

PROFIBUS-Transmitter parameter

Multi-parameter

M400 PA



Mettler Toledo Parameters

The following tables list the manufacturer-specific instrument parameters for the Resource Block, the Transducer Block and the Analog Input Blocks.

General explanatory remarks

Data type

- DS: data structure, contains data types such as Unsigned8, Octet String etc.
- Float: IEEE 754 format
- Visible String: ASCII coded
- Unsigned:
 - Unsigned8: value range = 0 to 255
 - Unsigned16: value range = 0 to 65535
 - Unsigned32: value range = 0 to 429496729

Storage class

- C: constant parameter
- D: dynamic parameter
- N: nonvolatile parameter
- S: static parameter

The MODE_BLK column indicates the block mode in which the parameter can be written if the parameter is a write parameter. Some parameters can only be written in the OOS block mode. The "Reset codes" column indicates which reset codes reset the parameter.

Cyclic Data Communication

Data	Access	Data format / Interpretation
Analog Input Function Block 1	r	Measured value(32-bit floating point,IEEE-754)
"Process Value 1"		Status byte
Analog Input Function Block 2	r	Measured value(32-bit floating point,IEEE-754)
"Process Value 2"		Status byte
Analog Input Function Block 3	r	Measured value(32-bit floating point,IEEE-754)
"Process Value 3"		Status byte
Analog Input Function Block 4	r	Measured value(32-bit floating point,IEEE-754)
"Process Value 4"		Status byte

Configuration Data(METT0E8A.GSD)

Module Number	Module Name	Function Block	Configuration Data	Input	Output
1	EMPTY_MODULE	All Function Blocks	0x00	0 byte	0 byte
2	Analog Input (AI)	Analog Input	0x94	5 bytes	0 byte
3	SP	Analog Output	0xA4	0 byte	5 bytes
4	SP+READBACK+POS_D	Analog Output	0xC6, 0x84, 0x86, 0x08, 0x05, 0x08, 0x05, 0x05, 0x05	7 bytes	5 bytes
5	SP+CHECKBACK	Analog Output	0xC3, 0x84, 0x82, 0x08, 0x05, 0x0A	3 bytes	5 bytes
6	SP+READBACK+POS_D+CHECKBACK	Analog Output	0xC7, 0x84, 0x89, 0x08, 0x05, 0x08, 0x05, 0x05, 0x0A	10 bytes	5 bytes
7	RC_IN+RC_OUT	Analog Output	0xC4, 0x84, 0x84, 0x08, 0x05, 0x08, 0x05	5 bytes	5 bytes
8	RC_IN+RC_OUT+CHECKBACK	Analog Output	0xC5, 0x84, 0x87, 0x08, 0x05, 0x08, 0x05, 0x0A	8 bytes	5 bytes
9	SP+RC_IN+RB+RC_OUT+POS_D+CB	Analog Output	0xCB, 0x89, 0x8E, 0x08, 0x05, 0x08, 0x05, 0x08, 0x05, 0x05, 0x05, 0x0A	15 bytes	10 bytes
10	OUT_D	Discrete Input	0x91	2 bytes	0 byte
11	SP_D	Discrete Output	0xA1	0 byte	2 bytes
12	SP_D+RB_D	Discrete Output	0xC1, 0x81, 0x81, 0x83	2 bytes	2 bytes
13	SP_D+CB_D	Discrete Output	0xC1, 0x81, 0x82, 0x92	3 bytes	2 bytes
14	SP_D+RB_D+CB_D	Discrete Output	0xC1, 0x81, 0x84, 0x93	5 bytes	2 bytes
15	RC_IN_D+RC_OUT_D	Discrete Output	0xC1, 0x81, 0x81, 0x8C	2 bytes	2 bytes
16	RC_IN_D+RC_OUT_D+CB_D	Discrete Output	0xC1, 0x81, 0x84, 0x9C	5 bytes	2 bytes
17	SP_D+RC_IN_D+RB_D+RC_OUT_D+CB_D	Discrete Output	0xC1, 0x83, 0x86, 0x9F	7 bytes	4 bytes

