

BACNET PROTOCOL for FC400 (By CPE100) Description

FC400 from release FW 2.1

Rev 03 of 03/03/25

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1 PREFACE

The FC400 controllers support the communication protocol BACNET TCP/IP by CPE100 protocol converter. Using this function it is possible to read the device status and to control the units through the PC's software or through devices supporting Bacnet likes PLCs or BMS Systems.

1.1 STANDARD OBJECT TYPES SUPPORTED

OBJECT TYPE	OPTIONAL PROPERTIES	WRITEABLE PROPERTIES
Device		
Analog Input [AI]	Object Identifier Object Name Object Type Present Value Units	Present Value
Analog Output [AO]	Object Identifier Object Name Object Type Present Value Units	Present Value
Multistate Value [MV]	Object Identifier Object Name Object Type Present Value Units	Present Value

2 HYSTORY OF DOCUMENT

DATE	REV.	FW Vers.	CHANGES
06/09/24	00	2.1.0	Emission
17/09/24	01	2.1.0	Digital Input Note see paragraph 4.2.2 DIGITAL INPUTS
04/10/24	02	2.1.0	Digital Input Note see paragraph 4.1.2 MODBUS SIDE DIAGNOSTICS
03/03/25	03	2.1.0	Change data type: From Positive Integer Value to Multistate Value

3 CONTACT ADDRESS OF THE MANUFACTURER AND TECHNICAL SUPPORT

In case of information requests or technical issues the buyer can contact HYTERM at the following address:

HYTERM S.r.l.

Viale del lavoro, 18 – 25045 Castegnato (BS)

Site: www.hyterm.com

E-mail: info@hyterm.com

Technical Support:

E-mail: support@hyterm.com

Skype [support@hyterm.com](https://www.skype.com/partners/hyterm)

4 DESCRIPTION OF THE REGISTERS OF FC400

List of the registers with detailed address and description.

4.1 ONLY READ REGISTER

4.1.1 STATUS PARAMETERS

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Hours of operation (regulator powered)					
MV[0]	h	0	65535	0	R
Description: Regulator Working Hours (Rotation of the fans CU% > 0)					
MV[1]	h	0	65535	0	R
Description: Device Identification					
MV[2]	0 = ND 3 = FC400 CIECO 4 = FC400 CIECO ETHERNET 5 = FC400 UI 6 = FC400 UI ETHERNET	0	65535	0	R
Description: Release HW					
AI[0]	100 = 1.00	0	65535	0	R
Description: Release FW					
MV[3]	Byte 1 (less significant) = Build Byte 2 (more significant) = First 4 bit Minor Latest 4 bit (Major)	0	65535	0	R
Description: State of device					
MV[4]	0 = STARTING 1 = STOP 2 = RUNNING	0	2	0	R
Description: Number of running fans					
MV[5]	nr	0	22	0	R
Description: Total power absorbed by EC Motors					
MV[6]	W	0	65535	0	R
Description: Rotation speed of EC Motors					
MV[7]	RPM	0	65535	0	R

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Set-Point value in use					
AI[1]	°C	-15.0	90.0	0.0	R
	°F	5.0	194.0	0.0	
	Bar	0.0	45.0	0.0	
	PSI	0.0	652,6	0.0	
Description: Input 1 value					
AI[2]	Value	-32768	32767	0	R
Description: Input 2 value					
AI[3]	Value	-32768	32767	0	R
Description: Input 3 value					
AI[4]	Value	-32768	32767	0	R
Description: Input 4 value					
AI[5]	Value	-32768	32767	0	R
Description: Input 5 value					
AI[6]	Value	-32768	32767	0	R
Description: Input 6 value					
AI[7]	Value	-32768	32767	0	R
Description: State of digital inputs					
MV[8]	Bit 0 = DI1 Bit 1 = DI2 Bit 2 = DI3 Bit 3 = DI4 Bit 4 = DI5 Bit 5 = DI6 Bit 6 = DI7	0	248	0	R
Description: Output Value AO1 0-10V					
AI[8]	Volt (0-10V)	0	1000	0	R
Description: Output Value AO2 0-10V					
AI[9]	Volt (0-10V)	0	1000	0	R
Description: State of digital outputs					
MV[9]	Bit 0 = DO1 Bit 1 = DO2 Bit 2 = DO3 Bit 3 = DO4	0	12	0	R
Description: CU value (Percentage of fans command)					
MV[10]	%	0	100	0	R

