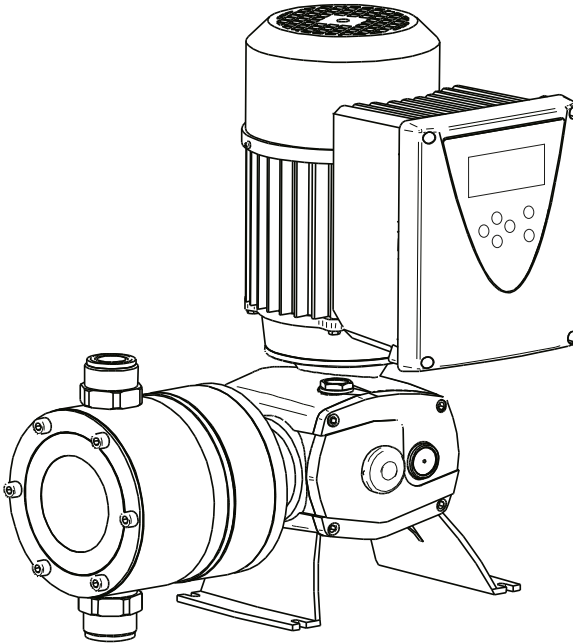




Management System
ISO 9001:2008



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DOSTEC AC **MODBUS**

ENGLISH

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1. Variables Reading only

Function supported: READ INPUT REGISTERS (0x04)

MODBUS ADDRESS	DESCRIPTION	NOTES
4500(0x1194)	Firmware version	B0: VERSION B1: SUBVERSION
4502(0x1196)	Hardware version	
4504(0x1198)	Serial number	
4506(0x119A)	Manufacture date	
4508(0x119C)	Pump frequency cycles/min	
4510(0x119E)	Substate of the pump: Dosing mode / Inside menu/ etc...	
4512(0x11A0)	Flag to stop for alarm. Its used with 4522(0x11AA) to start/stop the pump	
4514(0x11A2)	Alarms of the pump	0x01 --> Level 1 0x02 --> Level 2 0x04 --> Flow 0x08 --> Leakage 0x10 --> Pressure
4516(0x11A4)	Alarms of the board	0x01 --> Short Circuit 0x02 --> Overload 0x04 --> OverTemp
4518(0x11A6)	Alarm of pulse lost (Mode X/Y) Alarm of Flow out of range (Propor. %/ppm)	0 --> ALARMA OFF 1 --> ALARMA ON
4520(0x11A8)	Screen blocked	0 --> Not blocked 1 --> Blocked
4522(0x11AA)	State Flag . It is used with 4512 (0x11A0) to start/stop the pump.	
4524(0x11AC)	Frequency of the motor in 1/10 Herz (800=80.0Hz)	
4526(0x11AE)	Motor output voltage (V)	
4528(0x11B0)	Motor output current (ein 1/10 of Amp 80 = 8.0A)	
4530(0x11B2)	Temperature °C	
4532(0x11B4)	Power voltage (V)	
4534(0x11B6)	Filteres input value 0-4-20mA (mA x 100)	
4536(0x11B8)	Flow input value HIGH: Filtered, LOW: Calculus for 200Hz	MSB
4538(0x11BA)	Flow input value HIGH: Filtered, LOW: Calculus for 200Hz	LSB



