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Telegram specification
Version FMB V90 1.0
2 x PRPS

Data structure description of the field bus interface to communicate with Pulse Reverse Power Supplies from plating electronic GmbH

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Content:

1 Basic construction of waveforms

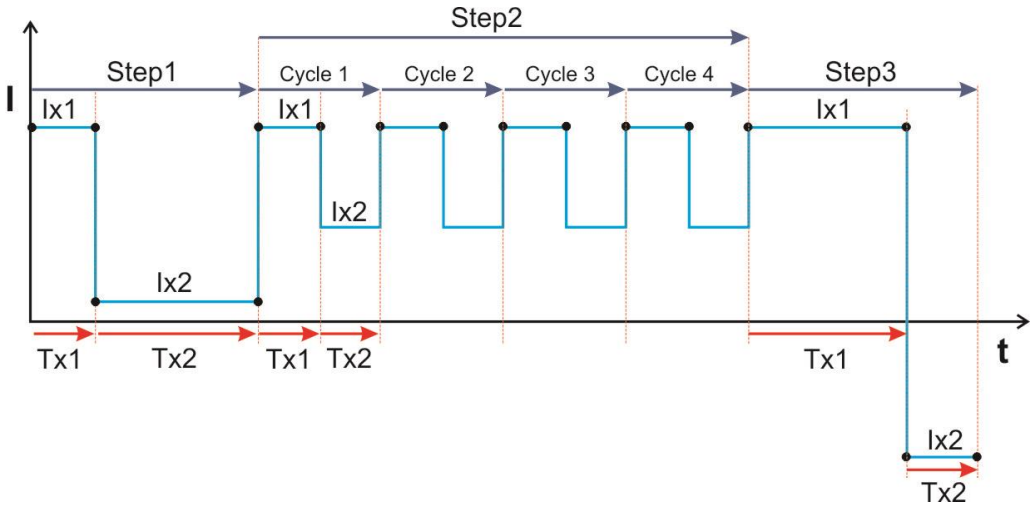
For the pe Pulse Reverse Power Supplies was a very simple basic construction for waveforms developed, this allows the user to construct very complex waveforms in a simple and fast way:

Definition waveform:
A waveform can consist out of 1 to 16 steps with a maximum period time over all steps.

Maximum period time:
for pe8005: 40000ms
for pe86CB and pe526: 60000ms

Definition step:
One step consists out of two current values (current 1(Ix1) and current 2(Ix2)), two time values (time for current 1(Tx1) and time for current 2(Tx2)) and a value of repetitions of the step (Cycle).

Waveform example with 3 steps:



2 General interface information

The PROFIBUS / PROFINET / DeviceNet / EtherNet/IP control of Pulse Reverse Power Supplies from plating electronic GmbH is carried out via Anybus® Communicator™ from the company HMS, it operates as a gateway.
Therefore the following products are used:

PROFINET:
Anybus® Communicator™
Article#:AB7013

PROFIBUS:
Anybus® Communicator™
Article#:AB7000

DeviceNet:
Anybus® Communicator™
Article#:AB7001

EtherNet/IP:
Anybus® Communicator™
Article#:AB7007

The Anybus® Communicator™ module will be delivered completely configured by plating electronic.

3 Fieldbus structure

3.1 Output bytes

Signal name	Byte	Bit	Signal type	Description	Value range	Unit
PRPS 1						
Status	**0-1**		**Byte**	**Status**		
Reserve	0	0-7	DO	Reserve	0…1	-
Operating status	1	0	DO	Operating status 0 = OFF 1 = ON	0…1	-
Error acknowledge	1	1	DO	Error acknowledge 0 = Idle state 1 = Error acknowledge	0…1	-
As counter reset	1	2	DO	As counter reset 0 = Idle state 1 = As counter reset	0…1	-
Sync before	1	3	DO	Sync before 0 = Idle state 1 = Sync before	0…1	-
Reserve	1	4-6	DO	Reserve	0…1	-
Accept on change	1	7	DO	Accept on change	0…1	-
Percentage set point regulator	2-3		DOWORD	Percentage set point regulator 0.00% - 100.00%	0h … 2710h	depending on device
Waveform steps 1 - 16						
Step 1						
Current 1 (Ix1)	4-5		DOWORD	Current 1 step 1 (Ix1) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	A
Current 2 (Ix 2)	6-7		DOWORD	Current 2 step 1 (Ix2) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	A
Voltage 1 (Ux1) (optional)	8-9		DOWORD	Voltage 1 step 1 (Ux1) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	V
Voltage 2 (Ux2) (optional)	10-11		DOWORD	Voltage 2 step 1 (Ux2) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	V
Time 1 (Tx1)	12-13		DOWORD	Time for current 1 step 1 (Tx1) Value range: 0s to 1.3107s	0h…FFFFh	20µs
Time 2 (Tx2)	14-15		DOWORD	Time for current 2 step 1 (Tx2) Value range:	0h…FFFFh	20µs

