Modbus Register
Phosphax sc MR

V1.90

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
MEASURE VALUE 1	40001	Float	2	R		?	actual measurement value from channel one
CHANNEL1	40005	String	8	R/W			Name of LOCATION 1 (see menu system)
MEAS.	40013	Float	2	R		0 /99999.9	measuring value , photometer data
MEAS. ZERO	40015	Float	2	R		0 /99999.9	measuring zero, photometer data
OFFSET MEAS.	40017	Float	2	R		0 /99999.9	offset measuring, photometer data
REF	40019	Float	2	R		0 /99999.9	reference value, photometer data
REF ZERO	40021	Float	2	R		0 /99999.9	reference zero, photometer data
OFFSET REF	40023	Float	2	R		0 /99999.9	offset reference, photometer data
AMPLIFY MEAS.	40025	Integer	1	R		-100 /100	amplification of measurement channel
AMPLIFY REF	40026	Integer	1	R		-100 /100	amplification of reference channel
COOLING	40027	Unsigned Integer	1	R		0 /100	percentage of cooling fan power
HEATING	40028	Unsigned Integer	1	R	0 /1		status off heating for sample tube, 0=OFF, 1=ON
HUMIDITY PROBE	40029	Unsigned Integer	1	R		0 /100	humitity filtration probe in percent
ENCLOSURE TEMP	40030	Float	2	R		0 /99.9	the temperature inside the analyzer
ACTUAL VALUE	40032	Float	2	R		?	actual measurement value from channel one
CHANNEL2	40034	String	8	R/W			location for the measuring channel two where the sample is coming from
CONTENT	40042	Unsigned Integer	1	R		0 /65535	the entry is for the device driver file,shows the version
REMAINING TIME	40043	Unsigned Integer	1	R		0 /65535	remaining time of the current process
CUVETTE TEMP.	40044	Float	2	R		0 /99.99	actual cuvette temperature
PHOSPHATE-P 1	40046	Float	2	R		?	measurement value for channel one as PO4-P
PHOSPHATE-P 2	40048	Float	2	R		?	measurement value for channel two as PO4-P
PHOSPHATE 1	40050	Float	2	R		?	measurement value for channel one as PO4
PHOSPHATE 2	40052	Float	2	R		?	measurement value for channel two as PO4
PHOS.PENTOXIDE1	40054	Float	2	R		?	measurement value for channel one as P2O5
PHOS.PENTOXIDE2	40056	Float	2	R		?	measurement value for channel two as P2O5
DEXT LAST VALUE	40058	Float	2	R		-9.99999 /9.99999	last extinction value
HEATING ON	40060	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12		sets the month when the sample line heating is switched ON, 0=alway OFF, 1=January, 2=Febraury to 12=December
HEATING OFF	40061	Unsigned Integer	1	R/W	1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12		sets the month when the sample line heating is switched OFF,1=January, 2=Febraury to 12=December
MEASURE VALUE 2	40062	Float	2	R		?	actual measurement value from channel two
EXT MESS 1	40064	Float	2	R		-9.99999 /9.99999	the current measuring extinction from channel one
EXT MESS 2	40066	Float	2	R		-9.99999 /9.99999	the current measuring extinction from channel two
EXT REF	40068	Float	2	R		-9.99999 /9.99999	the current reference extinction
ANALYZER HEATING	40070	Unsigned Integer	1	R		0 /100	the heating of the analyzer
BUSACTION ACTIVE	40071	Unsigned Integer	1	R/W		0 /1	write a one to this register to start a bus action (see Field bus control)
BUS ANALY.START	40072	Unsigned Integer	1	R/W		0 /1	you can start the analyzer about the bus
BUS SERVICE	40073	Unsigned Integer	1	R/W		0 /1	you can start the service mode about the bus

