



**MRMV4 – Profibus DP
HighPROTEC**

Data point list

Manual MRMV4 R3.6 (Build 41523)

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This manual applies to devices (version):

Version 3.6.b

Build: 41480

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.

Direction	Length	Configuration
Input	104	0x1F 0x1F 0x1F 0x1F 0x1F 0x1F 0x17
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 (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
SG[1]	Pos	0/0		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
Profibus	Assignment 2-I	5/1		Module input state: Scada Assignment

Data Point Lists

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

Data Point Lists

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

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
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
I2>[1] - 46	Alarm	11/4		Signal: Alarm Negative Sequence
I2>[1] - 46	TripCmd	11/5	*	Signal: Trip Command
I2>[2] - 46	Alarm	11/6		Signal: Alarm Negative Sequence
I2>[2] - 46	TripCmd	11/7	*	Signal: Trip Command
V[1] - 27, 59	Alarm	12/0		Signal: Alarm voltage stage
V[1] - 27, 59	TripCmd	12/1	*	Signal: Trip Command
V[2] - 27, 59	Alarm	12/2		Signal: Alarm voltage stage
V[2] - 27, 59	TripCmd	12/3	*	Signal: Trip Command
V[3] - 27, 59	Alarm	12/4		Signal: Alarm voltage stage
V[3] - 27, 59	TripCmd	12/5	*	Signal: Trip Command
V[4] - 27, 59	Alarm	12/6		Signal: Alarm voltage stage
V[4] - 27, 59	TripCmd	12/7	*	Signal: Trip Command
VG[1] - 27A, 59N,A	Alarm	13/0		Signal: Alarm Residual Voltage Supervision-stage
VG[1] - 27A, 59N,A	TripCmd	13/1	*	Signal: Trip Command
VG[2] - 27A, 59N,A	Alarm	13/2		Signal: Alarm Residual Voltage Supervision-stage

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
VG[2] - 27A, 59N,A	TripCmd	13/3	*	Signal: Trip Command
f[1] - 81	TripCmd	13/4	*	Signal: Trip Command
f[1] - 81	Alarm	13/5		Signal: Alarm Frequency Protection (collective signal)
f[2] - 81	TripCmd	13/6	*	Signal: Trip Command
f[2] - 81	Alarm	13/7		Signal: Alarm Frequency Protection (collective signal)
f[3] - 81	TripCmd	14/0	*	Signal: Trip Command
f[3] - 81	Alarm	14/1		Signal: Alarm Frequency Protection (collective signal)
ExpP[1]	Alarm	14/2		Signal: Alarm
ExpP[1]	TripCmd	14/3	*	Signal: Trip Command
ExpP[2]	Alarm	14/4		Signal: Alarm
ExpP[2]	TripCmd	14/5	*	Signal: Trip Command
ExpP[3]	Alarm	14/6		Signal: Alarm
ExpP[3]	TripCmd	14/7	*	Signal: Trip Command
ExpP[4]	Alarm	15/0		Signal: Alarm
ExpP[4]	TripCmd	15/1	*	Signal: Trip Command
CBF - 50BF, 62BF	Alarm	15/2		Signal: Circuit Breaker Failure
TCS - 74TC	Alarm	15/3		Signal: Alarm Trip Circuit Supervision
CTS - 60L	Alarm	15/4		Signal: Alarm Current Transformer Measuring Circuit Supervision
V012[1] - 47	Alarm	15/5		Signal: Alarm voltage asymmetry
V012[1] - 47	TripCmd	15/6	*	Signal: Trip Command
V012[2] - 47	Alarm	15/7		Signal: Alarm voltage asymmetry
V012[2] - 47	TripCmd	16/0	*	Signal: Trip Command
V012[3] - 47	Alarm	16/1		Signal: Alarm voltage asymmetry
V012[3] - 47	TripCmd	16/2	*	Signal: Trip Command
V012[4] - 47	Alarm	16/3		Signal: Alarm voltage asymmetry

