

MGE SYSPro Modbus extension registers (V02.01)

19-09-2025

Control				
Register	R/W	Name	Description	Scaling
Controlling analog output AO value				
00113	W	Control.SetAnaOutValue	Writing AO value (if configured for bus control)	0.01 %
Configuration				
Register	R/W	Name	Description	Scaling
Frequency range				
00131	W	SetMinFrequency	Selection of min pump freq. in % of nom. freq.	0.01 %
00132	W	SetMaxFrequency	Selection of max pump freq. in % of nom. freq.	0.01 %
Analog input 1 (AI1) configuration				
00133	W	SetAnaIn1Unit	Selection of scaling unit for AI1 measurement	See Analog Unit Scaling
00134	W	SetAnaIn1Min	Selection of minimum scaling value for AI1 meas.	See description of analog sensor scaling
00135	W	SetAnaIn1Max	Selection of maximum scaling value for AI1 meas.	
00136	W	SetAnaIn1SigType	Selection of signal type for AI1 measurement	See Analog Input Signal Type
00137	W	SetAnaIn1Applic	Selection of application for AI1 measurement	See Analog Application
00138	W	SetAnaIn1Func	Selection of function for AI1 measurement	See Analog Function
Analog input 2 (AI2) configuration				
00139	W	SetAnaIn2Unit	Selection of scaling unit for AI2 measurement	See Analog Unit Scaling
00140	W	SetAnaIn2Min	Selection of minimum value for AI2 measurement	See description of analog sensor scaling
00141	W	SetAnaIn2Max	Selection of maximum value for AI2 measurement	
00142	W	SetAnaIn2SigType	Selection of signal type for AI2 measurement	See Analog Input Signal Type
00143	W	SetAnaIn2Applic	Selection of application for AI2 measurement	See Analog Application
00144	W	SetAnaIn2Func	Selection of function for AI2 measurement	See Analog Function
Analog input 3 (AI3) configuration				
00145	W	SetAnaIn3Unit	Selection of scaling unit for AI3 measurement	See Analog Unit Scaling
00146	W	SetAnaIn3Min	Selection of minimum value for AI3 measurement	See description of analog sensor scaling
00147	W	SetAnaIn3Max	Selection of maximum value for AI3 measurement	
00148	W	SetAnaIn3SigType	Selection of signal type for AI3 measurement	See Analog Input Signal Type
00149	W	SetAnaIn3Applic	Selection of application for AI3 measurement	See Analog Application
00150	W	SetAnaIn3Func	Selection of function for AI3 measurement	See Analog Function
Temperature input 1, 2 and LiqTec configuration				
00151	W	SetTempln1Applic	Selection of application for T1 measurement	See Temperature Application
00152	W	SetTempln1Func	Selection of function for T1 measurement	See Temperature Function
00153	W	SetTempln2Applic	Selection of application for T2 measurement	See Temperature Application
00154	W	SetTempln2Func	Selection of function for T2 measurement	See Temperature Function
00155	W	SetLiqTecTempFunc	Selection of function for LiqTec temp. LT meas.	See Temperature Function
Grundfos sensor configuration				
00156	W	SetGrfSensorPressFunc	Selection of funct. for Grf sensor press. GP meas.	See Analog Function
00157	W	SetGrfSensorTempFunc	Selection of funct. for Grf sensor temp. GT meas.	See Analog Function
Digital input (DI1-4) configuration				
00158	W	SetDigInPolarity	Selection of DI1-4 polarity by bit 0-3, 0=act. closed	Bits
00159	W	SetDigIODirection	Selection of In/Out direction for CIO3 and CIO4	See CIO3 and CIO4 Direction
00160	W	SetDigIn1Func	Selection of DI1 function	See Digital Input Function
00161	W	SetDigIn2Func	Selection of DI2 function	
00162	W	SetDigIn3Func	Selection of DI3 function	
00163	W	SetDigIn4Func	Selection of DI4 function	
Digital output (DO1-4) configuration				
00164	W	SetDigOut1Func	Selection of DO1 function	See Digital Output Function
00165	W	SetDigOut2Func	Selection of DO2 function	
00166	W	SetDigOut3Func	Selection of DO3 function	
00167	W	SetDigOut4Func	Selection of DO4 function	
Analog output (AO) configuration				
00168	W	SetAnaOutSigType	Selection of AO signal type	See Analog Output Signal Type
00169	W	SetAnaOutParm	Selection of AO output parameter	See Analog Output Parameter
00170	W	SetAnaOutMin	Selection of AO minimum value	
00171	W	SetAnaOutMax	Selection of AO maximum value	

