



**MRDT4 – Profibus DP  
HighPROTEC**

Data point list

**Manual MRDT4 R3.6 (Build 41520)**

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This manual applies to devices (version):

Version 3.6.b

Build: 41472

## Profibus

The Slave is a so-called “Modular Slave”. Within the GSD-File the optional available Configuration Modules are described only. The precise configuration for a device can be inquired by means of the Profibus-Command “GetConfig”. The configuration consists of so-called “Modules”. The description of the modules can be taken from the Profibus specification. Please contact the Technical Support in case of questions regarding the configuration. The meaning of the Input and Output fields can be taken from the following tables. The input fields are sent from the Slave to the Master. The output fields are sent from the Master to the Slave. The Output field contain the Commands and the Input field contain the States of the device.

### Configuration

The configuration telegram follows right after the parameter telegram and declares the number of input and output bytes. The Master sends to all Slaves how many bytes for each input and output message cycle are required. The following table defines the required size of a single input and output frame.

| <b>Direction</b> | <b>Length</b> | <b>Configuration</b> |
|------------------|---------------|----------------------|
| Input            | 64            | 0x1F 0x1F 0x1F 0x1F  |
| Output           | 8             | 0x27                 |

## Data Point Lists

### Signals

These Data can be taken from the Input Field of the Profibus. The Input Field is sent from the Slave to the Master and it contains device states.

| <b>Module</b><br>( - ANSI / IEEE Device Number ) | <b>Names</b><br><b>Function</b> | <b>Offset</b><br><b>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>   |
|--|---------------------------------|--|----------------------|--|
| SG[1]  | Pos                             | 0/0  |                      | Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed) |
| SG[2]  | Pos                             | 0/2  |                      | Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed) |
| Sys  | PS 1                            | 2/0  |                      | Signal: The currently active Parameter Set is PS 1                                   |
| Sys  | PS 2                            | 2/1  |                      | Signal: The currently active Parameter Set is PS 2                                   |
| Sys  | PS 3                            | 2/2  |                      | Signal: The currently active Parameter Set is PS 3                                   |
| Sys  | PS 4                            | 2/3  |                      | Signal: The currently active Parameter Set is PS 4                                   |
| Profibus   | Data OK                         | 2/4  |                      | Data within the Input field are OK (Yes=1)   |
| Prot   | active                          | 2/5  |                      | Signal: active   |
| Prot   | Alarm L1                        | 2/6  |                      | Signal: General-Alarm L1   |
| Prot   | Alarm L2                        | 2/7  |                      | Signal: General-Alarm L2   |
| Prot   | Alarm L3                        | 3/0  |                      | Signal: General-Alarm L3   |
| Prot   | Alarm G                         | 3/1  |                      | Signal: General-Alarm - Earth fault  |
| Prot   | Alarm                           | 3/2  |                      | Signal: General Alarm  |
| Prot   | Trip L1                         | 3/3  | *                    | Signal: General Trip L1  |
| Prot   | Trip L2                         | 3/4  | *                    | Signal: General Trip L2  |
| Prot   | Trip L3                         | 3/5  | *                    | Signal: General Trip L3  |
| Prot   | Trip G                          | 3/6  | *                    | Signal: General Trip Ground fault  |
| Prot   | Trip                            | 3/7  | *                    | Signal: General Trip   |
| Profibus   | Assignment 1-I                  | 5/0  |                      | Module input state: Scada Assignment   |

## Data Point Lists

| <b>Module<br/>( - ANSI / IEEE Device Number )</b> | <b>Names<br/>Function</b> | <b>Offset<br/>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>                   |
|---|---------------------------|--|----------------------|--------------------------------------|
| Profibus  | Assignment 2-I            | 5/1  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment 3-I            | 5/2  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment 4-I            | 5/3  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment 5-I            | 5/4  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment 6-I            | 5/5  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment 7-I            | 5/6  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment 8-I            | 5/7  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment 9-I            | 6/0  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>10-I        | 6/1  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>11-I        | 6/2  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>12-I        | 6/3  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>13-I        | 6/4  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>14-I        | 6/5  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>15-I        | 6/6  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>16-I        | 6/7  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>17-I        | 7/0  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>18-I        | 7/1  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>19-I        | 7/2  |                      | Module input state: Scada Assignment |