Signal name	Byte	Bit	Signal type	Description	Value range	Unit
				0s to 1.3107s		
Slope Tx1 Step 1 (optional)	16	0	DO	Set Tx1 of Step 1 as slope time (optional) 0 = Tx1 as current time 1 = Tx1 as slope time	0…1	-
Slope Tx2 Step 1 (optional)	16	1	DO	Set Tx2 of Step 1 as slope time (optional) 0 = Tx2 as current time 1 = Tx2 as slope time	0…1	-
Reserve	16	2-7	DO	Reserve	0…1	-
Cycles	17	0-7	DOBYTE	Cycles for step 1	0h…C7h	-
Step 2						
Current 1 (Ix1)	18-19		DOWORD	Current 1 step 2 (Ix1) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	A
Current 2 (Ix2)	20-21		DOWORD	Current 2 step 2 (Ix2) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	A
Voltage 1 (Ux1)	22-23		DOWORD	Voltage 1 step 2 (Ux1) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	V
Voltage 2 (Ux2)	24-25		DOWORD	Voltage 2 step 2 (Ux2) Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	V
Time 1 (Tx1)	26-27		DOWORD	Time for current 1 step 2 (Tx1) Value range: 0s to 1.3107s	0h…FFFFh	20µs
Time 2 (Tx2)	28-29		DOWORD	Time for current 2 step 2 (Tx2) Value range: 0s to 1.3107s	0h…FFFFh	20µs
Slope Tx1 Step 2 (optional)	30	0	DO	Set Tx1 of Step 2 as slope time (optional) 0 = Tx1 as current time 1 = Tx1 as slope time	0…1	-
Slope Tx2 Step 2 (optional)	30	1	DO	Set Tx2 of Step 2 as slope time (optional) 0 = Tx2 as current time 1 = Tx2 as slope time	0…1	-
Reserve	30	2-7	DO	Reserve	0…1	-
Cycles	31	0-7	DOBYTE	Cycles for step 2	0h…C7h	-
Step 3	**32-45**	**-**	**-**	**Data for step 3**	**-**	**-**
Step 4	**46-59**	**-**	**-**	**Data for step 4**	**-**	**-**
Step 5	**60-73**	**-**	**-**	**Data for step 5**	**-**	**-**
Step 6	**74-87**	**-**	**-**	**Data for step 6**	**-**	**-**
Step 7	**88-101**	**-**	**-**	**Data for step 7**	**-**	**-**
Step 8	**102-115**	**-**	**-**	**Data for step 8**	**-**	**-**
Step 9	**116-129**	**-**	**-**	**Data for step 9**	**-**	**-**

