
MCDLV4

Line Differential Protection

Profibus - Data Point List

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Table of Contents

1	Profibus	4
1.1	Configuration	5
2	Data Point Lists	6
2.1	Signals	6
2.2	Measuring Values	16
2.3	Commands	18

1 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 fields contain the Commands and the Input fields contain the States of the device.

1.1 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	112	0x1F 0x1F 0x1F 0x1F 0x1F 0x1F 0x1F
Output	8	0x27

2 Data Point Lists

2.1 Signals

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

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
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)
SG[3]	Pos	0/4		Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed)
SG[4]	Pos	0/6		Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed)
SG[5]	Pos	1/0		Signal: Circuit Breaker Position (0 = Indeterminate, 1 = OFF, 2 = ON, 3 = Disturbed)
SG[6]	Pos	1/2		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

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
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
Prot	I dir fwd	4/0		Signal: Phase current failure forward direction
Prot	I dir rev	4/1		Signal: Phase current failure reverse direction
Prot	I dir n poss	4/2		Signal: Phase fault - missing reference voltage
Prot	IG meas dir fwd	4/3		Signal: Ground fault (measured) forward
Prot	IG meas dir rev	4/4		Signal: Ground fault (measured) reverse direction
Prot	IG meas dir n poss	4/5		Signal: Ground fault (measured) direction detection not possible
Profibus	Assignment 1-I	5/0		Module input state: Scada Assignment
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 10-I	6/1		Module input state: Scada Assignment

2 Data Point Lists

2.1 Signals

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
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
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

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
SG[2]	TripCmd	9/1	*	Signal: Trip Command
SG[3]	TripCmd	9/2	*	Signal: Trip Command
SG[4]	TripCmd	9/3	*	Signal: Trip Command
SG[5]	TripCmd	9/4	*	Signal: Trip Command
SG[6]	TripCmd	9/5	*	Signal: Trip Command
I[1] - 50, 51	Alarm	10/0		Signal: Alarm
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: The alarm threshold has been exceeded.
IG[1] - 50N, 51N	TripCmd	11/1	*	Signal: Trip Command
IG[2] - 50N, 51N	Alarm	11/2		Signal: The alarm threshold has been exceeded.
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

2 Data Point Lists

2.1 Signals

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
IH2	Blo L1	12/2		Signal: Blocked L1
IH2	Blo L2	12/3		Signal: Blocked L2
IH2	Blo L3	12/4		Signal: Blocked L3
IH2	Blo IG meas	12/5		Signal: Blocking of the ground (earth) protection module (measured ground current)
IH2	3-ph Blo	12/6		Signal: Inrush was detected in at least one phase - trip command blocked.
V[1] - 27, 59	Alarm	12/7		Signal: Alarm voltage stage
V[1] - 27, 59	TripCmd	13/0	*	Signal: Trip Command
V[2] - 27, 59	Alarm	13/1		Signal: Alarm voltage stage
V[2] - 27, 59	TripCmd	13/2	*	Signal: Trip Command
V[3] - 27, 59	Alarm	13/3		Signal: Alarm voltage stage
V[3] - 27, 59	TripCmd	13/4	*	Signal: Trip Command
V[4] - 27, 59	Alarm	13/5		Signal: Alarm voltage stage
V[4] - 27, 59	TripCmd	13/6	*	Signal: Trip Command
VG[1] - 27A, 59N,A	Alarm	13/7		Signal: Alarm Residual Voltage Supervision-stage
VG[1] - 27A, 59N,A	TripCmd	14/0	*	Signal: Trip Command
VG[2] - 27A, 59N,A	Alarm	14/1		Signal: Alarm Residual Voltage Supervision-stage
VG[2] - 27A, 59N,A	TripCmd	14/2	*	Signal: Trip Command
f[1] - 81	TripCmd	14/3	*	Signal: Trip Command
f[1] - 81	Alarm	14/4		Signal: Alarm Frequency Protection (collective signal)
f[2] - 81	TripCmd	14/5	*	Signal: Trip Command
f[2] - 81	Alarm	14/6		Signal: Alarm Frequency Protection (collective signal)
f[3] - 81	TripCmd	14/7	*	Signal: Trip Command

