



EMR-5000 Profibus Register Maps

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This manual applies to devices:

Version 3.0.d

Build: 29321

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.

| <i>Direction</i> | <i>Length</i> | <i>Configuration</i> |
|-------------------------|----------------------|---|
| Input | 118 | 0x1F 0x1F 0x1F 0x1F 0x1F 0x1F 0x1F 0x15 |
| 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.

| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|--|
| Bkr | State | 0/0 | | Signal: Breaker Position (0 = Indeterminate, 1 = OPEN, 2 = CLOSE, 3 = Disturbed) |
| Sys | PS 1 | 2/0 | | Signal: Parameter Set 1 |
| Sys | PS 2 | 2/1 | | Signal: Parameter Set 2 |
| Sys | PS 3 | 2/2 | | Signal: Parameter Set 3 |
| Sys | PS 4 | 2/3 | | Signal: Parameter Set 4 |
| Profibus | Data OK | 2/4 | | Data within the input field are OK (Yes=1) |
| Prot | Active | 2/5 | | Signal: Active |
| Prot | Pickup Phase A | 2/6 | | Signal: General Pickup Phase A |
| Prot | Pickup Phase B | 2/7 | | Signal: General Pickup Phase B |
| Prot | Pickup Phase C | 3/0 | | Signal: General Pickup Phase C |
| Prot | Pickup IX or IR | 3/1 | | Signal: General Pickup - Ground Fault |
| Prot | Pickup | 3/2 | | Signal: General Pickup |
| Prot | Trip Phase A | 3/3 | * | Signal: General Trip Phase A |
| Prot | Trip Phase B | 3/4 | * | Signal: General Trip Phase B |
| Prot | Trip Phase C | 3/5 | * | Signal: General Trip Phase C |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|-------------------------------------|
| Prot | Trip IX or IR | 3/6 | * | Signal: General Trip Ground Fault |
| Prot | Trip | 3/7 | * | Signal: General Trip |
| Profibus | Assignment 1-l | 5/0 | | Module input state: Comm Assignment |
| Profibus | Assignment 2-l | 5/1 | | Module input state: Comm Assignment |
| Profibus | Assignment 3-l | 5/2 | | Module input state: Comm Assignment |
| Profibus | Assignment 4-l | 5/3 | | Module input state: Comm Assignment |
| Profibus | Assignment 5-l | 5/4 | | Module input state: Comm Assignment |
| Profibus | Assignment 6-l | 5/5 | | Module input state: Comm Assignment |
| Profibus | Assignment 7-l | 5/6 | | Module input state: Comm Assignment |
| Profibus | Assignment 8-l | 5/7 | | Module input state: Comm Assignment |
| Profibus | Assignment 9-l | 6/0 | | Module input state: Comm Assignment |
| Profibus | Assignment 10-l | 6/1 | | Module input state: Comm Assignment |
| Profibus | Assignment 11-l | 6/2 | | Module input state: Comm Assignment |
| Profibus | Assignment 12-l | 6/3 | | Module input state: Comm Assignment |
| Profibus | Assignment 13-l | 6/4 | | Module input state: Comm Assignment |
| Profibus | Assignment 14-l | 6/5 | | Module input state: Comm Assignment |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|-------------------------------------|
| Profibus | Assignment 15-l | 6/6 | | Module input state: Comm Assignment |
| Profibus | Assignment 16-l | 6/7 | | Module input state: Comm Assignment |
| Profibus | Assignment 17-l | 7/0 | | Module input state: Comm Assignment |
| Profibus | Assignment 18-l | 7/1 | | Module input state: Comm Assignment |
| Profibus | Assignment 19-l | 7/2 | | Module input state: Comm Assignment |
| Profibus | Assignment 20-l | 7/3 | | Module input state: Comm Assignment |
| Profibus | Assignment 21-l | 7/4 | | Module input state: Comm Assignment |
| Profibus | Assignment 22-l | 7/5 | | Module input state: Comm Assignment |
| Profibus | Assignment 23-l | 7/6 | | Module input state: Comm Assignment |
| Profibus | Assignment 24-l | 7/7 | | Module input state: Comm Assignment |
| Profibus | Assignment 25-l | 8/0 | | Module input state: Comm Assignment |
| Profibus | Assignment 26-l | 8/1 | | Module input state: Comm Assignment |
| Profibus | Assignment 27-l | 8/2 | | Module input state: Comm Assignment |
| Profibus | Assignment 28-l | 8/3 | | Module input state: Comm Assignment |
| Profibus | Assignment 29-l | 8/4 | | Module input state: Comm Assignment |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|-------------------------------------|
| Profibus | Assignment 30-l | 8/5 | | Module input state: Comm Assignment |
| Profibus | Assignment 31-l | 8/6 | | Module input state: Comm Assignment |
| Profibus | Assignment 32-l | 8/7 | | Module input state: Comm Assignment |
| Bkr | TripCmd | 9/0 | * | Signal: Trip Command |
| 50P[1] | Pickup | 10/0 | | Signal: Pickup |
| 50P[1] | TripCmd | 10/1 | * | Signal: Trip Command |
| 50P[2] | Pickup | 10/2 | | Signal: Pickup |
| 50P[2] | TripCmd | 10/3 | * | Signal: Trip Command |
| 50P[3] | Pickup | 10/4 | | Signal: Pickup |
| 50P[3] | TripCmd | 10/5 | * | Signal: Trip Command |
| 51P[1] | Pickup | 10/6 | | Signal: Pickup |
| 51P[1] | TripCmd | 10/7 | * | Signal: Trip Command |
| 50X[1] | Pickup | 11/0 | | Signal: Pickup IX or IR |
| 50X[1] | TripCmd | 11/1 | * | Signal: Trip Command |
| 50X[2] | Pickup | 11/2 | | Signal: Pickup IX or IR |
| 50X[2] | TripCmd | 11/3 | * | Signal: Trip Command |
| 46[1] | Pickup | 11/4 | | Signal: Pickup Negative Sequence |
| 46[1] | TripCmd | 11/5 | * | Signal: Trip Command |
| 46[2] | Pickup | 11/6 | | Signal: Pickup Negative Sequence |
| 46[2] | TripCmd | 11/7 | * | Signal: Trip Command |
| 27M[1] | Pickup | 12/0 | | Signal: Pickup Voltage Element |
| 27M[1] | TripCmd | 12/1 | * | Signal: Trip Command |
| 27M[2] | Pickup | 12/2 | | Signal: Pickup Voltage Element |
| 27M[2] | TripCmd | 12/3 | * | Signal: Trip Command |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|---|
| 59M[1] | Pickup | 12/4 | | Signal: Pickup Voltage Element |