Section

Slot Number	Slot Name	Description of Default Module	Default Module	Module can be selected
1	Analog Input 1	Process Value 1	2	1,2
2	Analog Input 2	Process Value 2	2	1,2
3	Analog Input 3	Process Value 3	2	1,2
4	Analog Input 4	Process Value 4	2	1,2
5	Analog Output 1	Compensation Value	3	1,3,4,5,6,7,8,9
6	Discrete Input 1	Alarm and Clean status	10	1,10
7	Discrete Input 2	HOLD status	10	1,10
8	Discrete Output 1	System Hold(1 - HOLD Active, 0 - Hold Inactive)	11	1,11,12,13,14,15,16,17
9	Discrete Output 2	O2 Opt LED Control (1 - LED OFF, 0 - LED ON)	11	1,11,12,13,14,15,16,17

Configuration Data(PA139750.GSD)

Module Number	Module Name	Function Block	Configuration Data	Input	Output
1	EMPTY_MODULE	All Function Blocks	0x00	0 byte	0 byte
2	Analog Input (AI)	Analog Input	0x42,0x84,0x81,0x81	5 bytes	0 byte
3	SP	Analog Output	0x82,0x84,0x82,0x82	0 byte	5 bytes
4	SP+READBACK+POS_D	Analog Output	0xC2,0x84,0x86,0x82,0xA3	7 bytes	5 bytes
5	SP+CHECKBACK	Analog Output	0xC2,0x84,0x82,0x82,0x92	3 bytes	5 bytes
6	SP+READBACK+POS_D+CHECKBACK	Analog Output	0xC2,0x84,0x89,0x82,0xB3	10 bytes	5 bytes
7	RCAS_IN+RCAS_OUT	Analog Output	0xC2,0x84,0x84,0x82,0x8C	5 bytes	5 bytes
8	RCAS_IN+RCAS_OUT+CHECK_BACK	Analog Output	0xC2,0x84,0x87,0x82,0x9C	8 bytes	5 bytes
9	SP+RIN+RB+ROUT+POS_D+CB	Analog Output	0xC2,0x89,0x8E,0x82,0xBF	15 bytes	10 bytes
10	SP_D	Discrete Output	0x82,0x81,0x84,0x82	0 byte	2 bytes
11	SP_D+READBACKB_D	Discrete Output	0xC2,0x81,0x81,0x84,0x83	2 bytes	2 bytes
12	SP_D+CHECK_BACK	Discrete Output	0xC2,0x81,0x82,0x84,0x92	3 bytes	2 bytes
13	SP_D+READBACK_D+CCHECK_BACK	Discrete Output	0xC2,0x81,0x84,0x84,0x93	5 bytes	2 bytes
14	RCAS_IN_D+RCAS_OUT_D	Discrete Output	0xC2,0x81,0x81,0x84,0x8C	2 bytes	2 bytes
15	RCAS_IN_D+RCAS_OUT_D+CHeck_BACK	Discrete Output	0xC2,0x81,0x84,0x84,0x9C	5 bytes	2 bytes
16	SP_D+RIN_D+RB_D+ROUT_D+CB_D	Discrete Output	0xC2,0x83,0x86,0x84,0x9F	7 bytes	4 bytes
17	OUT_D	Discrete Input	0x42,0x81,0x83,0x81	2 bytes	0 byte

Section

Slot Number	Slot Name	Description of Default Module	Default Module	Module can be selected (in pa139750.gsd)	Recommended Module	Module can be selected (pratical)
1	Analog Input 1	Process Value 1	1	1~17	2	1,2
2	Analog Input 2	Process Value 2	1	1~17	2	1,2
3	Analog Input 3	Process Value 3	1	1~17	2	1,2
4	Analog Input 4	Process Value 4	1	1~17	2	1,2
5	Analog Output 1	Compensation Value	1	1~17	3	1,3,4,5,6,7,8,9
6	Discrete Input 1	Alarm and Clean status	1	1~17	17	1,17
7	Discrete Input 2	HOLD status	1	1~17	17	1,17
8	Discrete Output 1	System Hold (1-HOLD Active, 0-Hold Inactive)	1	1~17	10	1,10,11,12,13,14,15,16
9	Discrete Output 2	O2 Opt LED Control (1-LED OFF, 0-LED ON)	1	1~17	10	1,10,11,12,13,14,15,16
10~32	Not Used	Not Used	1	1~17	1	1