## Data Point Lists

| <b>Module<br/>( - ANSI / IEEE Device Number )</b> | <b>Names<br/>Function</b> | <b>Offset<br/>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>                   |
|---|---------------------------|--|----------------------|--------------------------------------|
| Profibus  | Assignment<br>20-I        | 7/3  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>21-I        | 7/4  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>22-I        | 7/5  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>23-I        | 7/6  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>24-I        | 7/7  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>25-I        | 8/0  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>26-I        | 8/1  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>27-I        | 8/2  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>28-I        | 8/3  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>29-I        | 8/4  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>30-I        | 8/5  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>31-I        | 8/6  |                      | Module input state: Scada Assignment |
| Profibus  | Assignment<br>32-I        | 8/7  |                      | Module input state: Scada Assignment |
| SG[1]   | TripCmd                   | 9/0  | *                    | Signal: Trip Command                 |
| SG[2]   | TripCmd                   | 9/1  | *                    | Signal: Trip Command                 |
| I[1] - 50, 51                                     | Alarm                     | 10/0   |                      | Signal: Alarm                        |

Data Point Lists

| <b>Module</b><br><b>( - ANSI / IEEE Device Number )</b> | <b>Names</b><br><b>Function</b> | <b>Offset</b><br><b>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>   |
|---|---------------------------------|--|----------------------|--|
| I[1] - 50, 51   | TripCmd                         | 10/1   | *                    | Signal: Trip Command   |
| I[2] - 50, 51   | Alarm                           | 10/2   |                      | Signal: Alarm  |
| I[2] - 50, 51   | TripCmd                         | 10/3   | *                    | Signal: Trip Command   |
| I[3] - 50, 51   | Alarm                           | 10/4   |                      | Signal: Alarm  |
| I[3] - 50, 51   | TripCmd                         | 10/5   | *                    | Signal: Trip Command   |
| I[4] - 50, 51   | Alarm                           | 10/6   |                      | Signal: Alarm  |
| I[4] - 50, 51   | TripCmd                         | 10/7   | *                    | Signal: Trip Command   |
| IG[1] - 50N, 51N  | Alarm                           | 11/0   |                      | Signal: Alarm IG   |
| IG[1] - 50N, 51N  | TripCmd                         | 11/1   | *                    | Signal: Trip Command   |
| IG[2] - 50N, 51N  | Alarm                           | 11/2   |                      | Signal: Alarm IG   |
| IG[2] - 50N, 51N  | TripCmd                         | 11/3   | *                    | Signal: Trip Command   |
| ThR - 49  | Alarm                           | 11/4   |                      | Signal: Alarm Thermal Overload   |
| ThR - 49  | TripCmd                         | 11/5   | *                    | Signal: Trip Command   |
| I2>[1] - 46   | Alarm                           | 11/6   |                      | Signal: Alarm Negative Sequence  |
| I2>[1] - 46   | TripCmd                         | 11/7   | *                    | Signal: Trip Command   |
| I2>[2] - 46   | Alarm                           | 12/0   |                      | Signal: Alarm Negative Sequence  |
| I2>[2] - 46   | TripCmd                         | 12/1   | *                    | Signal: Trip Command   |
| IH2[1]  | Blo L1                          | 12/2   |                      | Signal: Blocked L1   |
| IH2[1]  | Blo L2                          | 12/3   |                      | Signal: Blocked L2   |
| IH2[1]  | Blo L3                          | 12/4   |                      | Signal: Blocked L3   |
| IH2[1]  | Blo IG meas                     | 12/5   |                      | Signal: Blocking of the ground (earth) protection module (measured ground current) |
| IH2[1]  | 3-ph Blo                        | 12/6   |                      | Signal: Inrush was detected in at least one phase - trip command blocked.          |
| ExP[1]  | Alarm                           | 12/7   |                      | Signal: Alarm  |