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Warning code 1					
MV[11]	Bit 0 = DATALOGGER Bit 1 = FAN (General notification) Bit 2 = CIRCUIT BREAKERS WARNING Bit 3 = REPAIR SWICTH WARNING Bit 4 = PANEL HEATER	0	65535	0	R
Description: Warning code 2					
MV[12]	Bit 0 = FAN_1 Bit 1 = FAN_2 Bit 2 = FAN_3 Bit 3 = FAN_4 Bit 4 = FAN_5 Bit 5 = FAN_6 Bit 6 = FAN_7 Bit 7 = FAN_8 Bit 8 = FAN_9 Bit 9 = FAN_10 Bit 10 = FAN_11 Bit 11 = FAN_12 Bit 12 = FAN_13 Bit 13 = FAN_14 Bit 14 = FAN_15 Bit 15 = FAN_16	0	65535	0	R
Description: Warning code 3					
MV[13]	Bit 0 = FAN_17 Bit 1 = FAN_18 Bit 2 = FAN_19 Bit 3 = FAN_20 Bit 4 = FAN_21 Bit 5 = FAN_22	0	65535	0	R
Description: Error code 1					
MV[14]	Bit 0 = TK DIGITAL INPUT (Function ALARM) Bit 1 = ALL FAN Bit 2 = ANALOG Input Bit 3 = SLAVE SAFETY Bit 4 = Reserved Bit 5 = ADIABATIC COMMUNICATION Bit 6 = COMMUNICATION REMOTE CONTROL Bit 7 = OVER HEAT (board) Bit 8 = UNDER HEAT (board) Bit 9 = POWER	0	65535	0	R

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Error code 2					
MV[15]	Bit 0 = FAN_1 Bit 1 = FAN_2 Bit 2 = FAN_3 Bit 3 = FAN_4 Bit 4 = FAN_5 Bit 5 = FAN_6 Bit 6 = FAN_7 Bit 7 = FAN_8 Bit 8 = FAN_9 Bit 9 = FAN_10 Bit 10 = FAN_11 Bit 11 = FAN_12 Bit 12 = FAN_13 Bit 13 = FAN_14 Bit 14 = FAN_15 Bit 15 = FAN_16	0	65535	0	R
Description: Error code 3					
MV[16]	Bit 0 = FAN_17 Bit 1 = FAN_18 Bit 2 = FAN_19 Bit 3 = FAN_20 Bit 4 = FAN_21 Bit 5 = FAN_22	0	65535	0	R
Description: Error code 4					
MV[17]	Bit 0 = ANALOG INPUT 1 OVER Bit 1 = ANALOG INPUT 1 UNDER Bit 2 = ANALOG INPUT 2 OVER Bit 3 = ANALOG INPUT 2 UNDER Bit 4 = ANALOG INPUT 3 OVER Bit 5 = ANALOG INPUT 3 UNDER Bit 6 = ANALOG INPUT 4 OVER Bit 7 = ANALOG INPUT 4 UNDER Bit 8 = ANALOG INPUT 5 OVER Bit 9 = ANALOG INPUT 5 UNDER Bit 10 = ANALOG INPUT 6 OVER Bit 11 = ANALOG INPUT 6 UNDER	0	65535	0	R

4.1.2 MODBUS SIDE DIAGNOSTICS

This BACNET object signals a malfunction in the MODBUS side communication (the regulator doesn't respond to MODBUS queries).

ATTENTION!

When MV[83] value is greater than 0 wait 60s before triggering an alarm (Communication can automatically re-establish itself within 60s).

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: MODBUS side diagnostics					
MV[83]	MV[83] = 0 → MODBUS OK → FC400 OK MV[83] > 0 → MODBUS KO → FC400 KO	0	2.147.483.647	0	R

4.2 READ & WRITE REGISTER

ATTENTION!

All data in this section (write mode) are saved in memory of the regulator, write the desired value and then the AUTOSAVE function will save it in memory permanently.