4540(0x11BC)	Flow counter LOW filtered ms/pulse	MSB
4542(0x11BE)	Flow counter LOW filtered ms/pulse	LSB
4544(0x11C0)	Pressure (x10 BAR) or (x1 PSI)	
4546(0x11C2)	Remote input state	0 == off 1 == on
4548(0x11C4)	Pulse XY input state	0 == off 1 == on
4550(0x11C6)	FLOW pulse input state (flow detector)	0 == off 1 == on
4552(0x11C8)	4-20 output (mA) x 10	
4554(0x11CA)	Relay LEVEL2 output state	0 == off 1 == on
4556(0x11CC)	Relay ALARM output state	0 == off 1 == on
4558(0x11CE)	Relay TEMP output state	0 == off 1 == on
4560(0x11D0)	Remote input Flag	
4562(0x11D2)	Calibration factor value result when a calibration is done. It is applied to the nominal flow of the pump	
4564(0x11D4)	Nominal flow modified with the regulation and the calibration factor (l/h or gph) x100	MSB
4566(0x11D6)	Nominal flow modified with the regulation and the calibration factor (l/h or gph) x100	LSB
4568(0x11D8)	Volume of the cylinder	MSB
4570(0x11DA)	Volume of the cylinder	LSB
4572(0x11DC)	4-20mA input value of the pressure sensor (mA) x100	
4574(0x11DE)	Reserved	
4576(0x11E0)	Calculated flow (m ³ /h or gph) x100	MSB
4578(0x11E2)	Calculated flow (m ³ /h or gph) x100	LSB
4580(0x11E4)	Record to eeprom counter	MSB
4582(0x11E6)	Record to eeprom counter	LSB
4584(0x11E8)	Cycle total counter	MSB
4586(0x11EA)	Cycle total counter	LSB
4588(0x11EC)	Working time in hours	
4590(0x11EE)	Shortcircuit stop counter	
4592(0x11F0)	Overcurrent stop counter	
4594(0x11F2)	Temperature stop counter	



4596(0x11F4)	Seconds counter to start a batch	MSB
4598(0x11F6)	Seconds counter to start a batch	LSB
4600(0x11F8)	Time of the last cycle (mseg.)	MSB
4602(0x11FA)	Time of the last cycle (mseg.)	LSB
4604(0x11FC)	Cycle counter to finish the batch	MSB
4606(0x11FE)	Cycle counter to finish the batch	LSB
4608(0x1200)	Cycle counter to finish the batch	MSB
4610(0x1202)	Cycle counter to finish the batch	LSB
4612(0x1204)	Memory of alarms of the pump	
4614(0x1206)	Pulse counter of the flow detector	
4616(0x1208)	Flow of the pump (l/h or gph)x 100	MSB
4618(0x120A)	Flow of the pump (l/h or gph)x 100	LSB

2. Read & Write variables

Functions supported: READ INPUT REGISTERS (0x04), WRITE SINGLE REGISTER (0x06), WRITE MULTIPLE REGISTERS (0x10)

MODBUS ADDRESS	DESCRIPTION	NOTES
4684(0x124C)	Flow Set Point (l/h or GPH) x100	MSB
4686(0x124E)	Flow Set Point (l/h or GPH) x100	LSB
4688(0x1250)	Cycle partial counter	MSB
4690(0x1252)	Cycle partial counter	LSB
4692(0x1254)	Reserved	
4694(0x1256)	Reserved	
4696(0x1258)	Manual Regulation	
4698(0x125A)	Limit in % of the flow	
4700(0x125C)	Maximum pressure of the pump (Bar x10 or psi x1)	
4702(0x125E)	Dosing mode	0- NORMAL 1-LOW_FLOW 2-SLOW_SUCTION 3-LOW_PULSATION
4704(0x1260)	Limit in % of the dosing mode (10-90)	
4706(0x1262)	Flow units	0 = litres 1 = galones



4708(0x1264)	Pressure units	0 = Bar 1 = psi
4710(0x1266)	% / ppm units	0 = % 1 = ppm
4712(0x1268)	Type of flowmeter	0= LOW (Water Counter) 1= HIGH (Flowmeter)
4718(0x126E)	Kfactor of the flowmeter (l/pulso) (pulso/l)	LSB
4720(0x1270)	Time with no pulses (sec.), so it is considered zero flow. Used with Low (Watercounter) only.	
4722(0x1272)	Pressure value at 4 mA (Bar x10 or psi x1)	
4724(0x1274)	Pressure value at 20 mA (Bar x10 or psi x1)	
4726(0x1276)	Number of cycles of the pump without pulses from the flow detector to activate the alarm	
47328(0x1278)	Reserved	
4730(0x127A)	Output pulses for each cycle of pump	
4732(0x127C)	% of the pump corresponding to 4mA output	
4734(0x127E)	% of the pump corresponding to 20 mA output	
4736(0x1280)	Alarm set up b0 = Alarm ON(1)/OFF(0) b1 = Relay ON(1)/OFF(0) b2 = Stop ON(1)/OFF(0)	B0: Alarm Level1 B1: Alarm Level2
4738(0x1282)	Alarm set up b0 = Alarm ON(1)/OFF(0) b1 = Relay ON(1)/OFF(0) b2 = Stop ON(1)/OFF(0)	B0: Alarm Flow B1: Alarm Leakage
4740(0x1284)	Alarm set up b0 = Alarm ON(1)/OFF(0) b1 = Relay ON(1)/OFF(0) b2 = Stop ON(1)/OFF(0)	B0: Alarm OverPressure B1: N.C.
4742(0x1286)	Proportional mode	0: Mode X/Y 1: Mode % / ppm
4744(0x1288)	X (input pulses) of the XY mode	
4746(0x128A)	Memory limit of the proportional mode XY (pulses)	
4748(0x128C)	Y cycles to do in XY proportional mode	
4750(0x128E)	% flow set point in XY mode	
4752(0x1290)	% / ppm mode setpoint (ppm or %) x100	MSB