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
BUS CLEANING	40074	Unsigned Integer	1	R/W		0 /1	you can start the cleaning mode about the bus
BUS PREPUMP REA.	40075	Unsigned Integer	1	R/W		0 /1	you can prepump reagent about the bus
BUS PREPUMP CLEA	40076	Unsigned Integer	1	R/W		0 /1	you can prepump cleaning solution about the bus
BUS PREPUMP PRO.	40077	Unsigned Integer	1	R/W		0 /1	you can prepump the probe about the bus
BUS PREPUMP ALL	40078	Unsigned Integer	1	R/W		0 /1	you can prepump all about the bus
PROBE P. MIN	40079	Float	2	R		0 /2.0	integrated value of pressure at filtration probe, if not yet calculated: nan
PROBE PRESSURE	40081	Float	2	R		0 /2.0	actual value of pressure at filtration probe, if not yet calculated: nan
GAIN CORR. 1	40083	Float	2	R/W		0.01 /100.00	Gain correction for channel one
DISCHARGE CLEAN.	40096	Unsigned Integer	1	R/W		0 /10	discharged values after a cleaning
SET OUTMODE CLE.	40097	Unsigned Integer	1	R/W	0 /1 /2		Set output mode for cleaning, 0=HOLD, 1= TRANSFER VALUE
SET OUTMODE SER.	40098	Unsigned Integer	1	R/W	0 /1 /2		Set output mode for service mode, 0=HOLD, 1= TRANSFER VALUE
SOFTWARE PROBE	40099	Float	2	R		0 /3.40282347 E+38	the softwareversion of the filtration probe
STATUS MODULES	40101	Float	2	R		0 /100	the state of the modules as float in percent, nan if not yet calculated
MEAS.UNITS 1	40103	Unsigned Integer	1	R/W	U0 /2		Measurement units for channel one 0=mg/l, 2=ppm
APPL.	40104	Float	2	R		0 /3.40282347 E+38	the entry is for the application file,shows the version
TYPE	40106	String	6	R			name of the item/analyzer
STATUS MODULES	40112	Unsigned Integer	1	R		0 /100	the state of the modules as integer in percent
CLEANING MODULES	40113	Time2	2	R/W			Date of last filter module cleaning
INTERVAL	40115	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14 /15 /16 /17 /18 /19 /20 /21 /22 /23		measuring intervall, 0=5 minutes, 1 =10minutes, 2=15 minutes to 23=120 minutes
START	40117	Unsigned Integer	1	R/W	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14 /15 /16 /17 /18 /19 /20 /21 /22 /23		it describes when the analyzer starts the cleaning (24 hour format) 0=0 o`clock to23=23oclock
SET INTERVAL	40118	Unsigned Integer	1	R/W	0 /1 /3 /6 /8 /12 /24		cleaning intervall , 0=OFF, 1=1h, 3=3h, 6=6h, 8=8h, 12=12h, 24=24h
NEW MODULES	40119	Time2	2	R/W			date of the last filter module exchange
SET PARAMETER 1	40121	Unsigned Integer	1	R/W	P15 /14 /16		Parameter for channel 1, 15=PO4P, 14=PO4, 16=P2O5
GAIN CORR. 2	40122	Float	2	R/W		0 /100.00	Gain correction for channel two
SET PARAMETER 2	40125	Unsigned Integer	1	R/W	P15 /14 /16		Parameter for channel 2, 15=PO4P, 14=PO4, 16=P2O5
MEAS.UNITS 2	40126	Unsigned Integer	1	R/W	U0 /2		Measurement units for channel two, 0=mg/l, 2=ppm
HUMIDITY ANALY	40127	Unsigned Integer	1	R		0 /100	humitity analyzer in percent
FIELDBUS	40128	Unsigned Integer	1	R/W		0 /2	trigers a measurement serie in START BY BUS mode (see Start by bus)