Status				
Register	R/W	Name	Description	Scaling
Actual configuration of analog input 1 (AI1)				
00250	R	Status.Analn1Unit	Status of scaling unit for AI1 measurement	See Analog Unit Scaling
00251	R	Status.Analn1Min	Status of minimum value for AI1 measurement	See description of analog sensor scaling
00252	R	Status.Analn1Max	Status of maximum value for AI1 measurement	
00253	R	Status.Analn1SigType	Status of signal type for AI1 measurement	See Analog Input Signal Type
00254	R	Status.Analn1Applic	Status of application for AI1 measurement	See Analog Application
00255	R	Status.Analn1Func	Status of function for AI1 measurement	See Analog Function
Actual configuration of analog input 2 (AI2)				
00256	R	Status.Analn2Unit	Status of scaling unit for AI2 measurement	See Analog Unit Scaling
00257	R	Status.Analn2Min	Status of minimum value for AI2 measurement	See description of analog sensor scaling
00258	R	Status.Analn2Max	Status of maximum value for AI2 measurement	
00259	R	Status.Analn2SigType	Status of signal type for AI2 measurement	See Analog Input Signal Type
00260	R	Status.Analn2Applic	Status of application for AI1 measurement	See Analog Application
00261	R	Status.Analn2Func	Status of function for AI2 measurement	See Analog Function
Actual configuration of analog input 3 (AI3)				
00262	R	Status.Analn3Unit	Status of scaling unit for AI3 measurement	See Analog Unit Scaling
00263	R	Status.Analn3Min	Status of minimum value for AI3 measurement	See description of analog sensor scaling
00264	R	Status.Analn3Max	Status of maximum value for AI3 measurement	
00265	R	Status.Analn3SigType	Status of signal type for AI3 measurement	See Analog Input Signal Type
00266	R	Status.Analn3Applic	Status of application for AI3 measurement	See Analog Application
00267	R	Status.Analn3Func	Status of function for AI3 measurement	See Analog Function
Actual configuration of temperature input 1, 2 and LicTec				
00268	R	Status.Templn1Applic	Status of application for T1 measurement	See Temperature Application
00269	R	Status.Templn1Func	Status of function for T1 measurement	See Temperature Function
00270	R	Status.Templn2Applic	Status of application for T2 measurement	See Temperature Application
00271	R	Status.Templn2Func	Status of function for T2 measurement	See Temperature Function
00272	R	Status.LiqTecTempFunc	Status of function for LiqTec temp. LT meas.	See Temperature Function
Actual configuration of Grundfos pressure and temperature sensor				
00273	R	Status.GrfsensorPressFunc	Status of func. for Grf. sensor press. GP meas.	See Analog Function
00274	R	Status.GrfsensorTempFunc	Status of func. for Grf. sensor temp. GT meas.	See Analog Function
Actual configuration of digital input (DI1-4)				
00275	R	Status.DigInPolarity	Status of DI1-4 polarity by bit 0-3, 0=active closed	Bits
00276	R	Status.DigIODirection	Status of In/Out direction for CIO3 and CIO4	See CIO3 and CIO4 Direction
00277	R	Status.DigIn1Func	Status of DI1 function	See Digital Input Function
00278	R	Status.DigIn2Func	Status of DI2 function	
00279	R	Status.DigIn3Func	Status of DI3 function	
00280	R	Status.DigIn4Func	Status of DI4 function	
Actual configuration of digital output (DO1-4)				
00281	R	Status.DigOut1Func	Status of DO1 function	See Digital Output Function
00282	R	Status.DigOut2Func	Status of DO2 function	
00283	R	Status.DigOut3Func	Status of DO3 function	
00284	R	Status.DigOut4Func	Status of DO4 function	
Actual configuration of analog output (AO)				
00285	R	Status.AnaOutSigType	Status of AO signal type	See Analog Output Signal Type
00286	R	Status.AnaOutParm	Status of AO output parameter	See Analog Output Parameter
00287	W	Status.AnaOutMin	Status of AO minimum value	
00288	W	Status.AnaOutMax	Status of AO maximum value	

Measurements				
Register	R/W	Name	Description	Scaling
00370	[R]	MeasuredData.AnalogIn1	Direct reading of Analog Input 1 (AI1) measurement	0.01 %
00371	[R]	MeasuredData.AnalogIn2	Direct reading of Analog Input 2 (AI2) measurement	0.01 %
00372	[R]	MeasuredData.AnalogIn3	Direct reading of Analog Input 3 (AI3) measurement	0.01 %
00373	[R]	MeasuredData.GrfsensorPress	Direct reading of Grf. press. sensor (GP) meas.	0.01 %
00374	[R]	MeasuredData.GrfsensorTemp	Direct reading of Grf. temp. sensor (GT) meas.	0.01 %
00375	[R]	MeasuredData.Templn1	Direct reading of temp. sensor 1 (T1) measurement	0.01 K
00376	[R]	MeasuredData.Templn2	Direct reading of temp. sensor 2 (T2) measurement	0.01 K
00377	[R]	MeasuredData.LiqTecTemp	Direct reading of LiqTec temp. sensor (LT) meas.	0.01 K