Signal name	Byte	Bit	Signal type	Description	Value range	Unit
Step 10	**130-143**	**-**	**-**	**Data for step 10**	**-**	**-**
Step 11	**144-157**	**-**	**-**	**Data for step 11**	**-**	**-**
Step 12	**158-171**	**-**	**-**	**Data for step 12**	**-**	**-**
Step 13	**172-185**	**-**	**-**	**Data for step 13**	**-**	**-**
Step 14	**186-199**	**-**	**-**	**Data for step 14**	**-**	**-**
Step 15	**200-213**	**-**	**-**	**Data for step 15**	**-**	**-**
Step 16	**214-227**	**-**	**-**	**Data for step 16**	**-**	**-**
PRPS 2						
Status	**228-229**			**Status**		
Percentage set point regulator	**230-231**			**Percentage set point regulator**		
Waveform steps 1 - 16						
Step 1	**232-245**	**-**	**-**	**Data for step 1**	**-**	**-**
Step 2	**246-259**	**-**	**-**	**Data for step 2**	**-**	**-**
Step 3	**260-273**	**-**	**-**	**Data for step 3**	**-**	**-**
Step 4	**274-287**	**-**	**-**	**Data for step 4**	**-**	**-**
Step 5	**288-301**	**-**	**-**	**Data for step 5**	**-**	**-**
Step 6	**302-315**	**-**	**-**	**Data for step 6**	**-**	**-**
Step 7	**316-329**	**-**	**-**	**Data for step 7**	**-**	**-**
Step 8	**330-343**	**-**	**-**	**Data for step 8**	**-**	**-**
Step 9	**344-357**	**-**	**-**	**Data for step 9**	**-**	**-**
Step 10	**358-371**	**-**	**-**	**Data for step 10**	**-**	**-**
Step 11	**372-385**	**-**	**-**	**Data for step 11**	**-**	**-**
Step 12	**386-399**	**-**	**-**	**Data for step 12**	**-**	**-**
Step 13	**400-413**	**-**	**-**	**Data for step 13**	**-**	**-**
Step 14	**414-427**	**-**	**-**	**Data for step 14**	**-**	**-**
Step 15	**428-441**	**-**	**-**	**Data for step 15**	**-**	**-**
Step 16	**442-455**	**-**	**-**	**Data for step 16**	**-**	**-**

Legend:

DO	>>>	digital output: Bit	DI	>>>	digital input: Bit
DOBYTE	>>>	digital output: Byte	DIBYTE	>>>	digital input: Byte
DOWORD	>>>	digital output: Word	DIWORD	>>>	digital input: Word

3.2 Input bytes

Signal name	Byte	Bit	Signal type	Description	Value range	Unit
PRPS 1						
Actual As-counter	0-3			Actual As-counter 0 to 4294967295	0h… FFFFFFFFh	1 As
Actual status	**4-5**	**0-7**	**DIBYTE**	**Actual status**		
Error from the past	4	0	DI	Error from the past 0 = OK 1 = Error from the past	0…1	
Reserve	4	1-7	DI	Reserve	0…1	
Operating status	5	0	DI	Operating status 0 = OFF 1 = ON	0…1	
Range error	5	1	DI	Range error 0 = Idle state 1 = Range error	0…1	
Watchdog / Reset	5	2	DI	Watchdog / Reset 0 = Idle state 1 = Watchdog / Reset	0…1	
Operation mode	5	3	DI	Operation mode 0 = Manual 1 = Automatic	0…1	
As counter overflow	5	4	DI	As counter overflow 0 = Idle state 1 = As counter overflow	0…1	
Actual warning	5	5	DI	Actual warning 0 = OK 1 = Actual warning	0…1	
Actual error	5	6	DI	Actual error 0 = OK 1 = Actual error	0…1	
Warning from the past	5	7	DI	Warning from the past 0 = OK 1 = Warning from the past	0…1	
Actual average current	6-7			Actual average current Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	A
Actual average voltage	8-9			Actual average voltage Value range: -32768 to+32767 Depending on device, please see: “3.5 Digits after decimal point”	0h…FFFFh	V
Actual messages and messages from the past						
Actual messages 1	10-11	0-7		Actual messages 1	0…1	
Actual messages 2	12-13	0-7		Actual messages 2	0…1	
Actual messages 3	14-15	0-7		Actual messages 3	0…1	
Actual messages 4	16-17	0-7		Actual messages 4	0…1	

