Modbus Data Point List

Date: 16-06-2023
Vendor Name: FlowCon International
Product Name: FlowCon FH Actuator with Modbus
Product Model Number: FH-BUS
Software Version: 2.04

Product Description:
Electrical modulating actuator with BUS communication (BACnet or Modbus) for PICV: FlowCon Green.3

List of Data Points

Reg. ID	Data Type	Name	Description	R/W	Value Options
1	uint16	Software-Version	Actuator software version	R	Software version x.xx (e.g. 203 = version 2.03).
2	uint16	HW-Kennung	Actuator hardware inditification	R	e.g. 0x00F1 = FN.0.2-BUS.
3	uint16	SerNum1	Serial number 1	R	0 to 65535.
4	uint16	SerNum2	Serial number 2	R	0 to 65535.
5	uint16	SerNum3	Serial number 3	R	0 to 65535.
101	uint16	Time (hour)	Time, which initally can be set at runtime. Required only for energy calculation from 12:00 a.m. (see 411)	R/W	0 to 23. Unit is hours.
102	uint16	Time (minutes)		R/W	0 to 59. Unit is minutes.
103	uint16	Actuator Control Curve	Actuator Control Curve (input and feedback)	R/W	0= Linear 1= Equal%
104	uint16	MAC address	MAC address	R(W)	1 to 247 *Writeable if DIP switches are set to 63.*
105	uint16	RS485 baud rate	RS-485 baud rate	R/W	0= Default 38400 1= 9600 2= 19200 3= 38400 4= 57600 5= 76800 6= 115200
106	uint16	RS485 stop bits	RS-485 stop bits	R/W	1= 1 stop bit 2= 2 stop bits
107	uint16	RS485 parity	RS-485 parity	R/W	0= None 1= Even 2= Odd
109	uint16	Close when adjusting range	Upper and lower end position range where actuator remains in end position	R/W	0 to 500. Unit is %*100.
110	uint16	Select valve type	Select valve type and control characteristics	R/W	0= Linear (generic) 1= Green.3 2= EQ% (generic) 3= User-Valve
113	uint16	Kvs value of the selected valve		R/W	*NO FUNCTION.* Value is set by valve selection in reg. 110.
114	uint16	Hydraulic balancing value for heating	Range between minimum and maximum flow rate of selected valve in heating mode	R/W	0 to 65535. Unit is l/hours.