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
f[3] - 81	Alarm	15/0		Signal: Alarm Frequency Protection (collective signal)
Exp[1]	Alarm	15/1		Signal: Alarm
Exp[1]	TripCmd	15/2	*	Signal: Trip Command
Exp[2]	Alarm	15/3		Signal: Alarm
Exp[2]	TripCmd	15/4	*	Signal: Trip Command
Exp[3]	Alarm	15/5		Signal: Alarm
Exp[3]	TripCmd	15/6	*	Signal: Trip Command
Exp[4]	Alarm	15/7		Signal: Alarm
Exp[4]	TripCmd	16/0	*	Signal: Trip Command
CBF - 50BF, 62BF	Alarm	16/1		Signal: Circuit Breaker Failure
TCS - 74TC	Alarm	16/2		Signal: Alarm Trip Circuit Supervision
CTS - 60L	Alarm	16/3		Signal: Alarm Current Transformer Measuring Circuit Supervision
V012[1] - 47	Alarm	16/4		Signal: Alarm voltage asymmetry
V012[1] - 47	TripCmd	16/5	*	Signal: Trip Command
V012[2] - 47	Alarm	16/6		Signal: Alarm voltage asymmetry
V012[2] - 47	TripCmd	16/7	*	Signal: Trip Command
V012[3] - 47	Alarm	17/0		Signal: Alarm voltage asymmetry
V012[3] - 47	TripCmd	17/1	*	Signal: Trip Command
V012[4] - 47	Alarm	17/2		Signal: Alarm voltage asymmetry
V012[4] - 47	TripCmd	17/3	*	Signal: Trip Command
SG[1]	Isum Intr trip	17/4	*	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
SG[2]	Isum Intr trip	17/5	*	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.

2 Data Point Lists

2.1 Signals

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
SG[3]	Isum Intr trip	17/6	*	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
SG[4]	Isum Intr trip	17/7	*	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
SG[5]	Isum Intr trip	18/0	*	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
SG[6]	Isum Intr trip	18/1	*	Signal: Maximum permissible Summation of the interrupting (tripping) currents exceeded in at least one phase.
Ext Oil Temp	Alarm	18/2		Signal: Alarm
Ext Oil Temp	TripCmd	18/3	*	Signal: Trip Command
Ext Sudd Press	Alarm	18/4		Signal: Alarm
Ext Sudd Press	TripCmd	18/5	*	Signal: Trip Command
Ext Temp Superv[1]	Alarm	18/6		Signal: Alarm
Ext Temp Superv[1]	TripCmd	18/7	*	Signal: Trip Command
Ext Temp Superv[2]	Alarm	19/0		Signal: Alarm
Ext Temp Superv[2]	TripCmd	19/1	*	Signal: Trip Command
Ext Temp Superv[3]	Alarm	19/2		Signal: Alarm
Ext Temp Superv[3]	TripCmd	19/3	*	Signal: Trip Command
Id - 87	TripCmd	19/4	*	Signal: Trip Command
IdG - 87N	Alarm	19/5		Signal: Alarm
IdG - 87N	TripCmd	19/6	*	Signal: Trip Command
IdGH - 87N	Alarm	19/7		Signal: Alarm
IdGH - 87N	TripCmd	20/0	*	Signal: Trip Command
IdH - 87	Alarm	20/1		Signal: Alarm
IdH - 87	TripCmd	20/2	*	Signal: Trip Command

Module (ANSI / IEC)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
DI Slot X1	DI 1	20/3		Signal: Digital Input
DI Slot X1	DI 2	20/4		Signal: Digital Input
DI Slot X1	DI 3	20/5		Signal: Digital Input
DI Slot X1	DI 4	20/6		Signal: Digital Input
DI Slot X1	DI 5	20/7		Signal: Digital Input
DI Slot X1	DI 6	21/0		Signal: Digital Input
DI Slot X1	DI 7	21/1		Signal: Digital Input
DI Slot X1	DI 8	21/2		Signal: Digital Input
DI Slot X5	DI 1	21/3		Signal: Digital Input
DI Slot X5	DI 2	21/4		Signal: Digital Input
DI Slot X5	DI 3	21/5		Signal: Digital Input
DI Slot X5	DI 4	21/6		Signal: Digital Input
DI Slot X5	DI 5	21/7		Signal: Digital Input
DI Slot X5	DI 6	22/0		Signal: Digital Input
DI Slot X5	DI 7	22/1		Signal: Digital Input
DI Slot X5	DI 8	22/2		Signal: Digital Input
BO Slot X2	BO 1	22/3		Signal: Binary Output Relay
BO Slot X2	BO 2	22/4		Signal: Binary Output Relay
BO Slot X2	BO 3	22/5		Signal: Binary Output Relay
BO Slot X2	BO 4	22/6		Signal: Binary Output Relay
BO Slot X2	BO 5	22/7		Signal: Binary Output Relay
BO Slot X2	BO 6	23/0		Signal: Binary Output Relay
BO Slot X5	BO 1	23/1		Signal: Binary Output Relay