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
V012[4] - 47	TripCmd	16/4	*	Signal: Trip Command
SG[1]	Isum Intr trip	16/5	*	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
DI Slot X1	DI 1	16/6		Signal: Digital Input
DI Slot X1	DI 2	16/7		Signal: Digital Input
DI Slot X1	DI 3	17/0		Signal: Digital Input
DI Slot X1	DI 4	17/1		Signal: Digital Input
DI Slot X1	DI 5	17/2		Signal: Digital Input
DI Slot X1	DI 6	17/3		Signal: Digital Input
DI Slot X1	DI 7	17/4		Signal: Digital Input
DI Slot X1	DI 8	17/5		Signal: Digital Input
BO Slot X2	BO 1	17/6		Signal: Binary Output Relay
BO Slot X2	BO 2	17/7		Signal: Binary Output Relay
BO Slot X2	BO 3	18/0		Signal: Binary Output Relay
BO Slot X2	BO 4	18/1		Signal: Binary Output Relay
BO Slot X2	BO 5	18/2		Signal: Binary Output Relay
BO Slot X2	BO 6	18/3		Signal: Binary Output Relay
BO Slot X6	BO 1	18/4		Signal: Binary Output Relay
BO Slot X6	BO 2	18/5		Signal: Binary Output Relay
BO Slot X6	BO 3	18/6		Signal: Binary Output Relay
BO Slot X6	BO 4	18/7		Signal: Binary Output Relay
BO Slot X6	BO 5	19/0		Signal: Binary Output Relay
BO Slot X6	BO 6	19/1		Signal: Binary Output Relay
MStart	Stop	19/2		Signal: Motor is in stop mode
MStart	Start	19/3		Signal: Motor is in start mode

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
MStart	Run	19/4		Signal: Motor is in run mode
MStart	I_Transit	19/5		Signal: Current transition signal
MStart	T_Transit	19/6		Signal: Time transition signal
MStart	Blo	19/7		Signal: Motor is blocked for starting or transition to Run mode
MStart	ColdStartSeq	20/0		Signal: Motor cold start sequence flag
MStart	NOCSBlocked	20/1		Signal: Motor is prohibited to start due to number of cold start limits
MStart	SPHBlocked	20/2		Signal: Motor is prohibited to start due to starts per hour limits
MStart	SPHBlockAlarm	20/3		Signal: Motor is prohibited to start due to starts per hour limits, would come active in the next stop
MStart	TBSBlocked	20/4		Signal: Motor is prohibited to start due to time between starts limits
MStart	MotorStopBlo	20/5		Signal: Motor stop block other protection functions
MStart	ThermalBlo	20/6		Signal: Thermal block
MStart	RemBlockStart	20/7		Signal: Motor is prohibited to start due to external blocking through digital input DI
MStart	LATBlock	21/0		Signal: Long acceleration timer enforced
MStart	ABSActive	21/1		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	ForcedStart	21/2		Signal: Motor being forced to start
MStart	Trip	21/3	*	Signal: Trip
MStart	TripCmd	21/4	*	Signal: Trip Command
MStart	TransitionTrip	21/5	*	Signal: Start transition fail trip
MStart	ZSSTrip	21/6	*	Signal: Zero speed trip (possible locked rotor)

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
MStart	INSQSP2STFail	21/7	*	Signal: Fail to transit from stop to start based on reported back time
MStart	INSQSt2RunFail	22/0	*	Signal: Fail to transit from start to run based on reported back time
MStart	TripPhaseReverse	22/1	*	Signal: Relay tripped because of phase reverse detection
MStart	INSQ-I	22/2		State of the module input: INcomplete SeQuence
MStart	ZSS-I	22/3		State of the module input: Zero Speed Switch
MStart	RemStartBlock-I	22/4		State of the module input: Remote Motor Start Blocking
ThR	active	22/5		Signal: active
ThR	Load above SF	22/6		“Load above Service Factor”: If the current exceeds the set value of “UTC” (“Ultimate trip threshold”) then the used thermal capacity counts up and the state “Load above SF” is becoming true. If the current is below the “UTC” value this state is false.
ThR	RTD effective	22/7		This state becomes true if the following conditions are all fulfilled: - the state “Load above SF” is true, - RTD functionality is active, - for at least one temperature a valid value above 0°C is being displayed.
ThR	Alarm	23/0		Signal: Alarm
ThR	Alarm Pickup	23/1		Signal: Alarm Pickup
ThR	Alarm Timeout	23/2		Signal: Alarm Timeout
ThR	TripCmd	23/3	*	Signal: Trip Command
Jam[1] - 51LR	Alarm	23/4		Signal: Alarm
Jam[1] - 51LR	TripCmd	23/5	*	Signal: Trip Command
Jam[2] - 51LR	Alarm	23/6		Signal: Alarm