Reg. ID	Data Type	Name	Description	R/W	Value Options
115	uint16	Hydraulic balancing value for cooling	Range between minimum and maximum flow rate of selected valve in cooling mode	R/W	0 to 65535. Unit is l/hours.
119	uint16	Medium energy constant	Energy constant for used hydraulic medium	R/W	180 to 18000. Unit is J/(kg * °K). *4183= water.*
120	uint16	Inversion of the valve actuating direction	Actuator direction	R/W	0= Normally closed 1= Normally open
121	uint16	LED mode	LED indication	R/W	0= OFF 1= ON without BUS 2= ON with BUS
122	uint16	Actuating speed	Actuator speed	R/W	0= 22 s/mm 1= 28 s/mm 2= 16 s/mm
123	uint16	Sensor type P1	Port 1 sensor type	R/W	0= OFF 1= Binary input 2= 0-10V input 3= KP10 4= Ni1000-DIN 5= Ni1000-LG 6= PT1000 7= Potentiometer 10°K 8= Potentiometer 10°K +/-3°K 9= Potentiometer 10°K +/-5°K
124	uint16	P1 inversion (binary input)	Port 1 direct or inverse operating mode (binary input)	R/W	0= Direct 1= Inverted *Works with register 123= 1.*
125	int16	Correction value P1	Correction factor for port 1	R/W	-5 to +5.
126	uint16	Sensor/Output type P2	Port 2 sensor type / output	R/W	0= OFF 1= Binary input 2= 0-10V input 3= KP10 4= Ni1000-DIN 5= Ni1000-LG 6= PT1000 7= Potentiometer 10°K 8= 0-10V output (set in register 426) 9= 0-10V Y position feedback (set in reg. 401) 10= Changeover signal for 6-way valve (set in registrer 201).
127	uint16	P2 inversion (binary input)	Port 2 direct or inverse operating mode (binary input)	R/W	0= Direct 1= Inverted *Works with register 126= 2.*
128	int16	Correction value P2	Correction factor for port 2	R/W	-5 to +5.
129	uint16	P2 inversion (analog output)	Port 2 direct or inverse operating mode (analog output)	R/W	0= Direct 1= Inverted *Works with register 126= 8.*
130	uint16	Source of supply and return temperature	Water temperature source, supply and return	R/W	0= BUS (set in 404 and 405) 1= Port 1 supply, Port 2 return 2= Port 2 supply, Port 1 return 3= Port 1 supply, BUS return 4= Port 2 supply, BUS return 5= BUS supply, Port 1 return 6= BUS supply, Port 2 return
131	uint16	Select source for room temperature	Room temperature source	R/W	0= BUS (set 403) 1= Port 1 2= Port 2
132	uint16	Flush timer	Set flush timer, i.e. the time between two flushing procedures	R/W	0 to 4320. Unit in hours. *0= not active.*
133	uint16	Communication failure mode	Action in case of communication failure	R/W	0= fail in place 1= close (after 120 seconds) 2= open (after 120 seconds) 3= fail position, set in register 134 (after 120 seconds)
134	uint16	Emergency position	Failsafe position in case of BUS communication failure or invalid control function	R/W	0 to 10000. Unit in %*100. 3000.
136	uint16	Valve blocking protection timer	Set valve block protection timer, i.e. the time between two valve block protection procedures	R/W	0 to 4320. Unit is hours. *0=not active.*
138	uint16	Service command	Service command	R/W	0= Normal operation mode 1= Calibration mode 2= Test run mode 3= Synchronize valve 4= Reset error messages 5= Reset BUS 6= Reset to factory settings

Reg. ID	Data Type	Name	Description	R/W	Value Options
200	uint16	Operating mode	Operating mode	R/W	0= External control signal (set in reg. 400) 1= Open ~ 100% 2= Closed ~ 0% 3= Minimum position (set in register 312) 4= Res. 5= Maximum position (set in reg. 313) 6= Room temperature (set in register 403 and 300) 7= Control by thermal power (set in register 410 and 301) 8= Return water temperature (set in register 405 and 302)
201	uint16	Choose HVAC mode (Changeover)	HVAC mode (changeover mode)	R/W	0= Shut-off 1= Heating 2= Cooling 3= Automatic based on supply temperature (register 126≠10)
300	uint16	Room temperature setpoint	Room temperature setpoint	R/W	0 to 500. Unit is °C*10.
301	uint16	Thermal power setpoint	Thermal power setpoint. Positive values for heating and cooling	R/W	0 to 50000. Unit is kW*10.
302	uint16	Return temperature setpoint	Return water temperature setpoint	R/W	0 to 1200. Unit is °C*10.
304	uint16	Xp thermal power limitation	Gain constant for power limitation	R/W	20 to 60000. Unit is Xp*10.
305	uint16	Xp return temperature limitation	Gain constant for return water temperature limitation	R/W	20 to 60000. Unit is Xp*10.
310	uint16	Xp	Xp - proportional gain contant of PI controller	R/W	20 to 60000. Unit is Xp*10.
311	uint16	Tn	Tn - time constant of PI controller	R/W	0 to 7200. Unit is seconds*10.
312	uint16	Minimum control signal	Set minimum control signal limit	R/W	0 to 10000. Unit is %*100.
313	uint16	Maximum control signal	Set maximum control signal limit	R/W	0 to 10000. Unit is %*100.
314	uint16	Maximum thermal power limiting value	Set max. value for thermal power. Positive values for heating and cooling	R/W	0 to 50000. Unit is kW*10. *0= not active.*
315	uint16	Return temperature limiting value	Return water temperature limiting value.	R/W	0 to 1200. Unit is °C*10. *0= not active.*
318	uint16	Operating status and error information		R	0x0000= Normal operation, no error 0x0001= Hardware fault 0x0002= Hardware fault 0x0004= Error during valve calibration 0x0008= Hardware fault 0x0010= Port 1 range exceeded 0x0020= Port 2 range exceeded 0x0040= Calculation / control function fault 0x0080= Error, valve is blocked 0x0100= Actuator is not available for control signal
319	uint16	Flush timer, actual value	Timer: Remaining time until start of flushing procedure	R	0 to 4320. Unit in hours until last hour then in minutes.
320	uint16	Valve blocking protection timer, actual value	Timer: Remaining time until start of valve blocking protection procedure	R	0 to 4320. Unit in hours.
321	uint16	Operating hours	Life statistics: Total operating time of the actuator	R	0 to 4294967295. Unit in seconds.
323	uint16	Distance counter	Life statistics: Total travel distance of the actuator	R	0 to 4294967295. Unit is millimeters.
400	uint16	External control signal	External Volume flow rate set point (actuating signal)	R/W	0 to 10000. Unit is %*100.
401	uint16	Actual value control signal	Actual flow rate in percent og max. flow setting	R	0 to 10000. Unit is %*100.
402	uint16	Actual volume flow rate	Actual flow rate calculated based on valve parameters	R	0 to 65535. Unit is l/hours.

