PROLON

Ver 7.1.0

Modbus
Hydronics Configuration Properties

Modbus Object Type: Holding Registers

Name	Default	Min	Max	Units	Modbus Reg #	Multiplier	Focus Screen	Modbus Notes
Device Type	8	8	8	None	1	1	Device	(Not writable) 8=Hydronics Controller
Device Soft Ver	7.1	0	655.35	None	2	100	Device	(Not writable)
Device Hard Ver	3.1	0	0	None	3	10	Device	(Not writable) 3=M1000 / 3.1=M2000
Net Baud	3	0	5	None	4	1	Baud Rate	0=9600 / 1=19200 / 2=38400 / 3=57600 / 4=76800 / 5=115200
RJ45 Baud	3	0	5	None	5	1	Baud Rate	0=9600 / 1=19200 / 2=38400 / 3=57600 / 4=76800 / 5=115200
Net Parity	0	0	2	None	6	1	Baud Rate	0=NONE / 1=ODD / 2=EVEN
RJ45 Parity	0	0	2	None	7	1	Baud Rate	0=NONE / 1=ODD / 2=EVEN
Net StopBits	0	0	1	None	8	1	Baud Rate	0=1 Stop Bit / 1=2 Stop Bits
RJ45 StopBits	0	0	1	None	9	1	Baud Rate	0=1 Stop Bit / 1=2 Stop Bits
Location	0	0	0	None	10	1	Device	Each reg holds 2 chars -- 16 chars max -- 8 regs (Regs 10-17)
Outside Air Temp Calibration	0	-20	20	deg C	18	100	Calibration	
Supply Water Temp Calibration	0	-20	20	deg C	19	100	Calibration	
Return Hot Water Temp Calibration	0	-20	20	deg C	20	100	Calibration	
Return Cold Water Temp Calibration	0	-20	20	deg C	21	100	Calibration	
Geo Water Temp Calibration	0	-20	20	deg C	22	100	Calibration	
Humidity Calibration	0	-50	50	%RH	23	1	Calibration	
Pumps Min OFF Time	5	0	120	min	24	1	Hardware	
Pumps Min ON Time	2	0	120	min	25	1	Hardware	
Compressor Min OFF Time	5	0	60	min	26	1	Hardware	

Compressor Min ON Time	2	0	60	min	27	1	Hardware	
Reversing Valve Mode	0	0	1	None	28	1	Hardware	0=Powered when Cooling / 1=Powered when Heating
Analog Out 1 Pulsed	0	0	1	None	29	1	Hardware	
Analog Out 1 Range	0	0	1	None	30	1	Hardware	0 = 0-10VDC / 1=2-10VDC
Analog Out 1 Reverse Acting	0	0	1	None	31	1	Hardware	
Analog Out 2 Pulsed	0	0	1	None	32	1	Hardware	
Analog Out 2 Range	0	0	1	None	33	1	Hardware	0 = 0-10VDC / 1=2-10VDC
Analog Out 2 Reverse Acting	0	0	1	None	34	1	Hardware	
Hot Return Temp Max	82	25	100	deg C	35	100	Setpoints	Associated with Hot Out Temp Min
Hot Return Temp Min	21	20	90	deg C	36	100	Setpoints	Associated with Hot Out Temp Max
Hot Out Temp Min	-20	-30	30	deg C	37	100	Setpoints	
Hot Out Temp Max	21	-25	35	deg C	38	100	Setpoints	
Cold Return Temp Max	21	5	30	deg C	39	100	Setpoints	Associated with Cold Out Temp Min
Cold Return Temp Min	10	5	30	deg C	40	100	Setpoints	Associated with Cold Out Temp Max
Cold Out Temp Min	-20	-30	30	deg C	41	100	Setpoints	
Cold Out Temp Max	25	-25	35	deg C	42	100	Setpoints	
Hot Differential	10	0	20	deg C	43	100	Setpoints	
Cold Differential	10	0	20	deg C	44	100	Setpoints	
Priority Mode	0	0	1	None	45	1	Setpoints	0=Decide priority based on outside temp / 1=Decide priority based on setpoint offsets
Priority Outside Temp	15	-10	30	deg C	46	100	Setpoints	
Priority Block Size	5	1	10	deg C	47	100	Setpoints	
Min Geo Temp	-1	-10	10	deg C	48	100	Aux Heat	
Emergency Heat Run Time	4	0	12	hours	49	1	Aux Heat	How long emergency heat stays on once activated
Emergency Heat Activation Time	60	0	180	min	50	1	Aux Heat	How long the heat setpoint must remain unnatained with the heatpump heating before we activate emergency heat
Valve 3 Min Heating Position	25	10	90	%	51	1	Aux Heat	
Valve Proportionnal	20	0	50	deg C	52	100	Aux Heat	
Valve Integral	15	0	90	min	53	1	Aux Heat	