Data Point Lists

| <b>Module</b><br><b>( - ANSI / IEEE Device Number )</b> | <b>Names</b><br><b>Function</b> | <b>Offset</b><br><b>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>  |
|---|---------------------------------|--|----------------------|---|
| ExP[1]  | TripCmd                         | 13/0   | *                    | Signal: Trip Command  |
| ExP[2]  | Alarm                           | 13/1   |                      | Signal: Alarm   |
| ExP[2]  | TripCmd                         | 13/2   | *                    | Signal: Trip Command  |
| ExP[3]  | Alarm                           | 13/3   |                      | Signal: Alarm   |
| ExP[3]  | TripCmd                         | 13/4   | *                    | Signal: Trip Command  |
| ExP[4]  | Alarm                           | 13/5   |                      | Signal: Alarm   |
| ExP[4]  | TripCmd                         | 13/6   | *                    | Signal: Trip Command  |
| CBF[1] - 50BF, 62BF                                     | Alarm                           | 13/7   |                      | Signal: Circuit Breaker Failure   |
| CBF[2] - 50BF, 62BF                                     | Alarm                           | 14/0   |                      | Signal: Circuit Breaker Failure   |
| TCS[1] - 74TC   | Alarm                           | 14/1   |                      | Signal: Alarm Trip Circuit Supervision  |
| TCS[2] - 74TC   | Alarm                           | 14/2   |                      | Signal: Alarm Trip Circuit Supervision  |
| CTS[1] - 60L  | Alarm                           | 14/3   |                      | Signal: Alarm Current Transformer Measuring Circuit Supervision   |
| CTS[2] - 60L  | Alarm                           | 14/4   |                      | Signal: Alarm Current Transformer Measuring Circuit Supervision   |
| SG[1]   | Isum Intr trip                  | 14/5   | *                    | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase. |
| SG[2]   | Isum Intr trip                  | 14/6   | *                    | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase. |
| Ext Oil Temp  | Alarm                           | 14/7   |                      | Signal: Alarm   |
| Ext Oil Temp  | TripCmd                         | 15/0   | *                    | Signal: Trip Command  |
| Ext Sudd Press  | Alarm                           | 15/1   |                      | Signal: Alarm   |
| Ext Sudd Press  | TripCmd                         | 15/2   | *                    | Signal: Trip Command  |
| Ext Temp Superv[1]                                      | Alarm                           | 15/3   |                      | Signal: Alarm   |
| Ext Temp Superv[1]                                      | TripCmd                         | 15/4   | *                    | Signal: Trip Command  |
| Ext Temp Superv[2]                                      | Alarm                           | 15/5   |                      | Signal: Alarm   |
| Ext Temp Superv[2]                                      | TripCmd                         | 15/6   | *                    | Signal: Trip Command  |



Data Point Lists

| <b>Module</b><br><b>( - ANSI / IEEE Device Number )</b> | <b>Names</b><br><b>Function</b> | <b>Offset</b><br><b>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>   |
|---|---------------------------------|--|----------------------|--|
| Ext Temp Superv[3]                                      | Alarm                           | 15/7   |                      | Signal: Alarm  |
| Ext Temp Superv[3]                                      | TripCmd                         | 16/0   | *                    | Signal: Trip Command   |
| Id - 87   | TripCmd                         | 16/1   | *                    | Signal: Trip Command   |
| IdG[1] - 87N  | Alarm                           | 16/2   |                      | Signal: Alarm  |
| IdG[1] - 87N  | TripCmd                         | 16/3   | *                    | Signal: Trip Command   |
| IdG[2] - 87N  | Alarm                           | 16/4   |                      | Signal: Alarm  |
| IdG[2] - 87N  | TripCmd                         | 16/5   | *                    | Signal: Trip Command   |
| IdGH[1] - 87N   | Alarm                           | 16/6   |                      | Signal: Alarm  |
| IdGH[1] - 87N   | TripCmd                         | 16/7   | *                    | Signal: Trip Command   |
| IdGH[2] - 87N   | Alarm                           | 17/0   |                      | Signal: Alarm  |
| IdGH[2] - 87N   | TripCmd                         | 17/1   | *                    | Signal: Trip Command   |
| IdH - 87  | Alarm                           | 17/2   |                      | Signal: Alarm  |
| IdH - 87  | TripCmd                         | 17/3   | *                    | Signal: Trip Command   |
| IH2[2]  | Blo L1                          | 17/4   |                      | Signal: Blocked L1   |
| IH2[2]  | Blo L2                          | 17/5   |                      | Signal: Blocked L2   |
| IH2[2]  | Blo L3                          | 17/6   |                      | Signal: Blocked L3   |
| IH2[2]  | Blo IG meas                     | 17/7   |                      | Signal: Blocking of the ground (earth) protection module (measured ground current) |
| IH2[2]  | 3-ph Blo                        | 18/0   |                      | Signal: Inrush was detected in at least one phase - trip command blocked.          |
| DI Slot X1  | DI 1                            | 18/1   |                      | Signal: Digital Input  |
| DI Slot X1  | DI 2                            | 18/2   |                      | Signal: Digital Input  |
| DI Slot X1  | DI 3                            | 18/3   |                      | Signal: Digital Input  |
| DI Slot X1  | DI 4                            | 18/4   |                      | Signal: Digital Input  |
| DI Slot X1  | DI 5                            | 18/5   |                      | Signal: Digital Input  |