PA Slot Model

Slot No.	Block	Usage
0	RB	Physical block
1	AI1	Process value 1
2	AI2	Process value 2
3	AI3	Process value 3
4	AI4	Process value 4
5	AO	Pressure compensation
6	DI1	Alarm and Clean Status
7	DI2	Hold Status
8	DO1	System Hold
9	DO2	ODO LED control
10	Transdure Block	

Standard parameter

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
16	BLOCK_OBJECT	DS-32	C	20	R		-
17	ST_REV	Unsigned16	N	2	R		0
18	TAG_DESC	Octedstring	S	32	R/W		""
19	STRATEGY	Unsigned16	S	2	R/W		0
20	ALERT_KEY	Unsigned8	S	1	R/W		0
21	TARGET_MODE	Unsigned8	S	1	R/W		8 – Automatic
22	MODE_BLK Actual Permitted Normal	DS-37 Unsigned8 Unsigned8 Unsigned8	D	3	R		Depend block
23	ALARM_SUM Current Unacknowledged Unreported Disabled	DS-42 Octedstring 2 Octedstring 2 Octedstring 2 Octedstring 2	D	8	R		0 0 0 0
24	BATCH*	DS-67	S	10	RW		0,0,0,0

*Only function blocks carry this parameters!

Physical Block

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
16-23	Standard parameter						
24	SW_REVISION	VisibleString	Cst	16	R		-
25	HW_REVISION	VisibleString	Cst	16	R		-
26	DEVICE_MAN_ID	Unsigned16	Cst	2	R		-
27	DEVICE_ID	VisibleString	Cst	16	R		-
28	DEVICE_SER_Num	VisibleString	Cst	16	R		-
29	DIAGNOSIS	OctedString	D	4	R		0
30	DIAGNOSIS_EXTENSION	OctedString	D	6	R		0
31	DIAGNOSIS_MASK	OctedString	Cst	4	R		-
32	DIAGNOSIS_MASK_EXTENSION	OctedString	Cst	6	R		-
33	DEVICE_CERTIFICATION	VisibleString	Cst	32	R		-
34	WRITE_LOCKING	Unsigned16	N	2	RW	0:no acyclic write 2457:all parameter wriable	2457
35	FACTORY_RESET	Unsigned16	S	2	RW	0:no action 1:reset bus parameter to default 2506:warmstart, 2712:reset address to 126	0
36	DESCRIPTOR	OctedString	S	32	RW	No restrictions	1677
37	DEVICE_MESSAGE	OctedString	S	32	RW	No restrictions	1677
38	DEVICE_INSTAL_DATE	OctedString	S	16	RW	No restrictions	1677
39	LOCAL_OP_ENA	Unsigned8	N	1	RW	0:local op.disable 1:local op.enable	1
40	IDENT_NUMBER_SELECTOR	Unsigned8	S	1	RW	0:profile specific ID, 0x9750 1:manufacturer specifi ID number 0x0E8A	1
42	FEATURE Supported Enabled	DS-68 OctetString4 OctetString4	N	8	R	Indicates optional features implemented in the device and the status of these features which indicates if the feature is supported or not supported.	9,0,0,0 9,0,0,0
43	COND_STATUS_DIAG	Unsigned8	S	1	RW	1: Condensed Status and Diagnosis information is provided	1
44	DIAG_EVENT_SWITCH Diag_Status_Link Slot Index (absolute)	Switch_Array Unsigned 48 Unsigned8 1 Unsigned8 1	S	50	RW	Indicates / controls the reaction of the device on device specific diagnostic events if FEATURE.Enabled. Condensed_Status = 1. The reference of the entries to the diagnosis events is manufacturer / device specific.	Not used
52	DEVICE_CONFIGURATION	VisibleString	D	32	R	Textual description of its configuration of functional units.	1677

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
53	INIT_STATE	Unsigned8	S	1	RW	1: STATUS_BEFORE_RESET 2: RUN 3: STANDBY 4: POWER_DOWN 5: MAINTENANCE	-
54	DEVICE_STATE	Unsigned8	D	1	RW	2: RUN (mandatory) 3: STANDBY (optional) 4: POWER_DOWN (optional) 5: MAINTENANCE (mandatory)	-
55	GLOBAL_STATUS	Unsigned16	D	2	R		Not used