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
START BY BUS	40129	Unsigned Integer	1	R/W	0 /1		sets the analyzer to START BY BUS mode (see Start by bus)
EXTINCTION 2	40130	Float	2	R		-9.99999 /9.99999	the curent extinction from the measurement channel two
PROCESS STATE	40132	Unsigned Integer	1	R	0 /1 /2 /3 /4 /5 /6 /7 /8 /9 /10 /11 /12 /13 /14 /15 /16		the process/state of the analyzer, coded as enum list, enum value 0=service mode, enum value 1=measuring 1..., interval, initialisation, serv.in proc., cleaning, warm up phase, measuring 2..., prepump reag., prepump clean., prepump probe, flushing, start by bus, calibrate, test procedure, prepump.sample, enum value 16=validation
NUMBER OF MEAS.	40133	Unsigned Integer	1	R/W		1 /100	Number of measurements in a START BY BUS measurement series (see Start by bus)
AVERAGE	40134	Unsigned Integer	1	R/W		?	The number of measurement values that result in an average value in a START BY BUS measurement series.
NO.OF VALUES CH1	40135	Unsigned Integer	1	R/W		0 /100	2 channel mode: how often is channel 1 measured before switching to channel 2
NO.OF VALUES CH2	40136	Unsigned Integer	1	R/W		0 /100	2 channel mode: how often is channel 2 measured before switching to channel 1
DISCHARGE VAL1	40137	Unsigned Integer	1	R/W		0 /3	number of discharged values when switching from channel 1 to channel 2
DISCHARGE VAL2	40138	Unsigned Integer	1	R/W		0 /3	number of discharged values when switching from channel 2 to channel 1
DISCHARGE BUS	40140	Unsigned Integer	1	R/W		0 /10	discharge values at the beginning of a START BY BUS series
SENSOR NAME	40143	String	8	R			User-assigned name for a sensor
REAG. WARNING	40151	Unsigned Integer	1	R/W	0 /1		warning if the level of reagent is low, 0=OFF, 1=ON
WARNING	40152	Unsigned Integer	1	R/W	20 /15 /10 /5		Reagent warning level in percent
REAGENT LEVEL	40155	Unsigned Integer	1	R/W		0 /100	the level of reagent in percent
CLEAN SOLU LEVEL	40158	Unsigned Integer	1	R/W		0 /100	cleaninig solution level in percent
AIR FILTER DISPL	40160	Integer	1	R/W		-32768 /32767	days until next cleaning/exchange of air filter pads. Negative values show a cleaning which is overdue
PUMP DISPLAY	40163	Integer	1	R/W		-32768 /32767	days lest until exchanging piston of pump, negative values show that exchange is overdue
STRUCTURE	40172	Unsigned Integer	1	R		0 /65535	the entry is for the device driver file,shows the version
FIRMWARE	40173	Unsigned Integer	1	R		0 /65535	the entry is for the device driver file,shows the version
LOADER	40174	Float	2	R		0 /3.402823466 38529E+38	the entry is for the application file,shows the version of the boot file
OPERATING HOURS	40176	Unsigned Integer	2	R/W		0 /99999999	operating hours of analyzer
PUMP MEMBR.DISP.	40180	Integer	1	R/W		-32768 /32767	remaining days for pump membrane in filter probe
COMPRESSOR	40189	Integer	1	R/W		-32768 /32767	remaining days for air compressor
LAST CHA.FACTOR1	40198	Time2	2	R/W			the date of the last correction factor for channel one
LAST CHA.FACTOR2	40200	Time2	2	R/W			the date of the last correction factor for channel two
SAMPLE DETECTION	40211	Unsigned Integer	1	R/W	0 /1 /2		output if sample detection detects low sample amount, 0=Warning, 1=Error, 2=OFF
ACTUAL MEAS.TIME	40216	Time2	2	R			time of actual measurement value
LAST TIME	40218	Time2	2	R			time of last measurement value
2.ND LAST TIME	40220	Time2	2	R			2.ND LAST TIME
3.RD LAST TIME	40222	Time2	2	R			3.RD LAST TIME
4.TH LAST TIME	40224	Time2	2	R			4.TH LAST TIME