Signal name	Byte	Bit	Signal type	Description	Value range	Unit
Actual messages 5	18-19	0-7		Actual messages 5	0…1	
Actual messages 6	20-21	0-7		Actual messages 6	0…1	
Actual messages 7	22-23	0-7		Actual messages 7	0…1	
Actual messages 8	24-25	0-7		Actual messages 8	0…1	
Messages from the past 1	26-27	0-7		Messages from the past 1	0…1	
Messages from the past 2	28-29	0-7		Messages from the past 2	0…1	
Messages from the past 3	30-31	0-7		Messages from the past 3	0…1	
Messages from the past 4	32-33	0-7		Messages from the past 4	0…1	
Messages from the past 5	34-35	0-7		Messages from the past 5	0…1	
Messages from the past 6	36-37	0-7		Messages from the past 6	0…1	
Messages from the past 7	38-39	0-7		Messages from the past 7	0…1	
Messages from the past 8	40-41	0-7		Messages from the past 8	0…1	
PRPS 2						
Actual As-counter	**42-45**			**Actual As-counter**		
Actual status	**46-47**			**Actual status**		
Actual average current	**48-49**			**Actual average current**		
Actual average voltage	**50-51**			**Actual average voltage**		
Actual messages 1 - 8	**52-67**			**Actual messages 1 - 8**		
Messages from the past 1 - 8	**68-83**			**Messages from the past 1 - 8**		

3.3 Description output bytes

3.3.1 Status

3.3.1.1 Operating status

This bit is used to turn the power supply ON and OFF, at the same time all data in the Holding registers will be processed. If the waveform data or the percentage regulator has to be changed during a running process, rewrite the desired Holding registers with new data and then it is possible to process the new data by changing the value of the “Accept on change” bit.

(OFF = 0 / ON = 1)

3.3.1.2 Error acknowledge

This bit is used to acknowledge warnings and errors from the past. It is not possible to acknowledge present warnings or errors, in that case it is necessary to eliminate the route cause for the warning or problem first.

(Idle state = 0 / Acknowledge error = 1)

3.3.1.3 As counter reset

The internal As-counter can be reset by setting this bit.
An As-counter overflow cannot be reset by this bit. As-counter overflow can only be reset by "Error acknowlege" bit.

(Idle state = 0 / As-counter reset = 1)

3.3.1.4 Sync before

This bit is used to synchronize the Pulse Reverse Power Supply output with the output of the previous Pulse Reverse Power Supply.

(Idle state = 0 / Sync before = 1)

3.3.1.5 Accept on change

Every time you want to change the actual set points (percentage regulator or Step1 to 16) you have to write the new set point data. The new data will be accepted by the control unit in the moment you change the value of this bit.

3.3.2 Percentage set point regulator

The percentage set point regulator defines the current/voltage set point for the whole period in per cent with two digits after decimal point. Percentage set point regulator allows to adjust the amplitudes of the waveform over the whole period from 0.00% up to 100.00%.
When the control unit of a PRPS is restarted, the percentage regulator will be set automatically to 100.00%. If a reduced amplitude is desired, the percentage regulator has to be set to the correct value.

The range:

0h	…	2710h
0h	>>>	0.00%
1388h	>>>	50.00%
2710h	>>>	100.00%

3.3.3 Waveform steps 1 – 16

3.3.3.1 Current 1 (Ix1)

Set point for the first current in the step.
The value has to be transmit with n digits after decimal point (depending on PRPS type).
Please see: “3.5 Digits after decimal point”

3.3.3.2 Current 2 (Ix2)

Set point for the second current in the step.
The value has to be transmit with n digits after decimal point (depending on PRPS type).
Please see: “3.5 Digits after decimal point”

3.3.3.3 Voltage 1 (Ux1) (optional)

Only for PRPS with constant voltage regulation!

Set point for the first voltage in the step.
The value has to be transmit with n digits after decimal point (depending on PRPS type).
Please see: “3.5 Digits after decimal point”

For “pe526 pulse” devices with constant voltage regulation: The voltage value in Ux1 Step1 will be set as voltage set point for all steps (all other set voltage values will be ignored).
Please note: All set values have to be valid, not valid values will generate a “Range error”!

3.3.3.4 Voltage 2 (Ux2) (optional)

Only for PRPS with constant voltage regulation!

Set point for the second voltage in the step.
The value has to be transmit with n digits after decimal point (depending on PRPS type).
Please see: “3.5 Digits after decimal point”

For “pe526 pulse” devices with constant voltage regulation: The voltage value in Ux1 Step1 will be set as voltage set point for all steps (all other set voltage values will be ignored).
Please note: All set values have to be valid, not valid values will generate a “Range error”!

3.3.3.5 Time 1 (Tx1)

Time Tx1 is the time value for the duration of the first current and voltage in a step.
The value hast to be multiplied with 20µs.

The max value is 1.3107seconds.