Data Point Lists

| <b>Module<br/>( - ANSI / IEEE Device Number )</b> | <b>Names<br/>Function</b> | <b>Offset<br/>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>          |
|---|---------------------------|--|----------------------|-----------------------------|
| DI Slot X1  | DI 6                      | 18/6   |                      | Signal: Digital Input       |
| DI Slot X1  | DI 7                      | 18/7   |                      | Signal: Digital Input       |
| DI Slot X1  | DI 8                      | 19/0   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 1                      | 19/1   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 2                      | 19/2   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 3                      | 19/3   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 4                      | 19/4   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 5                      | 19/5   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 6                      | 19/6   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 7                      | 19/7   |                      | Signal: Digital Input       |
| DI Slot X6  | DI 8                      | 20/0   |                      | Signal: Digital Input       |
| BO Slot X2  | BO 1                      | 20/1   |                      | Signal: Binary Output Relay |
| BO Slot X2  | BO 2                      | 20/2   |                      | Signal: Binary Output Relay |
| BO Slot X2  | BO 3                      | 20/3   |                      | Signal: Binary Output Relay |
| BO Slot X2  | BO 4                      | 20/4   |                      | Signal: Binary Output Relay |
| BO Slot X2  | BO 5                      | 20/5   |                      | Signal: Binary Output Relay |
| BO Slot X2  | BO 6                      | 20/6   |                      | Signal: Binary Output Relay |
| BO Slot X5  | BO 1                      | 20/7   |                      | Signal: Binary Output Relay |
| BO Slot X5  | BO 2                      | 21/0   |                      | Signal: Binary Output Relay |
| BO Slot X5  | BO 3                      | 21/1   |                      | Signal: Binary Output Relay |
| BO Slot X5  | BO 4                      | 21/2   |                      | Signal: Binary Output Relay |
| BO Slot X5  | BO 5                      | 21/3   |                      | Signal: Binary Output Relay |
| BO Slot X5  | BO 6                      | 21/4   |                      | Signal: Binary Output Relay |
| RTD   | active                    | 21/5   |                      | Signal: active              |
| RTD   | TripCmd                   | 21/6   | *                    | Signal: Trip Command        |

Data Point Lists

| <b>Module<br/>( - ANSI / IEEE Device Number )</b> | <b>Names<br/>Function</b> | <b>Offset<br/>(BytePosition/BitPosition)</b> | <b>Self Latching</b> | <b>Description</b>  |
|---|---------------------------|--|----------------------|---|
| RTD   | Alarm                     | 21/7   |                      | Alarm RTD Temperature Protection  |
| CLPU  | detected                  | 22/0   |                      | Signal: Cold Load detected  |
| SOTF  | active                    | 22/1   |                      | Signal: active  |
| SOTF  | I<                        | 22/2   |                      | Signal: No Load Current.  |
| SOTF  | enabled                   | 22/3   |                      | Signal: Switch Onto Fault enabled. This Signal can be used to modify Overcurrent Protection Settings. |

## Measuring values

These Data can be taken from the Input Field of the Profibus. The Input Field is sent from the Slave to the Master and contains device states.