4754(0x1292)	% / ppm mode setpoint (ppm or %) x100)	LSB
4756(0x1294)	% of the pump, corresponds to 0 or 4mA to the analogic mode input	
4758(0x1296)	% of the pump, corresponds to 20mA to the analogic mode input	
4760(0x1298)	Analogic input type	0= 0-20mA 1= 4-20mA
4762(0x129A)	Batch start	0 = push button 1 = external 2 = time
4764(0x129C)	Setup of the time between batch (sec.)	MSB
4766(0x129E)	Setup of the time between batch (sec.)	LSB
4768(0x12A0)	Cycles or seconds to do in the Batch dosing mode	MSB
4770(0x12A2)	Cycles or seconds to do in the Batch dosing mode	LSB
4772(0x12A4)	Batch type	0 = encoder pulses 1 = time
4774(0x12A6)	Flow setpoint in % for the batch dosing mode	

Note: It is recommended to read and write the variables of two registers at the same time (read/write of two registers)

Note: No variable can be modified if the pump is ON, except the flow and setpoint %ppm.

Note: Each time a parameter is modified, it is written in the internal memory of the pump configuration. Parameters must not be modified continuously due to the limit of memory writings (between 1 to 4 millions)).



3. EXAMPLES

Single register reading READ INPUT REGISTERS (0X04)

Command

ID slave	Function	Reg ADDR HI	Reg ADDR LO	Num Reg HI	Num Reg LO	CRC HI	CRC LO
0x01	0x04	0x11	0x94	0x00	0x01	0x75	0x1A

Answer

ID slave	Function	Byte Count	Value HI	Value LO	CRC HI	CRC LO
0x01	0x04	0x02	0x03	0x01	0x78	0x00

Result:

Software version	Version 3.1
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Several register reading (Flow, Cycle counter) READ INPUT REGISTERS (0x04)

Command

ID slave	Function	Reg ADDR HI	Reg ADDR LO	Num Reg HI	Num Reg LO	CRC HI	CRC LO
0x01	0x04	0x12	0x4C	0x00	0x04	0x35	0x66

Answer

ID slave	Function	Byte Count	Value1 HI	Value1 LO	Value2 HI	Value2 LO	Value3 HI	Value3 LO
0x01	0x04	0x14	0x00	0x01	0x4C	0xDE	0x00	0x00

Value4 HI	Value4 LO	CRC HI	CRC LO
0xFF	0xFE	0xCA	0x62

Result:

Real time flowl	0x00014CDE → 85214 * 10 ⁻² → 852.14 (l/h or gph)
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Cycle counter	0x000FFFE → 65534 cycles
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Single register writing WRITE SINGLE REGISTER (0x06)

Manual regulation (0x1258)= 90% (0x5A)

Command

ID slave	Function	Reg ADDR HI	Reg ADDR LO	Value HI	Value LO	CRC HI	CRC LO
0x01	0x06	0x12	0x58	0x00	0x5A	0x8D	0x5A

Answer

ID slave	Function	Reg ADDR HI	Reg ADDR LO	Value HI	Value LO	CRC HI	CRC LO
0x01	0x06	0x12	0x58	0x00	0x5A	0x8D	0x5A

Several registers writing WRITE MULTIPLE REGISTERS (0x10)