AI Function Blocks

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
16-23	Standard parameter						
26	OUT Value Status	101 Float Unsigned 8	D	5	R W*		-
27	PV_SCALE 100% value 0% value	Float Float	S	8	RW	No restrictions	100 0
28	OUT_SCALE 100% value 0% value Unit Decimal Point	DS-36 Float Float Unsigned 16 Unsigned 8	S	11	RW	No restrictions No restrictions Depend on sensor	100 0 %(1342) 2
29	LIN_TYPE	Unsigned 8	S	1	RW	0	0
30	CHANNEL	Unsigned 16	S	2	RW	Depend on sensor	
32	PV_FTIME	Float	S	4	RW	0.0	0
33	FSAFE_TYPE	Unsigned 8	S	1	RW	0: value FSAFE_VALUE is used as OUT Status = UNCERTAIN - Substitute Value, (**) 1: use last stored valid OUT value Status = UNCERTAIN-last usable value (if no valid value is available UNCERTAIN-initial value shall be used) OUT value is initial value in this case(**) 2: OUT has the wrong calculated value and status Status - BAD_(*) (**) (*) as calculated (**) if classic status definition is in use; for condensed status see Table 83	1
34	FSAFE_VALUE	Float	S	4	RW	0.0	0
35	ALARM_HYS	Float	S	4	RW	100.0	0.5
37	HI_HI_LIM	Float	S	4	RW	100.0	
38	HI_LIM	Float	S	4	RW	100.0	
39	LO_LIM	Float	S	4	RW	0.0	
40	LO_LO_LIM	Float	S	4	RW	0.0	
46	HI_ALM Unacknowledged Alarm State Time Stamp Subcode Value	DS-39 Unsigned8 Unsigned8 Time Val Unsigned16 Float	D	16 1 1 8 2 4	R	0 0 0 0 0 0.0	
47	HI_ALM	DS-39	D	16	R	Same as HI_ALM	
48	LO_ALM	DS-39	D	16	R	Same as HI_ALM	
49	LO_LO_ALM	DS-39	D	16	R	Same as HI_ALM	

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
50	SIMULATE Status Value En/Disable	DS-51 Unsigned8 Unsigned8 Unsigned8					
51	OUT_UNIT_TEXT	OctetString	S	16	RW		

*The OUT parameter can be written if the AI FB Actual MODE = Man

DI Function Blocks

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
16-23	Standard parameter						
26	OUT_D Value Status	102 Unsigned 8 Unsigned 8	D	2	R W*		-
30	CHANNEL	Unsigned 16	S	2	RW	See table below	
31	INVERT	Unsigned 8	S	1	RW	0: not inverted 1: invert	
36	FSAFE_TYPE	Unsigned 8	S	1	RW	0: FSAFE_VAL_D 1: Last useable 2: Wrong val	1
37	FSAFE_VAL_D	Unsigned 8	S	1	RW	0	0
40	SIMULATE Status Value En/Disable	DS-51 Unsigned8 Unsigned8 Unsigned8	S	3	rw		0x80 0 0

* The OUT parameter can be written if the AI FB Actual MODE = Man

DI	Bit	Meaning
DI1	0	Alarm status
	1	Clean status

DI	Bit	Meaning
DI2	0	HOLD status

DO Function Blocks

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
16-23	Standard parameter						
25	SP_D Value Status	102 Unsigned 8 Unsigned 8	D	2	RW		-
26	OUT_D Value Status	102 Unsigned 8 Unsigned 8	D	2	RW		-
28	READBACK_D Value Status	102 Unsigned 8 Unsigned 8	D	2	R		
30	RCAS_IN_D Value Status	102 Unsigned 8 Unsigned 8	D	2	RW		
33	IN_CHANNEL	Unsigned 16	S	2	RW	See table below	
34	INVERT	Unsigned 8	S	1	RW	0:not inverted 1:invert	
35	FSAFE_TIME	Float	S	4	RW		0.0
36	FSAFE_TYPE	Unsigned 8	S	1	RW	0:FSAFE_VAL_D 1:Last useable	1
37	FSAFE_VAL_D	Unsigned 8	S	1	RW	0	0
38	RCAS_OUT_D	102 Unsigned 8 Unsigned 8	S	2	RW		
40	SIMULATE Status Value En/Disable	DS-51 Unsigned8 Unsigned8 Unsigned8	S	3	RW		0x80 0 0
39	CHECK_BACK	OctedString	D	3	RW		
50	CHECK_BACK_MASK	OctedString	Cst	3	RW		
51	OUT_CHANNEL	Unsigned 16	S	2	RW	See table below	