| <b>Module</b><br><b>( - ANSI / IEEE Device Number )</b> | <b>Names</b><br><b>Functions</b> | <b>Offset</b><br><b>(BytePosition)</b> | <b>Format</b> | <b>Description</b>   |
|---|----------------------------------|--|---------------|--|
| CT W1   | IL1                              | 24/0                                   | Float IEEE754 | Measured value: Phase current (fundamental)  |
| CT W1   | IL2                              | 28/0                                   | Float IEEE754 | Measured value: Phase current (fundamental)  |
| CT W1   | IL3                              | 32/0                                   | Float IEEE754 | Measured value: Phase current (fundamental)  |
| CT W1   | IG meas                          | 36/0                                   | Float IEEE754 | Measured value (measured): IG (fundamental)  |
| CT W2   | IL1                              | 40/0                                   | Float IEEE754 | Measured value: Phase current (fundamental)  |
| CT W2   | IL2                              | 44/0                                   | Float IEEE754 | Measured value: Phase current (fundamental)  |
| CT W2   | IL3                              | 48/0                                   | Float IEEE754 | Measured value: Phase current (fundamental)  |
| CT W2   | IG meas                          | 52/0                                   | Float IEEE754 | Measured value (measured): IG (fundamental)  |
| CT W1   | %(I2/I1)                         | 56/0                                   | Float IEEE754 | Measured value (calculated): I2/I1, phase sequence will be taken into account automatically. |
| Values  | Operating hours Cr               | 60/0                                   | Float IEEE754 | Operating hours counter of the protective device   |

## Commands

The commands are set within the Output Field. These data fields are sent from the master to the slave. The slave will respond on data modifications only. For example if a 2 Bit state changes from Off (01) to On (2).

| <b>Module</b><br>( - ANSI / IEEE Device Number ) | <b>Names</b><br><b>Function</b>     | <b>Offset</b><br><b>(BytePosition/BitPosition) in Output field</b> | <b>Description</b>  |
|--|-------------------------------------|--|---|
| SG[1]  | Control/Position of circuit breaker | 0/0  | Control respectively Position of circuit breaker (1 = OFF, 2 = On).   |
| SG[2]  | Control/Position of circuit breaker | 0/2  | Control respectively Position of circuit breaker (1 = OFF, 2 = On).   |
| Sys  | Ack LED                             | 2/0  | All acknowledgeable LEDs will be acknowledged.  |
| Sys  | Ack BO                              | 2/2  | All acknowledgeable binary output relays will be acknowledged.  |
| Sys  | Ack Scada                           | 2/4  | Latched SCADA signals are acknowledged.   |
| PSS via Scada                                    | PSS via Scada                       | 3/0  | Signal: Parameter Set Switch via Scada. Write into this output byte the integer of the parameter set that should become active (e.g. 4 => Switch onto parameter set 4). |
| Commands   | Scada Cmd 1                         | 4/0  | Scada Command   |
| Commands   | Scada Cmd 2                         | 4/2  | Scada Command   |
| Commands   | Scada Cmd 3                         | 4/4  | Scada Command   |
| Commands   | Scada Cmd 4                         | 4/6  | Scada Command   |
| Commands   | Scada Cmd 5                         | 5/0  | Scada Command   |
| Commands   | Scada Cmd 6                         | 5/2  | Scada Command   |
| Commands   | Scada Cmd 7                         | 5/4  | Scada Command   |
| Commands   | Scada Cmd 8                         | 5/6  | Scada Command   |
| Commands   | Scada Cmd 9                         | 6/0  | Scada Command   |
| Commands   | Scada Cmd 10                        | 6/2  | Scada Command   |

## Data Point Lists

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| <b>Module</b><br><b>( - ANSI / IEEE Device Number )</b> | <b>Names</b><br><b>Function</b> | <b>Offset</b><br><b>(BytePosition/BitPosition) in Output field</b> | <b>Description</b> |
|---|---------------------------------|--|--------------------|
| Commands  | Scada Cmd 11                    | 6/4  | Scada Command      |
| Commands  | Scada Cmd 12                    | 6/6  | Scada Command      |
| Commands  | Scada Cmd 13                    | 7/0  | Scada Command      |
| Commands  | Scada Cmd 14                    | 7/2  | Scada Command      |
| Commands  | Scada Cmd 15                    | 7/4  | Scada Command      |
| Commands  | Scada Cmd 16                    | 7/6  | Scada Command      |



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