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Name	Register	Data Type	Length	Access Mode	Discrete Range	Min / Max	Description
5.TH LAST TIME	40226	Time2	2	R			5.TH LAST TIME
6.TH LAST TIME	40228	Time2	2	R			6.TH LAST TIME
7.TH LAST TIME	40230	Time2	2	R			7.TH LAST TIME
8.TH LAST TIME	40232	Time2	2	R			8.TH LAST TIME
9.TH LAST TIME	40234	Time2	2	R			9.TH LAST TIME
LAST VALUE	40236	Float	2	R		?	LIST OF VALUES
2.ND LAST VALUE	40238	Float	2	R		?	LIST OF VALUES
3.RD LAST VALUE	40240	Float	2	R		?	LIST OF VALUES
4.TH LAST VALUE	40242	Float	2	R		?	LIST OF VALUES
5.TH LAST VALUE	40244	Float	2	R		?	LIST OF VALUES
6.TH LAST VALUE	40246	Float	2	R		?	LIST OF VALUES
7.TH LAST VALUE	40248	Float	2	R		?	LIST OF VALUES
8.TH LAST VALUE	40250	Float	2	R		?	LIST OF VALUES
9.TH LAST VALUE	40252	Float	2	R		?	LIST OF VALUES
STATUS MODUL.ERR	40256	Unsigned Integer	1	R/W	14 /10 /8 /0		configure the level of error for the state of the modules
STAT. MODUL.WAR.	40257	Unsigned Integer	1	R/W	40 /30 /15		configure the level of warning for the state of the modules
EXHAUST CONTROL	40258	Unsigned Integer	1	R/W	0 /1		the analyzer is checking the exhaust whether it is blocked, 0=OFF, 1=ON
REF	40260	Unsigned Integer	1	R/W	0 /1		to switch the ref measuring on or off
BUBBLE REJECT	40264	Unsigned Integer	1	R/W	0 /1		it's possible to set the function bubble reject
SEL ADJ METHOD	40271	Unsigned Integer	1	R/W	0 /1		it's possible to set the measuring interval as dry or wet
ENCLOSU.TEMP.MIN	40273	Float	2	R		-50 /200.0	the minimum temperature inside the analyzer during the last 24 hours, intervall starts with power on
ENCLOSU.TEMP.MAX	40275	Float	2	R		-50 /200.0	the maximum temperature inside the analyzer during the last 24 hours, intervall starts with power on
ERROR LIST	40277	Unsigned Integer	2	R		0 /4294967295	Errors coded bit wise, bit0=TEMP. < 0 C/ 32F?, bit1=ANALYZ. TO COLD, COOLING FAILED, HUMIDITY ANALY, HUMIDITY PROBE, PROBE MISSING, NO HEAT UP, CUVSENSOR DEFECT, TEMPSENS DEFECT, CUVHEAT DEFECT, CUV TOO HOT, PHOTO LEVEL LOW,PHOTO LEVEL HIGH, MODULES CONTAM., PHOTO LEVEL2 LOW,PHOTO LEVEL2 HIGH, DRAIN BLOCKED, SAMPLE1, bit18=SAMPLE2
WARNING LIST	40279	Unsigned Integer	2	R		0 /4294967295	Warnings, coded bit wise, bit0=WARMUP PHASE, bit1=COOLING DOWN, SERVICE MODE, REAGENT LEVEL,CLEAN SOLU LEVEL, ANALYZER TO COLD, ANALYZER TO WARM, CUV TOO COOL, MODULES CONTAM., PHOT LEVEL LOW, SAMPLE1, PHOT LEVEL2 LOW, bit12=SAMPLE2
EDIT NAME	40281	String	8	R/W			Name of LOCATION (see menu system)

ALL Sensors and Analyzer: Classified ERROR Word - Register 49930

Table 2 Error register

Bit	Error	Description
0	Calibration error	Faulty calibration detected
1	Electronic settings error	Faulty electronic calibration/settings
2	Cleaning error	Error in cleaning cycle detected
3	Measuring module error	Error in measuring module detected
4	System initialization	Inconsistent settings detected, reset to factory settings
5	Hardware error	Faulty hardware detected
6	Internal communication error	Internal communication error detected
7	Humidity error	Excessive humidity detected
8	Excessive temperature	Excessive temperature detected
9		
10	Sample feed warning	Error in sample feed detected
11	Questionable calibration warning	Accuracy of previous calibration inadequate
12	Questionable measurement warning	Accuracy of previous measurement inadequate/out of range
13	Safety warning	Safety equipment error detected
14	Reagent warning	Reagent warning, e.g. fill level < min detected
15	Service request warning	Service request detected

ALL Sensors and Analyzer: Classified STATUS Word - Register 49931

Table 3 Status register

Bit	Status 1	Description
0	Calibration activated	Calibration in progress, measurement value not up to date
1	Cleaning activated	Cleaning in progress, measurement value not up to date
2	Service mode activated	Device in "Service" mode, measurement value not up to date
3	General error message	General error detected, refer to error text for details
4	Measurement value channel 0, poor quality	Measurement accuracy is not within specified limits
5	Measurement value channel 0, range short-fall	Measurement value falls short of the specified range
6	Measurement value channel 0, range exceeded	Measurement value exceeds the specified range
7	Measurement value channel 1, poor quality	Measurement accuracy is not within specified limits
8	Measurement value channel 1, range short-fall	Measurement value falls short of the specified range
9	Measurement value channel 1, range exceeded	Measurement value exceeds the specified range
10	Measurement value channel 2, poor quality	Measurement accuracy is not within specified limits
11	Measurement value channel 2, range short-fall	Measurement value falls short of the specified range
12	Measurement value channel 2, range exceeded	Measurement value exceeds the specified range
13	Measurement value channel 3, poor quality	Measurement accuracy is not within specified limits
14	Measurement value channel 3, range short-fall	Measurement value falls short of the specified range
15	Measurement value channel 3, range exceeded	Measurement value exceeds the specified range