4.2.1 WORKING PARAMETERS

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Set Point 1					
AI[10]	°C	-15.0	90.0	35.0	R
	°F	5.0	194.0	95.0	
	Bar	0.0	60.0	30.0	
	PSI	0.0	870,2	435,1	
AO[0]	°C	-15.0	90.0	35.0	W
	°F	5.0	194.0	95.0	
	Bar	0.0	60.0	30.0	
	PSI	0.0	870,2	435,1	
Description: Set Point 2					
AI[11]	°C	-15.0	90.0	25.0	R
	°F	5.0	194.0	77.0	
	Bar	0.0	60.0	30.0	
	PSI	0.0	870,2	435,1	
AO[1]	°C	-15.0	90.0	25.0	W
	°F	5.0	194.0	77.0	
	Bar	0.0	60.0	30.0	
	PSI	0.0	870,2	435,1	
Description: Proportional band					
AI[12]	°C	2.0	60.0	7,5	R
	°F	3.6	108.0	13,5	
	Bar (PSCALE<=16)	0.0	45.0	2,4	
	Bar (16<PSCALE<45)	0.0	45.0	3,5	
	Bar (PSCALE>=45)	0.0	45.0	5,2	
	PSI (PSCALE<=232,1)	0.0	652,6	34,8	
	PSI (232,1<PSCALE<652,6)	0.0	652,6	50,7	
	PSI (PSCALE>=652,6)	0.0	652,6	75,4	

AO[2]	°C	2.0	60.0	7,5	W
	°F	3.6	108.0	13,5	
	Bar (PSCALE<=16)	0.0	45.0	2,4	
	Bar (16<PSCALE<45)	0.0	45.0	3,5	
	Bar (PSCALE>=45)	0.0	45.0	5,2	
	PSI (PSCALE<=232,1)	0.0	652,6	34,8	
	PSI (232,1<PSCALE<652,6)	0.0	652,6	50,7	
	PSI (PSCALE>=652,6)	0.0	652,6	75,4	
Description: Minimum limit					
MV[18]	%	0	100	0	R
MV[84]	%	0	100	0	W
Description: Maximum limit					
MV[19]	%	0	100	100	R
MV[85]	%	0	100	100	W
Description: MODBUS slave mode speed set point					
MV[20]	%	0	100	100	R
MV[86]	%	0	100	100	W
Description: PID Proportional component weight					
MV[21]	%	0	100	5	R
MV[87]	%	0	100	5	W
Description: PID Integral component weight					
MV[22]	%	0	100	5	R
MV[88]	%	0	100	5	W
Description: PID Derivative Component weight					
MV[23]	%	0	100	5	R
MV[89]	%	0	100	5	W
Description: PID Integration time					
MV[24]	sec	1	10	1	R
MV[90]	sec	1	10	1	W

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Pressure Scale					
MV[25]	Bar: 0 = 15,0 1 = 16,0 2 = 25,0 3 = 30,0 4 = 40,0 5 = 45,0 6 = 50,0 7 = 60,0	0	7	3	R
	PSI: 0 = 217,5 1 = 232,1 2 = 362,5 3 = 435,1 4 = 580,1 5 = 652,6 6 = 725,2 7 = 870,2	0	7	3	
MV[91]	Bar: 0 = 15,0 1 = 16,0 2 = 25,0 3 = 30,0 4 = 40,0 5 = 45,0 6 = 50,0 7 = 60,0	0	7	3	W
	PSI: 0 = 217,5 1 = 232,1 2 = 362,5 3 = 435,1 4 = 580,1 5 = 652,6 6 = 725,2 7 = 870,2	0	7	3	

4.2.2 DIGITAL INPUTS

ATTENTION!

Enabling control functions (MV [91]) is saved in memory of the regulator, write the desired value and then the AUTOSAVE function will save it in memory permanently.

ATTENTION!

Digital Input 1 - 7 (MV [92], MV [93], MV [94], MV [95], MV [96], MV [97], MV [98]) they are not saved in memory, write the desired value continuously over time, if the regulator is turned off the set values will be lost.