Example:

Tx1 value = 5	>>>	* 20µs	=	0.1ms
Tx1 value = 50	>>>	* 20µs	=	1ms
Tx1 value = 500	>>>	* 20µs	=	10ms
Tx1 value = 5000	>>>	* 20µs	=	100ms
Tx1 value = 50000	>>>	* 20µs	=	1s
Tx1 value = 65535	>>>	* 20µs	=	1.3107s

3.3.3.6 Time 2 (Tx2)

Time Tx2 is the time value for the duration of the second current and voltage in a step.
The value hast to be multiplied with 20µs.

The max value is 1.3107seconds.

Example:

Tx1 value = 5	>>>	* 20µs	=	0.1ms
Tx1 value = 50	>>>	* 20µs	=	1ms
Tx1 value = 500	>>>	* 20µs	=	10ms
Tx1 value = 5000	>>>	* 20µs	=	100ms
Tx1 value = 50000	>>>	* 20µs	=	1s
Tx1 value = 65535	>>>	* 20µs	=	1.3107s

3.3.3.7 Slope Tx1 Step 1 (optional)

Only for PRPS, that support the slot function!

This bit indicates if the transmit data of “Current Ix1” and “Time Tx1” should be handled as “Slope” or “no slope” values.

Maximum slope total time over all 16 steps (all slope times together):

19.98ms - (Number of set point changings * 20µs)

(no slope = 0 / slope = 1)

3.3.3.8 Slope Tx2 Step 1 (optional)

Only for PRPS, that support the slot function!

This bit indicates if the transmit data of “Current Ix2” and “Time Tx2” should be handled as “Slope” or “no slope” values.

Maximum slope total time over all 16 steps (all slope times together):

19.98ms - (Number of set point changings * 20µs)

(no slope = 0 / slope = 1)

3.3.3.9 Cycles

The cycle value defines how many times the actual step will be repeated in one waveform period. The value has to be divided by 2.

Cycle value = 2	>>>	/ 2	=	1.0	Cycles
Cycle value = 21	>>>	/ 2	=	10.5	Cycles
Cycle value = 199	>>>	/ 2	=	99.5	Cycles

3.4 Description input bytes

3.4.1 Actual As counter value

This values is the actual As counter value.

3.4.2 Actual status

3.4.2.1 Error from the past

This bit indicates a not present error message. Please check the “Messages from the past” registers.

(OK = 0 / Error from the past = 1)

3.4.2.2 Operating status

This bit indicates the actual operating status of the Pulse Reverse Power Supply, Whether the output is activated or not.

(PRPS (output) OFF = 0 / PRPS (output) ON = 1

3.4.2.3 Range error

This bit indicates that one or more of the new set values are not within the defined limits (out of range).The new data will not be accepted and the PRPS will continue with the old set points. The PRPS cannot be switched ON as long as this message is present.

(OK = 0, Range error = 1)

3.4.2.4 Operation mode

This bit indicates whether the control unit is set to manual mode: controlling the unit via integrated display and keypad, or in automatic mode: controlling via RS485 interface!

(Manual mode (by hand) = 0 / Automatic mode (by bus) = 1)

3.4.2.5 Watchdog/Reset

The micro-controller inside the control unit observes its internal activities itself and generates a Reset (Watchdog-Reset) after a malfunction.
A Reset will also be generated after the main power for the control unit is switched on.
After a reset the set values have to be send again.

(OK = 0 / Watchdog / Reset = 1)

3.4.2.6 As-counter overflow

This bit indicates an overflow of the internal As-counter.
This message can be acknowledged.

(Idle state = 0 / As overflow = 1)

3.4.2.7 Actual warning

This bit indicates a present warning message. Please check the “Actual message” registers.

(OK = 0 / Actual warning = 1)

3.4.2.8 Actual error

This bit indicates a present error message. Please check the “Actual message” registers.

(OK = 0 / Actual error = 1)

3.4.2.9 Warning from the past

This bit indicates a not present warning message. Please check the “Messages from the past” registers.

(OK = 0 / Warning from the past = 1)

3.4.3 Actual average current

This value is the actual average current over one whole period.
The value has to be transmit with n digits after decimal point (depending on PRPS type).

