | 7 |
| 1.1.4 Digital interfaces | 7 |
| 1.2 Limits..... | 7 |
| 1.3 Control signals | 7 |
| 1.4 Remote display..... | 7 |
| 2 SAFETY HINTS | 8 |
| 2.1 Initial inspection..... | 8 |
| 2.2 Versions with intrinsically safe load cell interface..... | 8 |
| 2.3 Mounting position..... | 8 |
| 2.4 Before commissioning | 8 |
| 2.5 Opening the instrument | 9 |
| 2.6 Supply voltages..... | 9 |
| 2.7 Repair and maintenance | 9 |
| 2.7.1 For special attention | 10 |
| 2.7.2 Failure and excessive stress..... | 10 |
| 2.8 Disposal..... | 10 |
| 3 INSTALLATION | 11 |
| 3.1 Mounting..... | 11 |
| 3.2 Protective Earth - Mains connection - Settings..... | 12 |
| 3.2.1 Hints for installation | 13 |
| 3.2.2 Earthing, grounding to protective earth..... | 14 |
| 3.2.3 Solder links/switches | 14 |
| 3.3 Load cell connection and installation of load cell cables | 15 |
| 3.4 Digital outputs and inputs | 16 |
| 3.5 Analog output | 16 |
| 3.6 Serial interfaces | 17 |
| 3.6.1 RS 232 | 17 |
| 3.6.2 Current loop..... | 18 |
| 3.6.3 RS 422/485 | 19 |
| 3.6.4 RS422/485 BUS | 20 |
| 3.6.5 RS 422/485 BUS 2- wire | 21 |
| 3.6.6 Solder links on the interface modules | 22 |
| 4 SURVEY OF CALIBRATION AND CONFIGURATION..... | 23 |
| 4.1 Data back-up/mains failure | 23 |
| 4.1.1 Write protection | 23 |
| 4.1.2 Calibration data | 23 |
| 4.1.3 Configuration data | 24 |
| 4.2 Survey of parameters..... | 24 |
| 4.2.1 Limit, fixed tare, fixed analog output value | 24 |
| 4.3 Commissioning, Operating level | 25 |
| 4.3.1 Terminal configuration..... | 26 |
| 4.3.2 Boot messages | 27 |
| 4.3.3 Start-up screen, survey Operating level | 28 |
| 4.3.3.1 Weight display..... | 28 |
| 4.3.3.2 Status display..... | 28 |

| | | |
|--|---|-----------|
| 4.3.3.3 | Key functions..... | 29 |
| 4.3.3.4 | Menu control in the masks..... | 29 |
| 4.3.4 | Entry of parameters for limits and fixed tare value..... | 30 |
| 4.3.5 | SPM marker, setting/resetting via the terminal | 32 |
| 5 | CALIBRATION..... | 33 |
| 5.1 | Entry procedure - calibration..... | 33 |
| 5.2 | Calibration menu | 34 |
| 5.3 | Measurement parameter Filter | 35 |
| 5.4 | Calibrating the indicator | 36 |
| 5.4.1 | Calibration by means of weights | 38 |
| 5.4.1.1 | Hysteresis correction..... | 38 |
| 5.4.1.2 | Step-by-step calibration..... | 39 |
| 5.4.2 | Adjustment with load cell data..... | 40 |
| 5.4.2.1 | Gravity: increased accuracy due to gravity correction | 41 |
| 5.4.3 | Adjustment via SPAN, entry of mV/V data..... | 41 |
| 5.4.3.1 | SPAN calculation in mV/V..... | 41 |
| 5.4.4 | End of calibration | 42 |
| 5.5 | Changing the calibration subsequently..... | 43 |
| 5.6 | Error messages..... | 44 |
| 5.6.1 | Error messages on the weight display..... | 44 |
| 5.6.2 | Error messages during calibration menu selection..... | 44 |
| 5.6.3 | Error messages during the calibration menu..... | 44 |
| 6 | CONFIGURATION..... | 45 |
| 6.1 | Configuring the analog output..... | 46 |
| 6.2 | Conditions for limit values, digital inputs and outputs..... | 47 |
| 6.2.1 | Configuring digital inputs and outputs..... | 48 |
| 6.2.1.1 | Configuring outputs..... | 49 |
| 6.2.1.2 | Configuring the input function | 49 |
| 6.2.2 | Configure limit value function..... | 50 |
| 6.3 | Terminal key configuration..... | 52 |
| Caution: these keys with their functions are displayed on the start-up screen and can be used accordingly. | | 52 |
| 6.4 | Access codes..... | 53 |
| 6.5 | Configuring service interface for remote display operation..... | 54 |
| 6.6 | Serial interface (supervisory system) | 55 |
| 6.6.1 | Printer | 57 |
| 6.6.2 | Remote display at serial interface | 58 |
| 6.7 | Display | 60 |
| 6.8 | Save data, create/reload back-up file | 60 |
| 6.8.1 | Save data, create back-up file..... | 60 |
| 6.8.2 | Load data into PR 1711/..... | 61 |
| 6.8.3 | Save data/print calibration/configuration parameters | 61 |
| 6.8.3.1 | Configuring the hyperterminal | 64 |
| 6.9 | Leaving configuration and storing the configuration parameters..... | 65 |
| 7 | CALIBRATION PARAMETERS | 66 |
| 7.1 | Analog filter | 66 |
| 7.2 | Test mode..... | 66 |
| 7.3 | Calibrated at..... | 66 |
| 7.4 | Digital Filter..... | 66 |
| 7.5 | Dimension | 67 |
| 7.6 | Dont print below | 67 |
| 7.7 | Operation in W & M..... | 67 |
| 7.8 | Measuring time | 68 |
| 7.9 | Zeroset range | 68 |