Valve Derivative	0	0	50	deg C	54	100	Aux Heat	
Math 1 Source	0	0	255	None	55	1	Math	0=WeightedAverage / 1=MaxHeating / 2=MaxCooling / 3=WeightedAverage (HeatOnly) / 4=WeightedAverage(CoolOnly) / 5=MathOccupancy / 6=MathOverride / 7=RadiantReq / Else=OFF
Math 2 Source	0	0	255	None	56	1	Math	0=WeightedAverage / 1=MaxHeating / 2=MaxCooling / 3=WeightedAverage (HeatOnly) / 4=WeightedAverage(CoolOnly) / 5=MathOccupancy / 6=MathOverride / 7=RadiantReq / Else=OFF
Math 3 Source	0	0	255	None	57	1	Math	0=WeightedAverage / 1=MaxHeating / 2=MaxCooling / 3=WeightedAverage (HeatOnly) / 4=WeightedAverage(CoolOnly) / 5=MathOccupancy / 6=MathOverride / 7=RadiantReq / Else=OFF
Math 4 Source	0	0	255	None	58	1	Math	0=WeightedAverage / 1=MaxHeating / 2=MaxCooling / 3=WeightedAverage (HeatOnly) / 4=WeightedAverage(CoolOnly) / 5=MathOccupancy / 6=MathOverride / 7=RadiantReq / Else=OFF
Math 5 Source	0	0	255	None	59	1	Math	0=WeightedAverage / 1=MaxHeating / 2=MaxCooling / 3=WeightedAverage (HeatOnly) / 4=WeightedAverage(CoolOnly) / 5=MathOccupancy / 6=MathOverride / 7=RadiantReq / Else=OFF
Math 1 Group	0	0	250	None	60	1	Math	
Math 2 Group	0	0	250	None	61	1	Math	
Math 3 Group	0	0	250	None	62	1	Math	
Math 4 Group	0	0	250	None	63	1	Math	
Math 5 Group	0	0	250	None	64	1	Math	
Math Unoccupied Mode	0	0	1	None	65	1	Math	0=MAX DEMAND / 1=NORMAL

List Refresh Rate	30	0	250	min	66	1	Math	
Math Refresh Rate	3	1	250	sec	67	1	Math	
Network Supply Temp Source	0	0	127	None	68	1	Network	
Cool Prio Zone 1	0	0	127	None	69	1	Network	
Cool Prio Zone 2	0	0	127	None	70	1	Network	
Cool Prio Zone 3	0	0	127	None	71	1	Network	
Outside Temp Override Enable 1	0	0	15	None	72	1	Network	Bit1=Out3 / Bit2=Out4 / Bit3=Out5 / Bit4-->0=less,1=more
Outside Temp Override Enable 2	0	0	15	None	73	1	Network	Bit1=Out3 / Bit2=Out4 / Bit3=Out5 / Bit4-->0=less,1=more
Output Override Temperature 1	-20	-30	40	deg C	74	100	Network	
Output Override Temperature 2	-20	-30	40	deg C	75	100	Network	
Output 3 Override Value 1	0	0	100	%	76	1	Network	
Output 3 Override Value 2	0	0	100	%	77	1	Network	
Output 4 Override Value 1	0	0	100	%	78	1	Network	
Output 4 Override Value 2	0	0	100	%	79	1	Network	
Output 5 Override Value 1	0	0	100	%	80	1	Network	
Output 5 Override Value 2	0	0	100	%	81	1	Network	
Participation 1	0	0	0	None	82	1	Network	Each bit defines the participation (Outside override rule 1) of one address on the slave list (8 regs = 128 devices)
Participation 2	0	0	0	None	90	1	Network	Each bit defines the participation (Outside override rule 2) of one address on the slave list (8 regs = 128 devices)
Slave List	0	0	65535	None	98	1	Slave List	Each reg holds 16 bits - 8 regs - 98 - 105