Please see: “3.5 Digits after decimal point”

0h	to	FFFFh
0h	>>>	0
7FFFh	>>>	+32767
8000h	>>>	-32768

3.4.4 Actual average voltage

This value is the actual average voltage over one whole period.
The value has to be transmit with n digits after decimal point (depending on PRPS type).

Please see: “3.5 Digits after decimal point”

0h	to	FFFFh
0h	>>>	0
7FFFh	>>>	+32767
8000h	>>>	-32768

3.4.5 Actual messages 1, messages from the past 1 (for pe86CB and pe526)

Status, warning and error messages from the Pulse Reverse Power Supply.

Byte	Bit	Signal name	Description
10, 26	0	Range error	Range error 0 = Ok 1 = Error
10, 26	1	Watchdog/Reset	Watchdog/Reset 0 = Ok 1 = Warning
10, 26	2	EEPROM set points lost	EEPROM set points lost 0 = Ok 1 = Error
10, 26	3	EEPROM config lost	EEPROM config lost 0 = Ok 1 = Error
10, 26	4	EEPROM device parameter lost	EEPROM device parameter lost 0 = Ok 1 = Error
10, 26	5	EEPROM actual values lost	EEPROM actual values lost 0 = Ok 1 = Error
10, 26	6	EEPROM batch data lost	EEPROM batch data lost 0 = Ok 1 = Error
10, 26	7	EEPROM correction parameter lost	EEPROM correction parameter lost 0 = Ok 1 = Error
11, 27	0	Current error	Current error 0 = Ok 1 = Error
11, 27	1	Voltage error	Voltage error 0 = Ok 1 = Error
11, 27	2	Voltage error user	Voltage error user 0 = Ok 1 = Error
11, 27	3	Power error	Power error 0 = OK 1 = Error
11, 27	4	Warning temperature	Warning temperature 0 = Ok 1 = Warning
11, 27	5	Error temperature	Error temperature 0 = Ok 1 = Error
11, 27	6	Amplifier error	Amplifier error 0 = OK 1 = Error
11, 27	7	Fan error	Fan error 0 = OK 1 = Error

3.4.6 Actual messages 2, messages from the past 2 (for pe86CB and pe526)

Status, warning and error messages from the Pulse Reverse Power Supply.

Byte	Bit	Signal name	Description
12, 28	0-7	Reserve	Reserve
13, 29	0	Power fail	Power fail 0 = Ok 1 = Error
13, 29	1	Rectifier ready	Rectifier ready 0 = Error 1 = OK
13, 29	2	Rectifier switched on	Rectifier switched on 0 = OFF 1 = ON
13, 29	3	Dosing relay	Dosing relay 0 = idle state 1 = Relay active
13, 29	4	PROFIBUS active	PROFIBUS active 0 = PB not active 1 = PB active
13, 29	5	PROFIBUS not active	PROFIBUS not active 0 = Ok 1 = PB not active
13, 29	6	Time out RS485	Time out RS485 0 = Ok 1 = Error
13, 29	7	MMC logging error	MMC logging error 0 = Ok 1 = Error

3.4.1 Actual messages 1, messages from the past 1 (for pe8005)

Status, warning and error messages from the Pulse Reverse Power Supply.

Byte	Bit	Signal name	Description
10, 26	0	Error Uz < Uz_{min}	Intermediate circuit voltage too low 0 = Ok 1 = Error
10, 26	1	Error Uz > Uz_{max}	Intermediate circuit voltage too high 0 = Ok 1 = Error
10, 26	2	Error fault voltage supply DSP	Error voltage supply DSP board 0 = Ok 1 = Error
10, 26	3	Error MPP	At least 1 MPP defective 0 = Ok 1 = Error
10, 26	4	Error period start	Error period start 0 = Ok 1 = Error
10, 26	5	Temperature measurement unit is defective	Temperature measurement unit is defective 0 = Ok 1 = Error
10, 26	6	Magnetic valve off	Magnetic valve off 0 = Ok 1 = Magnetic valve off
10, 26	7	Parallel PRPS off	Parallel PRPS off 0 = Ok 1 = Parallel PRPS off
11, 27	0	Warning over current	Warning over current due to effective value 0 = Ok 1 = Warning
11, 27	1	Warning over voltage	Warning over voltage due to effective value 0 = Ok 1 = Warning
11, 27	2	Warning over power	Warning over power due to average value 0 = Ok 1 = Warning
11, 27	3	Warning temperature	Warning temperature 0 = Ok 1 = Warning
11, 27	4	Error over current	Over current switch off due to effective or peak (with switch off) 0 = Ok 1 = Error
11, 27	5	Error over voltage	Over voltage switch off due to effective value 0 = Ok 1 = Error
11, 27	6	Error over power	Over power switch off due to average value 0 = Ok 1 = Error
11, 27	7	Error temperature	Temperature switch off due to high temperature 0 = Ok 1 = Error