| 59M[1] | TripCmd | 12/5 | * | Signal: Trip Command |
| 59M[2] | Pickup | 12/6 | | Signal: Pickup Voltage Element |
| 59M[2] | TripCmd | 12/7 | * | Signal: Trip Command |
| 27A[1] | Pickup | 13/0 | | Signal: Pickup Residual Voltage Supervision-Element |
| 27A[1] | TripCmd | 13/1 | * | Signal: Trip Command |
| 27A[2] | Pickup | 13/2 | | Signal: Pickup Residual Voltage Supervision-Element |
| 27A[2] | TripCmd | 13/3 | * | Signal: Trip Command |
| 81[1] | TripCmd | 13/4 | * | Signal: Trip Command |
| 81[1] | Pickup | 13/5 | | Signal: Pickup Frequency Protection (collective signal) |
| 81[2] | TripCmd | 13/6 | * | Signal: Trip Command |
| 81[2] | Pickup | 13/7 | | Signal: Pickup Frequency Protection (collective signal) |
| 81[3] | TripCmd | 14/0 | * | Signal: Trip Command |
| 81[3] | Pickup | 14/1 | | Signal: Pickup Frequency Protection (collective signal) |
| ExP[1] | Alarm | 14/2 | | Signal: Alarm |
| ExP[1] | TripCmd | 14/3 | * | Signal: Trip Command |
| ExP[2] | Alarm | 14/4 | | Signal: Alarm |
| ExP[2] | TripCmd | 14/5 | * | Signal: Trip Command |
| ExP[3] | Alarm | 14/6 | | Signal: Alarm |
| ExP[3] | TripCmd | 14/7 | * | Signal: Trip Command |
| ExP[4] | Alarm | 15/0 | | Signal: Alarm |
| ExP[4] | TripCmd | 15/1 | * | Signal: Trip Command |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|---|
| BF | Trip | 15/2 | | Signal: Breaker Failure Trip |
| TCM | Pickup | 15/3 | | Signal: Pickup Trip Circuit Supervision |
| CTS | Pickup | 15/4 | | Signal: Pickup Current Transformer Measuring Circuit Supervision |
| 47[1] | Pickup | 15/5 | | Signal: Pickup Voltage Asymmetry |
| 47[1] | TripCmd | 15/6 | * | Signal: Trip Command |
| 47[2] | Pickup | 15/7 | | Signal: Pickup Voltage Asymmetry |
| 47[2] | TripCmd | 16/0 | * | Signal: Trip Command |
| Bkr | Isum Intr trip | 16/1 | * | Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase. |
| DI-8P X1 | DI 1 | 16/2 | | Signal: Digital Input |
| DI-8P X1 | DI 2 | 16/3 | | Signal: Digital Input |
| DI-8P X1 | DI 3 | 16/4 | | Signal: Digital Input |
| DI-8P X1 | DI 4 | 16/5 | | Signal: Digital Input |
| DI-8P X1 | DI 5 | 16/6 | | Signal: Digital Input |
| DI-8P X1 | DI 6 | 16/7 | | Signal: Digital Input |
| DI-8P X1 | DI 7 | 17/0 | | Signal: Digital Input |
| DI-8P X1 | DI 8 | 17/1 | | Signal: Digital Input |
| RO-4Z X2 | RO 1 | 17/2 | | Signal: Relay Output |
| RO-4Z X2 | RO 2 | 17/3 | | Signal: Relay Output |
| RO-4Z X2 | RO 3 | 17/4 | | Signal: Relay Output |
| MStart | Stop | 17/5 | | Signal: Motor is in stop mode |
| MStart | Start | 17/6 | | Signal: Motor is in start mode |
| MStart | Run | 17/7 | | Signal: Motor is in run mode |
| MStart | I_Transit | 18/0 | | Signal: Current transition signal |
| MStart | T_Transit | 18/1 | | Signal: Time transition signal |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|--|
| MStart | Blo | 18/2 | | Signal: Motor is blocked for starting or transition to Run mode |
| MStart | ColdStart Seq | 18/3 | | Signal: Motor cold start sequence flag |
| MStart | NOCSBlo cked | 18/4 | | Signal: Motor is prohibited to start due to number of cold start limits |
| MStart | SPHBloc ked | 18/5 | | Signal: Motor is prohibited to start due to starts per hour limits |
| MStart | SPHBloc kAlarm | 18/6 | | Signal: Motor is prohibited to start due to starts per hour limits, would come active in the next stop |
| MStart | TBSBlock ed | 18/7 | | Signal: Motor is prohibited to start due to time between starts limits |
| MStart | MotorSto pBlo | 19/0 | | Signal: Motor stop block other protection functions |
| MStart | ThermalB lock | 19/1 | | Signal: Thermal block |
| MStart | RemBloc kStart | 19/2 | | Signal: Motor is prohibited to start due to external blocking through digital input DI |
| MStart | LATBlock | 19/3 | | Signal: Long acceleration timer enforced |
| MStart | ABKActiv e | 19/4 | | Signal: Anti-backspin is active. For certain applications, such as pumping a fluid up a pipe, the motor may be driven backward for a period of time after it stops. The anti-backspin timer prevents starting the motor while it is spinning in the reverse direction. |
| MStart | ForcedSt art | 19/5 | | Signal: Motor being forced to start |
| MStart | Trip | 19/6 | * | Signal: Trip |
| MStart | TripCmd | 19/7 | * | Signal: Trip Command |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|--|
| MStart | Transition Trip | 20/0 | * | Signal: Start transition fail trip |
| MStart | ZSSTrip | 20/1 | * | Signal: Zero speed trip (possible locked rotor) |
| MStart | INSQSP2 STFail | 20/2 | * | Signal: Fail to transit from stop to start based on reported back time |
| MStart | INSQSt2 RunFail | 20/3 | * | Signal: Fail to transit from start to run based on reported back time |
| MStart | TripPhaseReverse | 20/4 | * | Signal: Relay tripped because of phase reverse detection |
| MStart | INSQ-I | 20/5 | | State of the module input: INcomplete Sequence |
| MStart | ZSS-I | 20/6 | | State of the module input: Zero Speed Switch |
| MStart | RemStart Block-I | 20/7 | | State of the module input: Remote Motor Start Blocking |
| 49 | Active | 21/0 | | Signal: Active |
| 49 | Load above SF | 21/1 | | Load above Service Factor |
| 49 | RTD effective | 21/2 | | RTD effective |
| 49 | Pickup | 21/3 | | Signal: Pickup |
| 49 | Alarm Pickup | 21/4 | | Signal: Alarm Pickup |
| 49 | Alarm Timeout | 21/5 | | Signal: Alarm Timeout |
| 49 | TripCmd | 21/6 | * | Signal: Trip Command |
| 50J[1] | Pickup | 21/7 | | Signal: Pickup |
| 50J[1] | TripCmd | 22/0 | * | Signal: Trip Command |
| 50J[2] | Pickup | 22/1 | | Signal: Pickup |