Heatpump Sequence	0	0	5	None	106	1	Hardware	0=Dual Deck Sequence / 1=Simple Hot Deck Open Boiler / 2=Simple Hot Deck Closed Boiler / 3=Simple Cold Deck / 4=Dual Recovery Sequence / 5=Bi-Energy Boilers
Supply Limit - Hot	60	10	100	deg C	107	100	Setpoints	
Supply Limit - Cold	5	0	100	deg C	108	100	Setpoints	
Out Temp Heat Cutoff	25	-40	40	deg C	109	100	Setpoints	Demand for heating stops above this temperature
Out Temp Cold Cutoff	5	-40	40	deg C	110	100	Setpoints	Demand for cooling stops below this temperature
Analog Out 3 Pulsed	0	0	1	None	111	1	Hardware	
Analog Out 3 Range	0	0	1	None	112	1	Hardware	0 = 0-10VDC / 1=2-10VDC
Analog Out 3 Reverse Acting	0	0	1	None	113	1	Hardware	
Inter-Stage Activation Delay	5	0	60	min	114	1	Hardware	
Inter-Stage Deactivation Delay	5	0	60	min	115	1	Hardware	
Pumps 1-2 Override	255	0	255	None	125	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO
Compressor Override	255	0	255	None	126	1	Visualisation	Bits 1-3 : Number of stages ON / Bit 4 : 1=Heat, 0=Cool / Bits 5-7: ID of lead stage (0=Stage 1 .. 7=Auto choose stage) / Bit 8 : 0=Override Active, 1=No override (Auto)
Valve 1 Override	255	0	255	None	127	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO
Valve 2 Override	255	0	255	None	128	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO
Auxiliary Heat Override	255	0	255	%	129	1	Visualisation	0-100 = Override / ELSE = AUTO
Valve 3 Override	255	0	255	%	130	1	Visualisation	0-100 = Override / ELSE = AUTO
Schedule Override	255	0	255	None	131	1	Visualisation	0=Unoccupied / 1=Occupied / ELSE=AUTO
Pump 3 (Zones) Override	255	0	255	None	132	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO
Pump 4 (Boiler) Override	255	0	255	None	133	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO
Reset	0	0	1	None	150	1	Device	Set to 1 to cause a reset