DO	Bit	Meaning
DO1	0	System Hold(1 - HOLD Active, 0 - Hold Inactive)

DO	Bit	Meaning
DO2	0	O2 Opt LED Control (1 - LED OFF, 0 - LED ON)

AO Function Block(Pressure compensation via Bus)

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
16-23	Standard parameter						
25	SP Value Status	101 Float Unsigned 8	D	5	RW	No restrictions	9999
27	PV_SCALE 100% value 0% value Unit Decimal Point	DS-36 Float Float Unsigned 16 Unsigned 8	S	11	RW	No restrictions No restrictions mbar	9999 0 mbar(1138) 2
28	READBACK Value Status	101 Float Unsigned 8	D	5	R		
30	RCAS_IN Value Status	101 Float Unsigned 8	D	5	RW	Depend on sensor	
37	IN_CHANNEL	Unsigned 16	S	2	R	0	0
38	Out_CHANNEL	Unsigned 16	S	2	R	0	0
39	FSAFE_TIME	Float	S	4	RW	0.0	0
40	FSAFE_TYPE	Unsigned 8	S	1	RW	0,1,2	2
41	FSAFE_VALUE	Float	S	4	RW	0.0	0
43	RCAS_OUT Value Status	101 Float Unsigned 8	101	5	R		
47	POS_D Value Status	102 Unsigned 8 Unsigned 8	D	2	R		
49	CHECK_BACK	OctetString	D	3	R		
50	CHECK_BACK_MASK	Float	Cst	3	R	100.0	
51	SIMULATE Status Value En/Disable	DS-50 Unsigned8 Float Unsigned8	S	6	RW		
52	INCREASE_CLOSE	Unsigned8	S	1	RW		
53	OUT Value Status	DS-33 Float Unsigned 8	D	5	RW		
54	OUT_SCALE 100% value 0% value Unit Decimal Point	DS-36 Float Float Unsigned 16 Unsigned 8	S	11	RW	No restrictions No restrictions mbar	9999 0 mbar(1138) 2

AO block transfer pressure value to transmitter if Proc Pressure Source option is configured to "Bus"

Analyser Transducer Block

Index	Parameter	Data type	Store	Size Byte	RW	Writable Range	Default
16-23	Standard parameter						
24	PV Value Status Timestamp	DS-60 Float Unsigned8 Date	D	12	R		-
25	SV	Same as PV	D	12	R		
26	TV	Same as PV	D	12	R		
27	QV	Same as PV	D	12	R		
28	Sensor channel	Unsigned8	S	1	R		
29	Sensor type	Unsigned8	N	1	RW	1-Analog pH/ORP 3-Analog Cond2e 4-Analog Cond4e 5-Analog O2 Hi 6-Analog O2 Lo 7-Analog O2 Trace 129-ISM pH/ORP 130-ISM pH/pNa 131-ISM Cond2e 132-ISM Cond4e 133-ISM O2 Hi 134-ISM O2 Lo 135-ISM O2 Trace 136-ISM ppmO2G 137-ISM O2 Optical 138-CO2 Inpro5000i 139-CO2 Hi Inpro5500i 140-ISM O3	
30	Auto_Recognize	Unsigned8	N	1	RW	1 – Yes 0 – No	1 (only when sensor type is ISM)
31	PV average	Unsigned8	N	1	RW	0 - None 1 - Low 2 - Medium 3 - High 4 - Special	4
32	SV average	Unsigned8	N	1	RW	Same as PV	4
33	TV average	Unsigned8	N	1	RW	Same as PV	4
34	QV average	Unsigned8	N	1	RW	Same as PV	4
35	Device Date&Time	DATE	N	7	RW	2008.1.1-2099.12.30	2008.1.1
36	Alarm setting	OctString	N	4	RW	01 - DLI 02 - TTM 03 - ACT 04 - CIP 05 - SIP 06 - Autoclave 07 - Glass resistance	