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| Module | Names Function | Offset (BytePosition/BitPosition) | Self Latching | Description |
|---------------|---------------------------|--|----------------------|----------------------------------|
| 50J[2] | TripCmd | 22/2 | * | Signal: Trip Command |
| 37[1] | Pickup | 22/3 | | Signal: Pickup |
| 37[1] | TripCmd | 22/4 | * | Signal: Trip Command |
| 37[2] | Pickup | 22/5 | | Signal: Pickup |
| 37[2] | TripCmd | 22/6 | * | Signal: Trip Command |
| 37[3] | Pickup | 22/7 | | Signal: Pickup |
| 37[3] | TripCmd | 23/0 | * | Signal: Trip Command |
| MLS | Pickup | 23/1 | | Signal: Pickup |
| RTD | Active | 23/2 | | Signal: Active |
| RTD | TripCmd | 23/3 | * | Signal: Trip Command |
| RTD | Alarm | 23/4 | | Alarm RTD Temperature Protection |
| 32[1] | Pickup | 23/5 | | Signal: Pickup Power Protection |
| 32[1] | TripCmd | 23/6 | * | Signal: Trip Command |
| 32[2] | Pickup | 23/7 | | Signal: Pickup Power Protection |
| 32[2] | TripCmd | 24/0 | * | Signal: Trip Command |
| 32[3] | Pickup | 24/1 | | Signal: Pickup Power Protection |
| 32[3] | TripCmd | 24/2 | * | Signal: Trip Command |
| 32V[1] | Pickup | 24/3 | | Signal: Pickup Power Protection |
| 32V[1] | TripCmd | 24/4 | * | Signal: Trip Command |
| 32V[2] | Pickup | 24/5 | | Signal: Pickup Power Protection |
| 32V[2] | TripCmd | 24/6 | * | Signal: Trip Command |
| 32V[3] | Pickup | 24/7 | | Signal: Pickup Power Protection |
| 32V[3] | TripCmd | 25/0 | * | Signal: Trip Command |
| LOP | Pickup | 25/1 | | Signal: Pickup Loss of Potential |