"Get Slave List" Command	0	0	1	None	151	1	Slave List	
Reprogram	0	0	1	None	152	1	Device	Set to 255 to enter reprogram mode (Warning: Irreversible action - Reserved for ProLon Focus software)
Hot Return Math Offset	0	0	5	None	200	1	Setpoints	0=Don't use Math values to adjust heat setpoint / 1-5=Use this math to adjust the heat setpoint (1 degC every 10%)
Cold Return Math Offset	0	0	5	None	201	1	Setpoints	0=Don't use Math values to adjust cold setpoint / 1-5=Use this math to adjust the cold setpoint (1 degC every 10%)
Num Compressor Stages	1	1	4	None	202	1	Hardware	1=1 Stage / 2=2 Stages / 3=3 Stages / 4=4 Stages
All Damper Override	255	0	255	%	203	1	Network	Overrides all slave dampers to this position. Set 8th bit=1 to override based on flow (% of configured range). Set to 255 to remove override. Set to 254 to use MAX configured pos/flow. Set to 253 to use MIN configured pos/flow.
Enable Absolute Overrides	0	0	1	None	204	1	Visualisation	
Time Zone	7	0	25	None	205	1	Visualisation	
Use Daylight Savings Time	1	0	1	None	206	1	Visualisation	
DST Active Month	3	1	12	None	207	1	Visualisation	1=January … 12=December
DST Active Week	1	0	4	None	208	1	Visualisation	0= First weekend of month … 4=5th weekend of month
DST Deactive Month	11	1	12	None	209	1	Visualisation	1=January … 12=December
DST Deactive Week	0	0	4	None	210	1	Visualisation	0= First weekend of month … 4=5th weekend of month
Pump 3 Math Select	0	0	5	None	211	1	Setpoints	0-4=Math1-5 / 5=OFF
Pump 3 Setpoint	20	1	99	%	212	1	Setpoints	
Pump 3 Differential	10	1	99	%	213	1	Setpoints	
Use Auxiliary Heat Only	0	0	1	None	214	1	Aux Heat	
Use Lead Lag Sequence	0	0	1	None	215	1	Hardware	

Allow Rev Valve Hot Swap	0	0	1	None	216	1	Hardware	When enabled, the reversing valve can change modes even if one compressor stage is still active
Compressor 1 Override	255	0	255	None	240	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO (Dual Recovery Sequence Only)
Compressor 2 Override	255	0	255	None	241	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO (Dual Recovery Sequence Only)
Compressor 1 Pumps Override	255	0	255	None	242	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO (Dual Recovery Sequence Only)
Compressor 2 Pumps Override	255	0	255	None	243	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO (Dual Recovery Sequence Only)
Diverting Valve Override	255	0	255	None	244	1	Visualisation	0=TO COLD TANK / 1=TO HOT TANK / ELSE=AUTO (Dual Recovery Sequence Only)
Pump 3 Override	255	0	255	None	245	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO (Dual Recovery Sequence Only)
Pump 4 Override	255	0	255	None	246	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO (Dual Recovery Sequence Only)
Pump 5 Override	255	0	255	None	247	1	Visualisation	0=OFF / 1=ON / ELSE=AUTO (Dual Recovery Sequence Only)
Time - Set Year	0	0	99	None	250	1	Visualisation	
Time - Set Month	0	1	12	None	251	1	Visualisation	
Time - Set Weekday	0	0	6	None	252	1	Visualisation	
Time - Set Day	0	1	31	None	253	1	Visualisation	
Time - Set Hours	0	0	23	None	254	1	Visualisation	
Time - Set Minutes	0	0	59	None	255	1	Visualisation	
Time - Set Seconds	0	0	59	None	256	1	Visualisation	
Password	0	0	65535	None	260	1	Device	Each reg holds 2 chars -- 16 chars max -- 8 regs --regs 211-218
Changeover Temp	12	0	35	deg C	270	100	Setpoints	(Dual Recovery Sequence Only)
Changeover Differential	2	1	10	deg C	271	100	Setpoints	(Dual Recovery Sequence Only)
Summer Cold SP	8	1	20	deg C	272	100	Setpoints	(Dual Recovery Sequence Only)
Summer Cold Differential	5	1	10	deg C	273	100	Setpoints	(Dual Recovery Sequence Only)
Summer Hot SP	25	15	55	deg C	274	100	Setpoints	(Dual Recovery Sequence Only)
Summer Hot Differential	5	1	10	deg C	275	100	Setpoints	(Dual Recovery Sequence Only)
Winter Cold SP	10	1	20	deg C	276	100	Setpoints	(Dual Recovery Sequence Only)