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enabling control functions					
MV[26]	0 = Local Control → Digital Inputs of FC400 (OFF) 1 = Remote control → MODBUS PROTOCOL (ON)	0	1	0	R
MV[92]	0 = Local Control → Digital Inputs of FC400 (OFF) 1 = Remote control → MODBUS PROTOCOL (ON)	0	1	0	W
Description: Digital Input 1					
MV[27]	0 = OFF 1 = ON	0	1	0	R
MV[93]	0 = OFF 1 = ON	0	1	0	W
Description: Digital Input 2					
MV[28]	0 = OFF 1 = ON	0	1	0	R
MV[94]	0 = OFF 1 = ON	0	1	0	W
Description: Digital Input 3					
MV[29]	0 = OFF 1 = ON	0	1	0	R
MV[95]	0 = OFF 1 = ON	0	1	0	W
Description: Digital Input 4					
MV[30]	0 = OFF 1 = ON	0	1	0	R
MV[96]	0 = OFF 1 = ON	0	1	0	W

Description: Digital Input 5					
MV[31]	0 = OFF 1 = ON	0	1	0	R
MV[97]	0 = OFF 1 = ON	0	1	0	W
Description: Digital Input 6					
MV[32]	0 = OFF 1 = ON	0	1	0	R
MV[98]	0 = OFF 1 = ON	0	1	0	W
Description: Digital Input 7					
MV[33]	0 = OFF 1 = ON	0	1	0	R
MV[99]	0 = OFF 1 = ON	0	1	0	W

4.2.3 SPECIAL FUNCTIONS

ATTENTION!

All data in this section (write mode) are saved in memory of the regulator, write the desired value and then the AUTOSAVE function will save it in memory permanently.

4.2.3.1 EMERGENCY SPEED

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[34]	0 = OFF 1 = ON	0	1	0	R
MV[100]	0 = OFF 1 = ON	0	1	0	W
Description: Rotation speed in EMERGENCY mode					
MV[35]	%	10	100	100	R
MV[101]	%	10	100	100	W
Description: Fan start delay					
MV[36]	sec	1	60	5	R
MV[102]	sec	1	60	5	W

4.2.3.2 SHEDDING

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[37]	0 = OFF 1 = ON	0	1	0	R
MV[103]	0 = OFF 1 = ON	0	1	0	W
Description: Number of start attempts					
MV[38]	nr	1	200	20	R
MV[104]	nr	1	200	20	W

4.2.3.3 NIGHT

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[39]	0 = OFF 1 = ON (Digital Input) 2 = ON (Automatic Mode)	0	2	1	R
MV[105]	0 = OFF 1 = ON (Digital Input) 2 = ON (Automatic Mode)	0	2	1	W
Description: Time of activation of the function (Enable = 2)					
MV[40]	h:min	01:00	23:59	23:00	R
MV[106]	h:min	01:00	23:59	23:00	W
Description: Time of deactivation of the function (Enable = 2)					
MV[41]	h:min	01:00	23:59	6:00	R
MV[107]	h:min	01:00	23:59	6:00	W
Description: Rotation speed in NIGHT mode					
MV[42]	%	1	100	70	R
MV[108]	%	1	100	70	W

4.2.3.4 SPEED JUMP

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[43]	0 = OFF 1 = ON	0	1	0	R
MV[109]	0 = OFF 1 = ON	0	1	0	W
Description: Lower limit jump 1					
MV[44]	%	0	100	0	R
MV[110]	%	0	100	0	W
Description: Upper limit jump 1					
MV[45]	%	0	100	0	R
MV[111]	%	0	100	0	W

Description: Lower limit jump 2					
MV[46]	%	0	100	0	R
MV[112]	%	0	100	0	W
Description: Upper limit jump 2					
MV[47]	%	0	100	0	R
MV[113]	%	0	100	0	W

4.2.3.5 UNLOCK

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[48]	0 = OFF 1 = ON (Digital Input) 2 = ON (Automatic Mode)	0	2	0	R
MV[114]	0 = OFF 1 = ON (Digital Input) 2 = ON (Automatic Mode)	0	2	0	W
Description: Fan rotation time					
MV[49]	min	1	120	15	R
MV[115]	min	1	120	15	W
Description: Fan sleep time					
MV[50]	min	1	43000	10080	R
MV[116]	min	1	43000	10080	W
Description: Rotation speed in UNLOCK mode					
MV[51]	%	10	100	100	R
MV[117]	%	10	100	100	W