						08 - Reference resistance 09 - Cell constant deviation 10 - Electrolyte level 11 - Software failure 12 - Sensor disconnected 13 - Shaft error 14 - Signal error 15 - Hardware error 16 - Dry cond sensor 17 - Cell shorted 18 - Power failure 19 - CO2 hardware error 20 - CO2 software error 21 - CO2 out of range 22 - Temp.out of range 23 - CO2 not reliable 24 - Membrane defectious 25 - SAN counter expired	
37	RTD_TYPE	Unsigned8	N	1	RW	0 - Auto(DEFAULT) 1 - NTC22K 2 - Pt1000 3 - Pt100 4 - Fixed	0(for analog channel only)
38	Meas Fixed	Float	N	4	RW	-40 to 200	25° C(for analog pH only)
39	Cal Fixed	Float	S	4	RW	-40 to 200	25° C(for analog pH only)
40	RTD Raw value	Float	D	4	R		
41	RTD Raw Unit	Unsigned16	D	2	R	°C - 1001 Ohm - 1281	
42	PH BUFFER	Unsigned8	N	1	RW	0 - Mettler-9(default) 1 - Mettler-10 2 - Nist-Tech 3 - Nist-Std 4 - Hach 5 - Ciba 6 - Merck 7 - WTW 8 - None 9 - JIS Z 8802 10 - Na+3.9M(for pH/pNa)	0
43	STC Ref Mode	Unsigned8	N	1	RW	0 - Yes 1 - No(DEFAULT)	1
44	pH Slope Display Unit	Unsigned8	N	1	RW	0 - percent(DEFAULT) 1 - mv/pH	
45	pH Offset Display Unit	Unsigned8	N	1	RW	0 - pH(DEFAULT) 1 - mV	
46	STC Ref Temperture	Float	N	4	RW	-40 to 200 ° C	25
47	STC Ref Value	Float	N	4	RW		0 pH/°C
48	IP	Float	N	4	RW	-2 – 16 pH	7pH
49	Salinity	Float	N	4	RW	0 – 60 g/L	28g/L
50	HCO3	Float	N	4	RW	0 – 0.255 Mol/L	0.05 Mol/l

51	Tot Pressure Unit	Unsigned16	N	2	RW	1157 - mmHg 1133 - kPa 1136 - hPa 1138 - mbar 1141 - psi	1157-mmHg
52	Tot Pressure Value	Float	N	4	RW	0 - 9999	750.1 mmHg
53	Raw mV	Float	D	4	RW	Unit:mV	
54	Raw ORP	Float	D	4	RW	Unit:mV	ISM pH only
55	Raw Rr	Float	D	4	RW	Unit:Kohm	pH sensor Only
56	Raw Rg	Float	D	4	RW	Unit:Mohm	
57	Raw RpNa	Float	D	4	RW	Unit:Mohm	ISM pH/pNa only
58	Cal Pressure Unit	Unsigned16	N	2	RW	1157 - mmHg 1133 - kPa 1136 - hPa 1138 - mbar 1141 - psi	1157-mmHg
59	Cal Pressure	Float	N	4	RW		759.8 mmHg
60	Proc Pressure Source	Unsigned8	N	1	RW	0 - Edit(DEFAULT) 1 - Local Ain 2 - Bus	
61	Proc Cal Pressure Source	Unsigned8	N	1	RW	0 - Cal Pressure 1 - Proc Pressure	1
62	Proc Pressure Unit	Unsigned16	N	2	RW	1157 - mmHg 1133 - kPa 1136 - hPa 1138 - mbar 1141 - psi	1157-mmHg Valid when Proc Pressure Source is Local Edit
63	Proc Pressure	Float	N	4	RW		759.8 mmHg
64	4mA Pressure Unit	Unsigned16	N	2	RW	1157 - mmHg 1133 - kPa 1136 - hPa 1138 - mbar 1141 - psi	1136 - hPa Valid when Proc Pressure Source is Local Ain
65	4mA Pressure	Float	N	4	RW		0 hPa
66	20mA Pressure Unit	Unsigned16	N	2	RW	1157 - mmHg 1133 - kPa 1136 - hPa 1138 - mbar 1141 - psi	1136 - hPa Valid when Proc Pressure Source is Local Ain
67	20mA Pressure	Float	N	4	RW		2000 hPa
68	Salinity	Float	N	4	RW		0 g/Kg
69	Humidity	Float	N	4	RW	0 – 100%	100%
70	Meas_Polarization	Float	N	4	RW	-1260 to 1260mV	Depend on sensor
71	Cal_Polarization	Float	N	4	RW	-1260 to 1260mV	Depend on sensor