| | | |
|-----------|---|-----------|
| 7.10 | Automatic zero tracking | 69 |
| 7.11 | Zerotrack range..... | 69 |
| 7.12 | Zerotrack step | 69 |
| 7.13 | Zerotrack repeat time..... | 70 |
| 7.14 | Resolution | 70 |
| 7.15 | FullScal..... | 70 |
| 7.16 | StepWidth | 70 |
| 7.17 | Standstill detection..... | 71 |
| 7.18 | Standstill range..... | 71 |
| 7.19 | Standstill time/number of standstill samples..... | 71 |
| 7.20 | Cancel tare command..... | 72 |
| 7.21 | Overload..... | 72 |
| 8 | COMMUNICATION | 73 |
| 8.1 | Communication protocols..... | 73 |
| 8.1.1 | JBUS protocol/MODBUS protocol..... | 73 |
| 8.1.2 | DUST protocol..... | 74 |
| 8.1.3 | EW protocol..... | 75 |
| 8.2 | Telegrams for EW and DUST protocol | 76 |
| 8.2.1 | Data formats..... | 77 |
| 8.2.2 | Example | 79 |
| 8.2.3 | Error codes..... | 80 |
| 8.3 | Communication with the JBUS protocol | 81 |
| 8.3.1 | Function 1 or 2: read n bits | 81 |
| 8.3.2 | Function 3 or 4: read n successive words | 82 |
| 8.3.3 | Function 5: write a bit | 83 |
| 8.3.4 | Function 6: write word | 83 |
| 8.3.5 | Function 8: Diagnosis..... | 84 |
| 8.3.6 | Function 15: write n successive bits | 84 |
| 8.3.7 | Function 16: write n successive words..... | 85 |
| 8.3.8 | J-BUS error messages..... | 85 |
| 8.3.9 | Example program for generating the CRC bytes..... | 86 |
| 9 | SPM ADDRESSES | 87 |
| 9.1 | Status bits for reading (read only) | 87 |
| 9.2 | Status bits for read/write | 88 |
| 9.3 | Status bits state-triggered (static, read/write) | 88 |
| 9.4 | Status bits edge-triggered (read - set) | 89 |
| 9.5 | Bytes for Calibration information..... | 89 |
| 9.5.1 | SPM addresses for statuses in the analog part/load cell circuitry..... | 90 |
| 9.6 | Numeric weight values, 32-bit two's complement..... | 90 |
| 9.6.1 | Printed weight values | 91 |
| 9.6.2 | Limit values and fixed values | 91 |
| 10 | CE-TYPE- EXAMINATION CERTIFICATE PR 171./6. AND PR 171./7..... | 92 |
| 11 | EG DECLARATION OF CONFORMITY | 96 |
| 12 | EC-TYPE- EXAMINATION CERTIFICATE PR 171./.. (OIML / EN 45501)..... | 98 |
| 13 | TECHNICAL DATA | 99 |
| 13.1 | Characteristics, Specifications..... | 99 |
| 13.2 | General Data..... | 99 |
| 13.3 | Accuracy and stability | 99 |
| 13.3.1 | A/D Conversion..... | 99 |

| | |
|--|-----|
| 13.3.2 Sensivity | 99 |
| 13.4 Load cells | 100 |
| 13.4.1 intrinsically safe..... | 100 |
| 13.5 Analog output..... | 100 |
| 13.6 Digital inputs | 100 |
| 13.7 Digital outputs..... | 101 |
| 13.8 Display | 101 |
| 13.9 Configuration/calibration | 101 |
| 13.10 Write cycles | 101 |
| 13.11 Serial interface | 101 |
| 13.11.1 Operating interface/service interface..... | 101 |
| 13.11.2 Communication interface..... | 101 |
| 13.12 Power Supply..... | 102 |
| 13.13 Environmental Conditions..... | 102 |
| 13.14 Electromagnetic Compatibility..... | 102 |
| 13.15 RF Interference suppression | 102 |
| 13.16 CE-Conformity | 103 |
| 13.17 Dimensions, Weight..... | 103 |
| 13.18 Accessories | 103 |
| 14 INDEX..... | 104 |

This is a “Table of Contents preview” for quality assurance

The full manual can be purchased from our store:

[https://the-checkout-tech.com/manuals/sartorius/PR-1711 operating manual.html](https://the-checkout-tech.com/manuals/sartorius/PR-1711%20operating%20manual.html)

And our free Online Keysheet maker:

<https://the-checkout-tech.com/Cash-Register-Keysheet-Creator/>

[HTTPS://THE-CHECKOUT-TECH.COM](https://THE-CHECKOUT-TECH.COM)