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.

| Module | Names Functions | Offset (BytePosition) | Format | Description |
|---------------|----------------------------|----------------------------------|------------------|---|
| CT | IA Fund. | 26/0 | Float IEEE754 | Measured value: Phase current (Fundamental) |
| CT | IB Fund. | 30/0 | Float IEEE754 | Measured value: Phase current (Fundamental) |
| CT | IC Fund. | 34/0 | Float IEEE754 | Measured value: Phase current (Fundamental) |
| CT | IX meas Fund. | 38/0 | Float IEEE754 | Measured value (measured): IX (Fundamental) |
| CT Diff | IA Fund. | 42/0 | Float IEEE754 | Measured value: Phase current (Fundamental) |
| CT Diff | IB Fund. | 46/0 | Float IEEE754 | Measured value: Phase current (Fundamental) |
| CT Diff | IC Fund. | 50/0 | Float IEEE754 | Measured value: Phase current (Fundamental) |
| CT Diff | IX meas Fund. | 54/0 | Float IEEE754 | Measured value (measured): IX (Fundamental) |
| VT | VAB Fund. | 58/0 | Float IEEE754 | Measured value: Phase-to-phase voltage (Fundamental) |
| VT | VBC Fund. | 62/0 | Float IEEE754 | Measured value: Phase-to-phase voltage (Fundamental) |
| VT | VCA Fund. | 66/0 | Float IEEE754 | Measured value: Phase-to-phase voltage (Fundamental) |