72	LED Mode	Unsigned8	N	1	RW	0 - OFF 1 - ON(DEFAULT) 2 - AUTO	Optical DO only
73	Toff	Float	N	4	RW	-10 to 60 ° C	40 ° C
74	Sampling Rate	Unsigned8	N	1	RW	1to 60s	10s
75	Process Cal Mode	Unsigned8	N	1	RW	1 - Scaling(DEFAULT) 0 - Calibration	
76	Current	Float	D	4	R		
77	Raw Phase	Float	D	4	R		
78	Raw Ain Value	Float	D	4	R		
79	PV compensation	Unsigned8	N	1	RW	0 - Standard(DEFAULT) 1 - Lin25°C 2 - Lin20°C 3 - Light 84 4 - Std 75@C 5 - Glycol.5 6 - Glycol1 7 - Cation 8 - Alcohol 9 - Ammonia 10 - None	
80	SV compensation	Unsigned8	N	1	RW	Same as PV compensation	
81	TV compensation	Unsigned8	N	1	RW	Same as PV compensation	
82	QV compensation	Unsigned8	N	1	RW	Same as PV compensation	
83	PV Linear value	Float	N	4	RW	0 – 99.99 %/°C	2%/°C ; Valid when PV compensation is Lin25°C or Lin20 °C
84	SV Linear value	Float	N	4	RW	Same as PV Linear value	
85	TV Linear value	Float	N	4	RW	Same as PV Linear value	
86	QV Linear value	Float	N	4	RW	Same as PV Linear value	
87	Cal compensation	Unsigned8	S	1	RW	Same as PV compensation	
88	Cal Linear value	Float	S	4	RW	0 – 99.99 %/°C	2%/°C ; Valid when Cal compensation is Lin25°C or Lin20 °C
89	Raw resistance	Float	D	4	R		
90	Solub mode	Unsigned8	S	1	RW	0 - for beer(DEFAULT) 1 - for water 2 - for Cola 3 - individual	
91	Solub value	Float	S	4	RW	0 to 99999 g/L	1.467
92	Temp factor	Float	S	4	RW	0 to 99999	2400
93	Raw Ramp	Float	D	4	R		
94	Sensor_Name	VisString	S	14	R		
95	Sensor_PN	VisString	S	8	R		

96	Sensor_SN	VisString	S	14	R		
97	Sensor_FW	VisString	S	6	R		
98	Sensor_HW	VisString	S	6	R		
99	Enable_Flag	OctString	S	4	R	0 - Disable 1 - Enable	
100	Operationg_days	Float	D	4	R		
101	Max_Temperture	Float	D	4	R		
102	Max_Temp Date	DATE	D	7	R		
103	TTM with day	Unsigned16	D	2	R		
104	TTM with %	Unsigned16	D	2	R		
105	ACT with day	Unsigned16	D	2	R		
106	ACT with %	Unsigned16	D	2	R		
107	DLI with day	Unsigned16	D	2	R		
108	DLI with %	Unsigned16	D	2	R		
109	CIP_Counter	Unsigned16	D	2	R		
110	SIP_Counter	Unsigned16	D	2	R		
111	AutoClave	Unsigned16	D	2	R		
112	CIP temperture	Float	N	4	RW	30 to 100 ° C	55° C
113	ODO Cal Unit	Unsigned16	S	2	RW		
114	CIP Limit	Unsigned16	N	2	RW	0 - 254	0
115	SP temperture	Float	N	4	RW	90 to 130 ° C	115°C
116	CO2 Process Cal Unit	Unsigned16	S	2	RW		
117	SIP Limit	Unsigned16	N	2	RW	0 - 254	0
118	AutoClave Limit	Unsigned16	N	2	RW	0 - 254	0
119	TTM Limit	Unsigned16	N	2	RW	pH:0 – 400 day others:0 – 10200 day	0
120	ACT Limit	Unsigned16	N	2	RW	CO2 Hi:0 – 175 day Others:0 – 170 day	0
121	pH stress adjust	Unsigned8	N	1	RW	0 - Low 1 - Medium 2 - High	1
122	Reset Cycle counter	Unsigned16	S	2	RW	0 - Reset TTM 1 - Reset CIP 2 - Reset SIP 3 - Reset AutoClave 4 - Reset DLI 5 - Reset SAN Cycles 255 - Uninitialized	255
123	RESERVE						