3.4.1 Actual messages 2, messages from the past 2 (for pe8005)

Status, warning and error messages from the Pulse Reverse Power Supply.

Byte	Bit	Signal name	Description
12, 28	0	Range error	Range error 0 = Ok 1 = Error
12, 28	1	Error SPI comm.	Error SPI communicator 0 = Ok 1 = Error
12, 28	2	Error EEPROM set points	Error EEPROM set points lost 0 = Ok 1 = Error
12, 28	3	Error EEPROM configuration	Error EEPROM configuration lost 0 = Ok 1 = Error
12, 28	4	Error EEPROM device parameter	Error EEPROM device parameter lost 0 = Ok 1 = Error
12, 28	5	Error EEPROM DSP parameter	Error EEPROM DSP parameter lost 0 = Ok 1 = Error
12, 28	6	Error EEPROM actual values	Error EEPROM actual values lost 0 = Ok 1 = Error
12, 28	7	Error EEPROM actual Ah counter value lost	Error EEPROM actual Ah counter value lost 0 = Ok 1 = Error
13, 29	0	Error calculating time	Interrupt-calculating time too high 0 = Ok 1 = Error
13, 29	1	Error main supply	Error fault mains supply 0 = Ok 1 = Error
13, 29	2	Error SPI > DSP	SPI-Error DSP side 0 = Ok 1 = Error
13, 29	3	Error DSP parameter	Error DSP parameter 0 = Ok 1 = Error
13, 29	4	Regulator limit / pulse duty factor DSP	Regulator limit / pulse duty factor DSP 0 = Ok 1 = Error
13, 29	5	DSP reset event	DSP reset event 0 = Ok 1 = DSP reset event
13, 29	6	Error reading dataset	Error reading dataset 0 = Ok 1 = Error
13, 29	7	Error parameter reading	Error parameter reading 0 = Ok 1 = Error

3.4.1 Actual messages 3, messages from the past 3 (for pe8005)

Status, warning and error messages from the Pulse Reverse Power Supply.

Byte	Bit	Signal name	Description
14, 30	0	Ready for operation	PRPS ready 0 = PRPS not ready 1 = PRPS ready
14, 30	1	Operation	PRPS in operation 0 = PRPS off 1 = PRPS on
14, 30	2	Dosage active	Dosage active 0 = Idle state 1 = Dosage active
14, 30	3	Status Profibus	Status Profibus 0 = PB inactive 1 = PB active
14, 30	4	Error Profibus	Error Profibus 0 = Ok 1 = PB inactive
14, 30	5	Warning high voltage	Warning high voltage occurred 0 = Ok 1 = Warning
14, 30	6	Warning voltage limiter	Warning voltage limiter 0 = Ok 1 = Warning
14, 30	7	Warning TimeOut RS485	Warning TimeOut RS485 (CU, Display) 0 = Ok 1 = Warning
15, 31	0	Error DSP parameter transmission	Error DSP parameter transmission 0 = Ok 1 = Error
15, 31	1	Warning PK	Warning power supply PK 0 = Ok 1 = Warning
15, 31	2	Warning PK temperature.	Error power supply PK temperature 0 = Ok 1 = Warning
15, 31	3	Error PK temperature	Error power supply PK temperature 0 = Ok 1 = Error
15, 31	4	Watchdog / Reset	Watchdog / Reset 0 = Ok 1 = Warning
15, 31	5	Error EEPROM type settings	Error EEPROM type settings 0 = Ok 1 = Error
15, 31	6	Error EEPROM dosage value lost	Error EEPROM dosage value lost 0 = Ok 1 = Error
15, 31	7	Warning power fail	Warning power-fail 0 = Ok 1 = Warning

3.4.2 Actual messages 4, messages from the past 4 (for pe8005)

Status, warning and error messages from the Pulse Reverse Power Supply.