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
Jam[2] - 51LR	TripCmd	23/7	*	Signal: Trip Command
I<[1] - 37	Alarm	24/0		Signal: Alarm
I<[1] - 37	TripCmd	24/1	*	Signal: Trip Command
I<[2] - 37	Alarm	24/2		Signal: Alarm
I<[2] - 37	TripCmd	24/3	*	Signal: Trip Command
I<[3] - 37	Alarm	24/4		Signal: Alarm
I<[3] - 37	TripCmd	24/5	*	Signal: Trip Command
MLS	Alarm	24/6		Signal: Alarm
RTD	active	24/7		Signal: active
RTD	TripCmd	25/0	*	Signal: Trip Command
RTD	Alarm	25/1		Alarm RTD Temperature Protection
PQS[1] - 32, 37	Alarm	25/2		Signal: Alarm Power Protection
PQS[1] - 32, 37	TripCmd	25/3	*	Signal: Trip Command
PQS[2] - 32, 37	Alarm	25/4		Signal: Alarm Power Protection
PQS[2] - 32, 37	TripCmd	25/5	*	Signal: Trip Command
PQS[3] - 32, 37	Alarm	25/6		Signal: Alarm Power Protection
PQS[3] - 32, 37	TripCmd	25/7	*	Signal: Trip Command
PQS[4] - 32, 37	Alarm	26/0		Signal: Alarm Power Protection
PQS[4] - 32, 37	TripCmd	26/1	*	Signal: Trip Command
PQS[5] - 32, 37	Alarm	26/2		Signal: Alarm Power Protection
PQS[5] - 32, 37	TripCmd	26/3	*	Signal: Trip Command
PQS[6] - 32, 37	Alarm	26/4		Signal: Alarm Power Protection
PQS[6] - 32, 37	TripCmd	26/5	*	Signal: Trip Command
PF[1] - 55	Alarm	26/6		Signal: Alarm Power Factor
PF[1] - 55	TripCmd	26/7	*	Signal: Trip Command

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition)	Self Latching	Description
PF[2] - 55	Alarm	27/0		Signal: Alarm Power Factor
PF[2] - 55	TripCmd	27/1	*	Signal: Trip Command
LOP	Alarm	27/2		Signal: Alarm 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 (- ANSI / IEEE Device Number)	Names Functions	Offset (BytePosition)	Format	Description
CT	IL1	28/0	Float IEEE754	Measured value: Phase current (fundamental)
CT	IL2	32/0	Float IEEE754	Measured value: Phase current (fundamental)
CT	IL3	36/0	Float IEEE754	Measured value: Phase current (fundamental)
CT	IG meas	40/0	Float IEEE754	Measured value (measured): IG (fundamental)
VT	VL12	44/0	Float IEEE754	Measured value: Phase-to-phase voltage (fundamental)
VT	VL23	48/0	Float IEEE754	Measured value: Phase-to-phase voltage (fundamental)
VT	VL31	52/0	Float IEEE754	Measured value: Phase-to-phase voltage (fundamental)
VT	VX meas	56/0	Float IEEE754	Measured value (measured): VX measured (fundamental)
PQSCr	P	60/0	Float IEEE754	Measured value (calculated): Active power (P- = Fed Active Power, P+ = Consumpted Active Power) (fundamental)
PQSCr	Q	64/0	Float IEEE754	Measured value (calculated): Reactive power (Q- = Fed Reactive Power, Q+ = Consumpted Reactive Power) (fundamental)
VT	f	68/0	Float IEEE754	Measured value: Frequency

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Functions	Offset (BytePosition)	Format	Description
PQSCr	cos phi	72/0	Float IEEE754	Measured value (calculated): Power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	Wp+	76/0	Float IEEE754	Positive Active Power is consumed active energy
PQSCr	Wp-	80/0	Float IEEE754	Negative Active Power (Fed Energy)
PQSCr	Wq+	84/0	Float IEEE754	Positive Reactive Power is consumed Reactive Energy
PQSCr	Wq-	88/0	Float IEEE754	Negative Reactive Power (Fed Energy)
CT	%(I2/I1)	92/0	Float IEEE754	Measured value (calculated): I2/I1, phase sequence will be taken into account automatically.
MStart	I3 P (%Ib) avg	96/0	Float IEEE754	Average RMS current of all 3 phases as percentages of Ib
Values	Operating hours Cr	100/0	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).

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition) in Output field	Description
SG[1]	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 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
Commands	Scada Cmd 11	6/4	Scada Command
Commands	Scada Cmd 12	6/6	Scada Command
Commands	Scada Cmd 13	7/0	Scada Command

Data Point Lists

Module (- ANSI / IEEE Device Number)	Names Function	Offset (BytePosition/BitPosition) in Output field	Description
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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