124	ISM Status change	Unsigned8	S	1	W	0 - Yes 1 - No(DEFAULT)	
125	Last Cal.Date	Date	S	7	R		
126	ActCal Enable	OctString	S	2	R	Bit1:mV Cal Flag Bit2:RTD Cal Flag	
127	Offset Unit1 Code	USIGN16	S	2	R		
128	Offset Unit2 Code	USIGN16	S	2	R		
129	Slope Unit1 Code	USIGN16	S	2	R		
130	Slope Unit2 Code	USIGN16	S	2	R		
131	ACT Offset 1	Float	S	4	R		
132	ACT Offset 2	Float	S	4	R		
133	ACT Slope 1	Float	S	4	R		
134	ACT Slope 2	Float	S	4	R		
135	mV offset	Float	S	4	R		
136	PT RTD Slope	Float	S	4	R		
137	PT RTD Offset	Float	S	4	R		
138	NTC22K Offset	Float	S	4	R		
139	Fact Cal.Date	Date	S	7	R		
140	Fact Offset 1	Float	S	4	R		
141	Fact Offset 2	Float	S	4	R		
142	Fact Slope 1	Float	S	4	R		
143	Fact Slope 2	Float	S	4	R		
144	History Enable	OctString	S	2	R		
145	1.adj Cal.Date	Date	S	7	R		
146	1.adj Offset 1	Float	S	4	R		
147	1.adj Offset 2	Float	S	4	R		
148	1.adj Slope 1	Float	S	4	R		
149	1.adj Slope 2	Float	S	4	R		
150	CAL1 Cal.Date	Date	S	7	R		
151	CAL1 Offset 1	Float	S	4	R		
152	CAL1 Offset 2	Float	S	4	R		
153	CAL1 Slope 1	Float	S	4	R		
154	CAL1 Slope 2	Float	S	4	R		
155	CAL2 Cal.Date	Date	S	7	R		
156	CAL2 Offset 1	Float	S	4	R		
157	CAL2 Offset 2	Float	S	4	R		

158	CAL2 Slope 1	Float	S	4	R		
159	CAL2 Slope 2	Float	S	4	R		
160	CAL3 Cal.Date	Date	S	7	R		
161	CAL3 Offset 1	Float	S	4	R		
162	CAL3 Offset 2	Float	S	4	R		
163	CAL3 Slope 1	Float	S	4	R		
164	CAL3 Slope 2	Float	S	4	R		
165	Transmitter name	VisString	S	20	R		
166	Part number	VisString	S	8	R		
167	Model name	VisString	S	10	R		
168	Model ID	USIGN16	S	2	R		
169	Series number	VisString	S	16	R		
170	Main board firmware	VisString	S	8	R		
171	Main board hardware	USIGN16	S	2	R		
172	Slave board firmware	VisString	S	8	R		
173	Slave board hardware	USIGN16	S	2	R		
174	Bus app version	USIGN8	S	1	R		
175	Bus app revision	USIGN8	S	1	R		
176	Protocol	USIGN8	S	1	R		
177	SAN Max Cycles	USIGN16	N	2	RW		
178	Conc.Max	USIGN16	N	2	RW		
179	Conc.Min	USIGN16	N	2	RW		
180	Cycle Time	USIGN16	N	2	RW		
181	Current	Float	D	4	R		
182	Local Lock	USIGN8	N	1	RW		
183	SAN Cycles	Float	D	4	R		
184	Conductivity Cal Unit	USIGN16	S	2	RW		
185	Resistivity Cal Unit	USIGN16	S	2	RW		
186	CO2 Hi 1point Cal Unit	USIGN16	S	2	RW		
187	CO2 Hi Process Cal Unit	USIGN16	S	2	RW		
188	O3 Cal Unit	USIGN16	S	2	RW		