Winter Cold Differential	5	1	10	deg C	277	100	Setpoints	(Dual Recovery Sequence Only)
Winter Hot SP	35	20	75	deg C	278	100	Setpoints	(Dual Recovery Sequence Only)
Winter Hot Differential	5	1	10	deg C	279	100	Setpoints	(Dual Recovery Sequence Only)
Compressor Pump Pre-ON Time	60	0	250	sec	280	1	Hardware	(Dual Recovery Sequence Only)
Compressor Pump Post-OFF Time	2	1	10	min	281	1	Hardware	(Dual Recovery Sequence Only)
Pump Proof Absence Delay	5	1	10	min	282	1	Setpoints	(Dual Recovery Sequence Only)
Weekly Schedule	127	0	127	None	300	1	Schedule	Registers 300 to 427. Must access using Multiple Read/Write. [Sunday to Saturday, then Holiday] [period 1-8] [hour, minute]
Calendar	0	0	255	None	428	1	Calendar	Registers 428 to 475. Must access using Multiple Read/Write. [January to December][4 bytes = 32 days]. Each bit set to 1 is considered a holiday.

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Modbus
Hydronics Network Variable Outputs

Modbus Object Type: Input Registers

Name	Units	Modbus Reg #	Mult	Modbus Notes
Outside Air Temp	deg C	1	100	
Main Water Loop Supply Temp	deg C	2	100	
Hot Tank Water Temp	deg C	3	100	
Cold Tank Water Temp	deg C	4	100	
Water Geo Return Temp	deg C	5	100	
Proof Pumps 1 - 2	None	6	1	
Proof Pump 3	None	7	1	
Proof Pump 4	None	8	1	
Proof Auxiliary	None	9	1	
Interior Humidity	%RH	10	1	
Hot Tank Target Temp	deg C	11	100	
Cold Tank Target Temp	deg C	12	100	
Pumps 1 - 2 Action	None	13	1	
Pump 3 Action	None	14	1	
Pump 4 Action	None	15	1	
Pump 3 Request	None	16	1	
Pump 3 Calc State	None	17	1	
Compressor Action	None	18	1	0=OFF / 1=1 Stage / 2=2 Stages / 3=3 Stages / 4=4 Stages
Reversing Valve State	None	19	1	0=COOLING / 1=HEATING
Reversing Valve Action	None	20	1	0=COOLING / 1=HEATING / 2=MOVING
Valve 1 Action	None	21	1	0=CLOSED / 1=OPEN
Valve 2 Action	None	22	1	0=CLOSED / 1=OPEN
Auxiliary Heat Value	%	23	1	
Valve 3 Value	%	24	1	

Math 1	%	25	1	
Math 2	%	26	1	
Math 3	%	27	1	
Math 4	%	28	1	
Math 5	%	29	1	
Occupancy	None	30	1	
Lead Stage Number	None	31	1	(0=first stage, 3=fourth stage)
Compressor 1 Pumps State	None	32	1	(Dual Recovery Sequence Only)
Compressor 2 Pumps State	None	33	1	(Dual Recovery Sequence Only)
Diverting Valve State	None	34	1	0=To Cold Tank / 1=To Hot Tank / 2=MOVING (Dual Recovery Sequence Only)
Pump 5 State	None	35	1	(Dual Recovery Sequence Only)
Pump 1 Proof	None	36	1	(Dual Recovery Sequence Only)
Pump 2 Proof	None	37	1	(Dual Recovery Sequence Only)
Water Geo Supply Temp	deg C	38	100	(Dual Recovery Sequence Only)
Compressor 1 State	None	39	1	(Dual Recovery Sequence Only)
Compressor 2 State	None	40	1	(Dual Recovery Sequence Only)

Modbus
Hydronics Network Variable Inputs

Modbus Object Type: Holding Registers

Name	Units	Modbus Reg #	Mult	Modbus Notes
Occupancy Input	None	136	1	Allows the occupancy to be set by another network device (0=Unoccupied, 1=Occupied, 2=AUTO)
Outside Temp Input	deg C	139	100	Allows the outside temp to be set by another network device. Physical sensor (if available) takes priority. Set to 0x7FFF to invalidate.