Byte	Bit	Signal name	Description
16, 32	0	Error EEPROM timer lost	Error EEPROM timer lost 0 = OK 1 = Error EEPROM timer lost
16, 32	1	Warning charge too high	Warning charge too high 0 = OK 1 = Warning
16, 32	2	PROFIBUS time out	PROFIBUS time out 0 = OK 1 = Error
16, 32	3	Error charge too high	Error charge too high 0 = OK 1 = Error
16, 32	4	Overload	Overload 0 = Ok 1 = Error
16, 32	5	Current error	Current error 0 = Ok 1 = Error
16, 32	6	Voltage error	Voltage error 0 = Ok 1 = Error
16, 32	7	Voltage error user	Voltage error user 0 = Ok 1 = Error
17, 33	0	Ah counter 1	Ah counter 1 0 = Idle state 1 = Ah counter 1
17, 33	1	Ah counter 2	Ah counter 2 0 = Idle state 1 = Ah counter 2
17, 33	2	Ah counter 3	Ah counter 3 0 = Idle state 1 = Ah counter 3
17, 33	3	Ah counter 4	Ah counter 4 0 = Idle state 1 = Ah counter 4
17, 33	4	Error MMC logging failed	Error MMC logging failed 0 = Ok 1 = Error
17, 33	5	TimeOut SPI-serial telegram	SPI-Serial Telegram TimeOut 0 = Ok 1 = Error
17, 33	6	Emergency Off	Emergency Off 0 = Ok 1 = Error
17, 33	7	Switch on safety contactor	Switch on safety contactor 0 = Ok 1 = Switch on safety contactor

3.4.3 Actual messages 5, messages from the past 5 (for pe8005)

Status, warning and error messages from the Pulse Reverse Power Supply.

Byte	Bit	Signal name	Description
18, 34	0	External release Ok	External release Ok 0 = Idle state 1 = Ext. release Ok
18, 34	1	Batch file loaded	Batch file loaded 0 = Idle state 1 = Batch file loaded
18, 34	2	General warning	General warning 0 = Idle state 1 = General warning
18, 34	3	General error	General error 0 = Idle state 1 = General error
18, 34	4	DSP type unknown	DSP type unknown 0 = Idle state 1 = DSP type unknown
18, 34	5-7	Reserve	Reserve
19, 35	0	Power error	Power error 0 = OK 1 = Error
19, 35	1	Amplifier error	Amplifier error 0 = OK 1 = Error
19, 35	2	Fan error	Fan error 0 = OK 1 = Error
19, 35	3	Error EEPROM batch data lost	Error EEPROM batch data lost 0 = OK 1 = Error
19, 35	4	Error EEPROM correction factor lost	Error EEPROM correction factor lost 0 = OK 1 = Error
19, 35	5	U_Trigger error	U_Trigger error 0 = OK 1 = Error
19, 35	6	Switch off safety contactor	Switch off safety contactor 0 = Ok 1 = Switch off safety contactor
19, 35	7	External release missing	External release missing 0 = Idle state 1 = Ext. release missing

3.5 Digits after decimal point

The position of the decimal point for PRPS of pe86CB and pe526 series:

Signal name:	Digits after decimal point for pe86CB and pe526 series with a max. eff. current	
	<= 5 A	> 5 A
“Current 1” for all steps (Ix1)	3	2
“Current 2” for all steps (Ix2)	3	2
Actual average current	3	3
“Voltage 1” for all steps (Ux1)	3	2
“Voltage 2” for all steps (Ux2)	-	-
Actual average voltage	3	3

The position of the decimal point for pe8005:

Signal name:	Digits after decimal point for pe8005
“Current 1” for all steps (Ix1)	1
“Current 2” for all steps (Ix2)	1
Actual average current	1
“Voltage 1” for all steps (Ux1)	1
“Voltage 2” for all steps (Ux2)	1
Actual average voltage	1

4 Revision list

Version	Page	Modification	Name	Date
TS-FMB0V90-004-E-V01	1 - 22	Document preparation	YAN/TTR	12.01.23