Analog input configuration

Analog Unit Scaling	Enum 0 = bar 1 = mbar 2 = m 3 = kPa 4 = psi 5 = feet 6 = m ³ /h 7 = m ³ /s 8 = ltr/s 9 = gal/min (GPM) 10 = celsius 11 = fahrenheit 12 = % 21 = in 22 = yd ³ /h	Analog Input Signal Type	Enum 0 = 0-20 mA 1 = 0-5 V 2 = 0-10 V 3 = 4-20 mA 4 = - 5 = 0.5-3.5 V	Analog Application	Enum 0 = Inlet pressure 1 = Inlet diff. pressure 2 = Outlet pressure 3 = Outlet diff. pressure 4 = Pump diff. pressure 5 = Remote pressure 1 6 = Remote pressure 2 7 = Remote diff. pressure 8 = Feed tank press/level 9 = Storage tank press/level 40 = Pump flow 41 = Remote flow 80 = Medium temperature 81 = Forward temperature 82 = Return temperature 83 = Remote diff. Temp. 84 = Remote medium temp. 1 85 = Remote medium temp. 2 88 = Ambient temp. (room) 89 = Ambient temp. (outdoor) 90 = Motor winding temp. 91 = Bearing drive-end temp. 92 = Bearing non-drive-end temp. 120 = Other.	Analog Function	Enum 0 = Not active 1 = Control loop feedback 2 = Reference influence 3 = Other measurement
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Temperature input 1, 2 and LiqTec configuration

Temperature Application	Enum 80 = Medium temperature 81 = Forward temperature 82 = Return temperature 83 = Remote diff. temperature 84 = Remote medium temp. 1 85 = Remote medium temp. 2 88 = Ambient temp. (room) 89 = Ambient temp. (outdoor) 90 = Motor winding temp. 91 = Bearing drive-end temp. 92 = Bearing non-drive-end temp. 120 = Other.	Temperature Function	Enum 0 = Not active 1 = Control loop feedback 2 = Reference influence 3 = Other measurement
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Digital I/O 1-4 configuration

Digital Input Function	Enum 0 = Operating mode "Min" 1 = Operating mode "Max" 2 = Operating mode " Stop" 3 = Reverse direction 4 = Alarm reset 5 = External fault 6 = External flow switch 10 = Dry running detection 11 = Water from mains 12 = Pulse counter 13 = Predefinet setpoint digit 1 14 = Predefinet setpoint digit 2 52 = Predefinet setpoint digit 3 53 = Operating mode "UserCurve" 54 = Local stop of pump (Multi-E) 253 = DI1 --> DO1 254 = Not active	Digital Output Function	Enum 0 = Not active 1 = Running 2 = Service warning, time to lubricate 3 = Limit 1 exceeded 4 = Limit 2 exceeded 5 = Warning 6 = Alarm, active or unacknowledged 7 = Alarm, active 8 = Operating 9 = Ready 10 = Bus controlled 11 = External fan control 12 = Pump at limit 13 = Changed to mains water 14 = Multi-E, at least one pump running 15 = Multi-E, all pumps in alarm 16 = Multi-E, at least one pump in alarm 17 = Multi-E, at least one pump is ready 18 = DI1 status 19 = DI2 status 20 = DI3 status 21 = DI4 status	CIO3 and CIO4 Direction	Enum 0 = DI3 and DI4 1 = DO3 and DI4 2 = DI3 and DO4 3 = DO3 and DO4
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Analog output configuration

Analog Output Signal Type	Enum 0 = 0-20 mA 1 = - 2 = 0-10 V 3 = 4-20 mA 4 = - 5 = -	Analog Output Parameter	Enum 0 = Motor speed, 0-200% 1 = Feedback sensor value 2 = Control loop reference 3 = Motor load, 0-200% 4 = Motor current, 0-200% 5 = Limit 1 exceeded [bool] 6 = Limit 2 exceeded [bool] 7 = Pump flow, 0-200% 8 = Ext. const. value (not implemented) 9 = Limit 3 exceeded [bool] 10 = Limit 4 exceeded [bool] 11 = Bus controlled, 0-100%
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Analog sensor range scaling

The relation between the Modbus register min/max sensor setting values X_{reg} and the resulting physical values x (as read from HMI or GO app) follows this formula:

$$X_{reg} = 10x + 1000$$

This relation makes it possible to avoid negative numbers and to have 1 decimal precision although 16 bit unsigned integer values are used by Modbus.

Two examples will enlighten the procedure:

1. We want an analog input range to be [0; 6 bar]

This means that $x_{min} = 0$ and $x_{max} = 6$

Substituting into the formula gives:

$$X_{reg,min} = 10 x_{min} + 1000 = 1000 \quad (\text{SetAnaInMin})$$

$$X_{reg,max} = 10 x_{max} + 1000 = 1060 \quad (\text{SetAnaInMax})$$

2. We want an analog input range to be [-20; 70 °C]

This means that $x_{min} = -20$ and $x_{max} = 70$

Substituting into the formula gives:

$$X_{reg,min} = 10 x_{min} + 1000 = 800 \quad (\text{SetAnaInMin})$$

$$X_{reg,max} = 10 x_{max} + 1000 = 1700 \quad (\text{SetAnaInMax})$$