Reg. ID	Data Type	Name	Description	R/W	Value Options
403	int16	Room temperature actual value	Actual room temperature	R/(W)	-500 to +1500. Unit is °C*10. *Write-protected when source is Port 1 or Port 2.*
404	int16	Supply temperature	Supply water temperature	R/(W)	-500 to +1500. Unit is °C*10. *Write-protected when source is Port 1 or Port 2.*
405	int16	Return temperature	Return water temperature	R/(W)	-500 to +1500. Unit is °C*10. *Write-protected when source is Port 1 or Port 2.*
406	int16	Differential temperature	Actual water ΔT calculated based on measured supply and return temperatures	R	-2000 to +2000. Unit is °K*10.
407	uint16	Warning: leak detected	Operating error status: Leak detection warning	R	0= No warning 1= Leak detected (ΔT above 8 °K when valve is closed for more than 6 hours)
408	uint16	Binary input P1	Input in port 1	R	0= Off 1= On
409	uint16	Binary input P2	Input in port 2	R	0= Off 1= On
410	uint16	Actual value of thermal power	Current calculated value of thermal power going through the valve. Calculated value only valid for PICVs	R	0 to 65535. Unit is kW.
411	uint16	Energy, running day	Current day from 00:00. Calculated value only valid for PICVs	R	0 to 65535. Unit is kWh.
412	uint16	Energy, 24 hours back	Current time and 24 hours back. Calculated value only valid for PICVs	R	0 to 65535. Unit is kWh.
413	uint16	Status of HVAC mode (Changeover)		R	0= Shut-off 1= Heating 2= Cooling
414	uint16	Actual volume flow rate limitation	Max. flow depending on selected valve	R	50 to 50000. Unit is l/hours. *Automatic and depending on selection in register 110.*
415	uint16	PI controller output value		R	0 to 100. Unit is %.
418	uint16	Target position	Target position for the actuator piston	R	0 to 150. Unit in millimeters*10.
419	uint16	Actual position	Actual position of the actuator piston	R	0 to 150. Unit in millimeters*10.
420	uint16	Overall stroke	Total stroke (distance between upper and lower end postion)	R	0 to 150. Unit in millimeters*10.
424	int16	Analog input P1	Measured input value at port 1	R	Unit depending on selected sensor type (°C, °K or %).
425	int16	Analog input P2	Measured input value at port 2	R	Unit depending on selected sensor type (°C, °K or %).
426	uint16	Analog output P2	Output value of port 2, for configuration of sensor / output type port 2. ~0 to 10V output	R/W	0 to 1000. Unit is %*10.