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| Module | Names Functions | Offset (BytePosition) | Format | Description |
|---------------|----------------------------|----------------------------------|------------------|--|
| VT | VX meas Fund. | 70/0 | Float IEEE754 | Measured value (measured): VX measured (Fundamental) |
| ECr | Syst W Fund. | 74/0 | Float IEEE754 | Measured Watts. Active power (P- = Fed Active Power, P+ = Consumed Active Power) (Fundamental) |
| ECr | Syst VAR Fund. | 78/0 | Float IEEE754 | Measured VARs. Reactive power (Q- = Fed Reactive Power, Q+ = Consumed Reactive Power) (Fundamental) |
| VT | f | 82/0 | Float IEEE754 | Measured Value: Frequency |
| ECr | Disp PF | 86/0 | Float IEEE754 | Measured Value (Calculated): 55D - Displacement Power Factor: Sign Convention: sign(PF) = sign(Syst W) |
| ECr | Wh Fwd | 90/0 | Float IEEE754 | Positive Active Power is consumed active energy |
| ECr | Wh Rev | 94/0 | Float IEEE754 | Negative Active Power (Fed Energy) |
| ECr | VARh Lag | 98/0 | Float IEEE754 | Positive Reactive Power is consumed Reactive Energy |
| ECr | VARh Lead | 102/0 | Float IEEE754 | Negative Reactive Power (Fed Energy) |
| CT | %(I2/I1) | 106/0 | Float IEEE754 | Measured value (calculated): I2/I1, phase sequence will be taken into account automatically. |
| MStart | I3 PFLA avg | 110/0 | Float IEEE754 | Average RMS current of all 3 phases as multiples of FLA |
| Values | Operating hours Cr | 114/0 | Float IEEE754 | Operating hours counter of the protective device |

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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).

| Module | Names Function | Offset (BytePosition /BitPosition) in Output field | Description |
|---------------|-------------------------------------|---|---|
| Bkr | Control/Position of circuit breaker | 0/0 | Control respectively Position of circuit breaker (1 = OFF, 2 = On). |
| Sys | Ack LED | 2/0 | All acknowledgeable LEDs will be acknowledged. |
| Sys | Ack RO | 2/2 | All acknowledgeable Relay Outputs will be acknowledged. |
| Sys | Ack Comm | 2/4 | Communication will be acknowledged. |
| PSS via Comm | PSS via Comm | 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 | Comm Cmd 1 | 4/0 | Communication Command |
| Commands | Comm Cmd 2 | 4/2 | Communication Command |
| Commands | Comm Cmd 3 | 4/4 | Communication Command |
| Commands | Comm Cmd 4 | 4/6 | Communication Command |
| Commands | Comm Cmd 5 | 5/0 | Communication Command |
| Commands | Comm Cmd 6 | 5/2 | Communication Command |
| Commands | Comm Cmd 7 | 5/4 | Communication Command |
| Commands | Comm Cmd 8 | 5/6 | Communication Command |
| Commands | Comm Cmd 9 | 6/0 | Communication Command |
| Commands | Comm Cmd 10 | 6/2 | Communication Command |

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| Module | Names Function | Offset (BytePosition /BitPosition) in Output field | Description |
|---------------|---------------------------|---|-----------------------|
| Commands | Comm Cmd 11 | 6/4 | Communication Command |
| Commands | Comm Cmd 12 | 6/6 | Communication Command |
| Commands | Comm Cmd 13 | 7/0 | Communication Command |
| Commands | Comm Cmd 14 | 7/2 | Communication Command |
| Commands | Comm Cmd 15 | 7/4 | Communication Command |
| Commands | Comm Cmd 16 | 7/6 | Communication Command |

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