4.2.3.6 CLEAN

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[52]	0 = OFF 1 = ON (Digital Input) 2 = ON (Automatic Mode)	0	2	0	R
MV[118]	0 = OFF 1 = ON (Digital Input) 2 = ON (Automatic Mode)	0	2	0	W
Description: Activation frequency					
MV[53]	day	1	30	10	R
MV[119]	day	1	30	10	W
Description: Cleaning start time					
MV[54]	h:min	01:00	23:59	23:00	R
MV[120]	h:min	01:00	23:59	23:00	W
Description: Duration of the cleaning cycle					
MV[55]	min	1	60	15	R
MV[121]	min	1	60	15	W
Description: Rotation speed during the cleaning cycle					
MV[56]	%	1	100	100	R
MV[122]	%	1	100	100	W

4.2.3.7 WASH

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[57]	0 = OFF 1 = ON	0	1	0	R
MV[123]	0 = OFF 1 = ON	0	1	0	W
Description: Activation frequency					
MV[58]	day	1	30	10	R
MV[124]	day	1	30	10	W

Description: Washing start time					
MV[59]	h:min	01:00	23:59	23:00	R
MV[125]	h:min	01:00	23:59	23:00	W
Description: Cooling duration					
MV[60]	min	1	60	5	R
MV[126]	min	1	60	5	W
Description: Duration of the washing cycle					
MV[61]	min	1	60	15	R
MV[127]	min	1	60	15	W
Description: Rotation speed during the washing cycle					
MV[62]	%	1	100	100	R
MV[128]	%	1	100	100	W

4.2.3.8 ECO

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[63]	0 = OFF 1 = ON	0	1	0	R
MV[129]	0 = OFF 1 = ON	0	1	0	W
Description: Minimum waiting time before the next activation/deactivation					
MV[64]	sec	3	90	10	R
MV[130]	sec	3	90	10	W
Description: Group insertion speed					
MV[65]	%	10	50	25	R
MV[131]	%	10	50	25	W
Description: Group deactivation speed					
MV[66]	%	10	50	15	R
MV[132]	%	10	50	15	W
Description: Kick Speed					
MV[67]	%	1	100	80	R
MV[133]	%	1	100	80	W

4.2.3.9 SP SWITCH

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[68]	0 = OFF 1 = ON	0	1	0	R
MV[134]	0 = OFF 1 = ON	0	1	0	W
Description: Ambient temperature switch SP					
AI[13]	°C	-10	60	30	R
	°F	14.0	140.0	86.0	
AO[3]	°C	-10	60	30	W
	°F	14.0	140.0	86.0	
Description: Hysteresis					
AI[14]	°C	3.0	20.0	5.0	R
	°F	5,4	36.0	9.0	
AO[4]	°C	3.0	20.0	5.0	W
	°F	5,4	36.0	9.0	

4.2.3.10 SP ADJUST

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[69]	0 = OFF 1 = ON	0	1	0	R
MV[135]	0 = OFF 1 = ON	0	1	0	W
Description: Min SP					
AI[15]	°C	0.0	90.0	20.0	R
	°F	32.0	194.0	68.0	
AO[5]	°C	0.0	90.0	20.0	W
	°F	32.0	194.0	68.0	
Description: Max SP					
AI[16]	°C	0.0	90.0	40.0	R
	°F	32.0	194.0	104.0	
AO[6]	°C	0.0	90.0	40.0	W
	°F	32.0	194.0	104.0	
Description: Offset					
AI[17]	°C	1.0	20.0	5.0	
	°F	33,8	68.0	41.0	
AO[7]	°C	1.0	20.0	5.0	
	°F	33,8	68.0	41.0	
Description: Refrigerant					
MV[70]	18=R404A	0	33	18	R
MV[136]	18=R404A	0	33	18	W

4.2.3.11 FLOATING SETPOINT

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[71]	0 = OFF 1 = ON	0	1	0	R
MV[137]	0 = OFF 1 = ON	0	1	0	W
Description: SP regulation signal					
MV[72]	0 = 1-10V 1 = 4-20mA	0	1	0	R
MV[138]	0 = 1-10V 1 = 4-20mA	0	1	0	W
Description: SP Minimum value					
AI[18]	°C	-15.0	90.0	20.0	R
	°F	5.0	194.0	68.0	
	Bar	0.0	60.0	20.0	
	PSI	0.0	870,2	290.0	
AO[8]	°C	-15.0	90.0	20.0	W
	°F	5.0	194.0	68.0	
	Bar	0.0	60.0	20.0	
	PSI	0.0	870,2	290.0	
Description: SP Maximum value					
AI[19]	°C	-15.0	90.0	40.0	R
	°F	5.0	194.0	104.0	
	Bar	0.0	60.0	40.0	
	PSI	0.0	870,2	580.0	
AO[9]	°C	-15.0	90.0	40.0	W
	°F	5.0	194.0	104.0	
	Bar	0.0	60.0	40.0	
	PSI	0.0	870,2	580.0	