Batch start	0x0002 2 (Tiempo)
Time between batches (sec.)	0x000000FA= 250 seg.
Cycles or seconds that a batch lasts	0x00000064= 100 ciclos
Type of batch	0x0000= 0 (ciclos)
Flow set point in % for the batch dosing mode	0x003C= 60%

Command

ID slave	Function	Reg ADDR HI	Reg ADDR LO	Num Reg HI	Num Reg LO	Value1 HI	Value1 LO
0x01	0x10	0x12	0x9A	0x00	0x07	0x00	0x02

Value2 HI	Value2 LO	Value3 HI	Value3 LO	Value4 HI	Value4 LO	Value5 HI	Value5 LO
0x00	0x00	0x00	0xFA	0x00	0x00	0x00	0x64

Value6 HI	Value6 LO	Value7 HI	Value7 LO	CRC HI	CRC LO
0x00	0x00	0x00	0x3C	0x79	0xC6

Answer

ID slave	Function	Reg ADDR HI	Reg ADDR LO	Num Reg HI	Num Reg LO	Value1 HI	Value1 LO
0x01	0x10	0x12	0x9A	0x00	0x07	0x00	0x02

Value2 HI	Value2 LO	Value3 HI	Value3 LO	Value4 HI	Value4 LO	Value5 HI	Value5 LO
0x00	0x00	0x00	0xFA	0x00	0x00	0x00	0x64

Value6 HI	Value6 LO	Value7 HI	Value7 LO	CRC HI	CRC LO
0x00	0x00	0x00	0x3C	0x79	0xC6

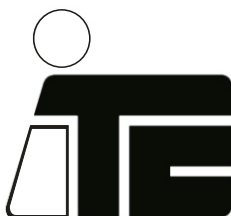


4. Answering codes with error

Answers with error					Error description										
<table border="1"> <thead> <tr> <th>ID slave</th> <th>Error</th> <th>Exception</th> <th>CRC HI</th> <th>CRC LO</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>0x84</td> <td>0x01</td> <td>0x82</td> <td>0xC0</td> </tr> </tbody> </table>					ID slave	Error	Exception	CRC HI	CRC LO	0x01	0x84	0x01	0x82	0xC0	Invalid function code.
ID slave	Error	Exception	CRC HI	CRC LO											
0x01	0x84	0x01	0x82	0xC0											
<table border="1"> <thead> <tr> <th>ID slave</th> <th>Error</th> <th>Exception</th> <th>CRC HI</th> <th>CRC LO</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>0x84</td> <td>0x03</td> <td>0x03</td> <td>0x01</td> </tr> </tbody> </table>					ID slave	Error	Exception	CRC HI	CRC LO	0x01	0x84	0x03	0x03	0x01	Reading error. Invalid number of registers to write (Max 60 registers) or a register is not correct.
ID slave	Error	Exception	CRC HI	CRC LO											
0x01	0x84	0x03	0x03	0x01											
<table border="1"> <thead> <tr> <th>ID slave</th> <th>Error</th> <th>Exception</th> <th>CRC HI</th> <th>CRC LO</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>0x86</td> <td>0x02</td> <td>0xC3</td> <td>0xA1</td> </tr> </tbody> </table>					ID slave	Error	Exception	CRC HI	CRC LO	0x01	0x86	0x02	0xC3	0xA1	Writing error. Register not accepted.
ID slave	Error	Exception	CRC HI	CRC LO											
0x01	0x86	0x02	0xC3	0xA1											
<table border="1"> <thead> <tr> <th>ID slave</th> <th>Error</th> <th>Exception</th> <th>CRC HI</th> <th>CRC LO</th> </tr> </thead> <tbody> <tr> <td>0x01</td> <td>0x86</td> <td>0x04</td> <td>0x43</td> <td>0xA3</td> </tr> </tbody> </table>					ID slave	Error	Exception	CRC HI	CRC LO	0x01	0x86	0x04	0x43	0xA3	Writing error. The value of the variable is out of its limits, or the pump is on.
ID slave	Error	Exception	CRC HI	CRC LO											
0x01	0x86	0x04	0x43	0xA3											
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ID slave	Error	Exception	CRC HI	CRC LO											
0x01	0x90	0x04	0x4D	0xC3											

Original manual

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