2 Data Point Lists

2.1 Signals

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
BO Slot X5	BO 2	23/2		Signal: Binary Output Relay
BO Slot X5	BO 3	23/3		Signal: Binary Output Relay
BO Slot X5	BO 4	23/4		Signal: Binary Output Relay
BO Slot X5	BO 5	23/5		Signal: Binary Output Relay
BO Slot X5	BO 6	23/6		Signal: Binary Output Relay
PQS[1] - 32, 37	Alarm	23/7		Signal: Alarm Power Protection
PQS[1] - 32, 37	TripCmd	24/0	*	Signal: Trip Command
PQS[2] - 32, 37	Alarm	24/1		Signal: Alarm Power Protection
PQS[2] - 32, 37	TripCmd	24/2	*	Signal: Trip Command
PQS[3] - 32, 37	Alarm	24/3		Signal: Alarm Power Protection
PQS[3] - 32, 37	TripCmd	24/4	*	Signal: Trip Command
PQS[4] - 32, 37	Alarm	24/5		Signal: Alarm Power Protection
PQS[4] - 32, 37	TripCmd	24/6	*	Signal: Trip Command
PQS[5] - 32, 37	Alarm	24/7		Signal: Alarm Power Protection
PQS[5] - 32, 37	TripCmd	25/0	*	Signal: Trip Command
PQS[6] - 32, 37	Alarm	25/1		Signal: Alarm Power Protection
PQS[6] - 32, 37	TripCmd	25/2	*	Signal: Trip Command
PF[1] - 55	Alarm	25/3		Signal: Alarm Power Factor
PF[1] - 55	TripCmd	25/4	*	Signal: Trip Command
PF[2] - 55	Alarm	25/5		Signal: Alarm Power Factor
PF[2] - 55	TripCmd	25/6	*	Signal: Trip Command
CLPU	detected	25/7		Signal: Cold Load detected
LOP	Alarm	26/0		Signal: Alarm Loss of Potential

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Latched	Description
Q->&V<	Alarm	26/1		Signal: Alarm Reactive Power Undervoltage Protection
ReCon[1]	V Ext Release PCC-I	26/2		Module input state: Release signal is being generated by the PCC (External Release)
SOTF	active	26/3		Signal: active
SOTF	I<	26/4		Signal: No Load Current.
SOTF	enabled	26/5		Signal: Switch Onto Fault enabled. This Signal can be used to modify Overcurrent Protection Settings.
ProtCom	active	26/6		Signal: active

2.2 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.

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Format	Description
CT Local	IL1	28/0	Float IEEE754	Measured value: Phase current (fundamental)
CT Local	IL2	32/0	Float IEEE754	Measured value: Phase current (fundamental)
CT Local	IL3	36/0	Float IEEE754	Measured value: Phase current (fundamental)
CT Local	IG meas	40/0	Float IEEE754	Measured value (measured): IG (fundamental)
CT Remote	IL1	44/0	Float IEEE754	Measured value: Phase current (fundamental)
CT Remote	IL2	48/0	Float IEEE754	Measured value: Phase current (fundamental)
CT Remote	IL3	52/0	Float IEEE754	Measured value: Phase current (fundamental)
VT	VL12	56/0	Float IEEE754	Measured value: Phase-to-phase voltage (fundamental)
VT	VL23	60/0	Float IEEE754	Measured value: Phase-to-phase voltage (fundamental)
VT	VL31	64/0	Float IEEE754	Measured value: Phase-to-phase voltage (fundamental)
VT	VX meas	68/0	Float IEEE754	Measured value (measured): VX measured (fundamental)
PQSCr	P	72/0	Float IEEE754	Measured value (calculated): Active power (P- = Fed Active Power, P+ = Consumpted Active Power) (fundamental)
PQSCr	Q	76/0	Float IEEE754	Measured value (calculated): Reactive power (Q- = Fed Reactive Power, Q+ = Consumpted Reactive Power) (fundamental)
VT	f	80/0	Float IEEE754	Measured value: Frequency
PQSCr	cos phi	84/0	Float IEEE754	Measured value (calculated): Power factor: Sign Convention: sign(PF) = sign(P)
PQSCr	Wp+	88/0	Float IEEE754	Positive Active Power is consumed active energy
PQSCr	Wp-	92/0	Float IEEE754	Negative Active Power (Fed Energy)
PQSCr	Wq+	96/0	Float IEEE754	Positive Reactive Power is consumed Reactive Energy
PQSCr	Wq-	100/0	Float IEEE754	Negative Reactive Power (Fed Energy)

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Format	Description
CT Local	%(I2/I1)	104/0	Float IEEE754	Measured value (calculated): I2/I1, phase sequence will be taken into account automatically.
Values	Operating hours Cr	108/0	Float IEEE754	Operating hours counter of the protective device

2.3 Commands

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

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Description
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).
SG[3]	Control/Position of circuit breaker	0/4	Control respectively Position of circuit breaker (1 = OFF, 2 = On).
SG[4]	Control/Position of circuit breaker	0/6	Control respectively Position of circuit breaker (1 = OFF, 2 = On).
SG[5]	Control/Position of circuit breaker	1/0	Control respectively Position of circuit breaker (1 = OFF, 2 = On).
SG[6]	Control/Position of circuit breaker	1/2	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 are 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

Module (ANSI / IEEE)	Name Function	Offset (Byte pos. / Bit position)	Description
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
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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