4.2.3.12 SLAVE SAFETY

Object type [Instance]		VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable						
MV[73]	0 = OFF 1 = ON		0	1	0	R
MV[139]	0 = OFF 1 = ON		0	1	0	W
Description: Regulation signal						
MV[74]	0 = MODBUS 1 = 1-10V 2 = 4-20mA		0	2	2	R
MV[140]	0 = MODBUS 1 = 1-10V 2 = 4-20mA		0	2	2	W

4.2.3.13 FEEDBACK

Object type [Instance]		VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable						
MV[75]	0 = OFF 1 = ON		0	1	0	R
MV[141]	0 = OFF 1 = ON		0	1	0	W
Description: Activation value						
MV[76]	%		1	20	10	R
MV[142]	%		1	20	10	W

4.2.3.14 BOOST

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[77]	0 = OFF 1 = ON	0	1	0	W
MV[143]	0 = OFF 1 = ON	0	1	0	R
Description: Activation value Boost					
AI[20]	°C	-15.0	120.0	100.0	R
	°F	5.0	248.0	212.0	
	Bar	0.0	60.0	45.0	
	PSI	0.0	870,2	652,6	
AO[10]	°C	-15.0	120.0	100.0	W
	°F	5.0	248.0	212.0	
	Bar	0.0	60.0	45.0	
	PSI	0.0	870,2	652,6	
Description: Hysteresis					
AI[21]	°C	1.0	30.0	3.0	R
	°F	1.8	54.0	5.4	
	Bar	0,1	15.0	1.0	
	PSI	1.4	217,5	14.5	
AO[11]	°C	1.0	30.0	3.0	W
	°F	1.8	54.0	5.4	
	Bar	0,1	15.0	1.0	
	PSI	1.4	217,5	14.5	

4.2.3.15 CUTOFF

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[78]	0 = OFF 1 = ON	0	1	0	R
MV[144]	0 = OFF 1 = ON	0	1	0	W
Description: Activation value Cutoff					
AI[22]	°C	-25.0	80.0	20.0	R
	°F	-13.0	176.0	68.0	
	Bar	0	60.0	0.0	
	PSI	0	870,2	0.0	
AO[12]	°C	-25.0	80.0	20.0	W
	°F	-13.0	176.0	68.0	
	Bar	0	60.0	0.0	
	PSI	0	870,2	0.0	
Description: Hysteresis					
AI[23]	°C	1,0	30,0	3,0	R
	°F	1.8	54.0	5.4	
	Bar	0,1	15.0	0,1	
	PSI	1,4	217,5	1,4	
AO[13]	°C	1,0	30,0	3,0	W
	°F	1.8	54.0	5.4	
	Bar	0,1	15.0	0,1	
	PSI	1,4	217,5	1,4	

4.2.3.16 THERMOSTAT

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[79]	0 = OFF 1 = ON	0	1	0	R
MV[145]	0 = OFF 1 = ON	0	1	0	W

Description: Activation value					
AI[24]	°C	-35.0	80.0	15.0	R
	°F	-31.0	176.0	59.0	
AO[14]	°C	-35.0	80.0	15.0	W
	°F	-31.0	176.0	59.0	
Description: Hysteresis					
AI[25]	°C	1.0	30.0	5.0	R
	°F	1.8	54.0	5.4	
AO[15]	°C	1.0	30.0	5.0	W
	°F	1.8	54.0	5.4	
Description: Deactivation of the function during regulation					
MV[80]	0 = Function enabled during regulation 1 = Function disabled during regulation	0	1	0	R
MV[146]	0 = Function enabled during regulation 1 = Function disabled during regulation	0	1	0	W

4.2.3.17 THRESHOLD

Object type [Instance]	VALUES	MIN	MAX	DEFAULT	ACCESS
Description: Enable					
MV[81]	0 = OFF 1 = ON	0	1	0	R
MV[147]	0 = OFF 1 = ON	0	1	0	W
Description: Activation value					
MV[82]	%	1	100	30	R
MV[148]	%	1	100	30	W