

Modbus Chiller Configuration Properties

Modbus Object Type: Holding Registers

| Name | Default | Min | Max | Units | Modbus Reg # | Multiplier | Focus Screen | Modbus Notes |
|-----------------------------|---------|-----|--------|-------|--------------|------------|--------------|--|
| Device Type | 16 | 16 | 16 | None | 1 | 1 | Device | (Not writable) 16=Chiller |
| Device Soft Ver | 7.3 | 0 | 655.35 | None | 2 | 100 | Device | (Not writable) |
| Device Hard Ver | 3.1 | 0 | 0 | None | 3 | 10 | Device | (Not writable) 2.0=C1000 / 3.1=M2000 |
| Net Baud | 3 | 0 | 5 | None | 4 | 1 | COM Port | 0=9600 / 1=19200 / 2=38400 / 3=57600 / 4=76800 / 5=115200 |
| Net Parity | 0 | 0 | 2 | None | 5 | 1 | COM Port | 0=NONE / 1=ODD / 2=EVEN |
| Net StopBits | 0 | 0 | 1 | None | 6 | 1 | COM Port | 0=1 Stop Bit / 1=2 Stop Bits |
| Int Baud | 3 | 0 | 5 | None | 7 | 1 | COM Port | 0=9600 / 1=19200 / 2=38400 / 3=57600 / 4=76800 / 5=115200 |
| Int Parity | 0 | 0 | 2 | None | 8 | 1 | COM Port | 0=NONE / 1=ODD / 2=EVEN |
| Int StopBits | 0 | 0 | 1 | None | 9 | 1 | COM Port | 0=1 Stop Bit / 1=2 Stop Bits |
| Location | 0 | 0 | 65535 | None | 10 | 1 | Device | Each reg holds 2 chars -- 16 chars max -- 8 regs (Regs 10-17) |
| Out Temp Calib | 0 | -40 | 40 | deg C | 18 | 100 | Calibration | |
| Supply Temp Calib | 0 | -40 | 40 | deg C | 19 | 100 | Calibration | |
| Return Temp Calib | 0 | -40 | 4000 | deg C | 20 | 100 | Calibration | |
| ECWT Calibration | 0 | -40 | 40 | deg C | 21 | 100 | Calibration | |
| LCWT Calibration | 0 | -40 | 40 | deg C | 22 | 100 | Calibration | |
| Qty Pumps | 2 | 0 | 2 | None | 23 | 1 | Pumps | |
| Pump Enable Temperature | 15 | -40 | 100 | deg C | 24 | 100 | Pumps | |
| Lead Pump Mode | 0 | 0 | 3 | None | 25 | 1 | Pumps | 0=Enable Temp Only / 1=Occupancy Only / 2=Enable Temp OR Occupancy / 3=Enable Temp AND Occupancy |
| Enable Freeze Protection | 1 | 0 | 1 | None | 26 | 1 | Pumps | |
| Stop Pumps On Alarm Contact | 1 | 0 | 1 | None | 27 | 1 | Pumps | |

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|--------------------------------|-------|-------|-------|-------|----|-----|----------|---|
| Pump Freeze Protect Limit | 2 | -40 | 100 | deg C | 28 | 100 | Pumps | |
| Pump Exercise Interval | 48 | 0 | 1000 | hours | 29 | 1 | Pumps | |
| Pump Exercise Time | 15 | 5 | 60 | min | 30 | 1 | Pumps | |
| Pump No Proof Time | 10 | 1 | 250 | sec | 31 | 1 | Pumps | |
| Allow Simultaneous Lead/Lag | 0 | 0 | 1 | None | 32 | 1 | Pumps | |
| Pump Lead Lag Sequence | 0 | 0 | 3 | None | 33 | 1 | Pumps | 0=No Lead Lag / 1=Alternate after shut down / 2=Alternate with fixed runtime / 3=Equal Run Time after shut down |
| Pump Lead Lag Fixed Time | 1440 | 1 | 5040 | min | 34 | 1 | Pumps | |
| Pumps Min ON Time | 2 | 0 | 20 | min | 35 | 1 | Pumps | |
| Pumps Min OFF Time | 5 | 0 | 20 | min | 36 | 1 | Pumps | |
| Setpoint Mode | 0 | 0 | 7 | None | 37 | 1 | Setpoint | 0=FIXED / 1=Reset on Return Temp / 2=Reset on Outside Temp / 3=Reset on Math1 / 4=Reset on Math2 / 5=Reset on Math3 / 6=Reset on Math4 / 7=Reset on Math5 |
| Supply Temp Minimum | 5 | -40 | 100 | deg C | 38 | 100 | Setpoint | |
| Supply Temp Maximum | 18 | -40 | 100 | deg C | 39 | 100 | Setpoint | |
| Scale Minimum | 1500 | -4000 | 10000 | None | 40 | 1 | Setpoint | Scale point that aligns with Supply Minimum. Multiplier=100 if degC, Multiplier=1 if Math |
| Scale Maximum | -1500 | -4000 | 10000 | None | 41 | 1 | Setpoint | Scale point that aligns with Supply Maximum. Multiplier=100 if degC, Multiplier=1 if Math |
| Chiller Type | 0 | 0 | 1 | None | 42 | 1 | Chiller | 0=Water Cooled / 1=Air Cooled |
| Qty Chiller Stages Per Chiller | 1 | 1 | 4 | None | 43 | 1 | Chiller | |
| Chiller Lead Lag Sequence | 0 | 0 | 3 | None | 44 | 1 | Chiller | 0=No Lead Lag / 1=Alternate after shut down / 2=Alternate with fixed runtime / 3=Equal Run Time after shut down |
| Chiller Differential | 5 | 1 | 40 | deg C | 45 | 100 | Setpoint | |
| Chiller Lead Lag Fixed Minutes | 1440 | 1 | 5040 | min | 46 | 1 | Chiller | |
| Chiller Post Off Time | 1 | 0 | 60 | min | 47 | 1 | Pumps | |

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|--|------|------|------------|----|-----|--------------|---|
| Chiller Min On Time | 2 | 0 | 20 min | 48 | 1 | Chiller | |
| Chiller Min Off Time | 5 | 0 | 20 min | 49 | 1 | Chiller | |
| Interstage Activation Delay | 5 | 0 | 30 min | 50 | 1 | Chiller | |
| Interstage Deactivation Delay | 5 | 0 | 30 min | 51 | 1 | Chiller | |
| Block Chiller when Freeze Protect Active | 1 | 0 | 1 None | 52 | 1 | Chiller | 0=NO / 1=YES |
| ECWT Emergency High Limit | 38 | -40 | 100 deg C | 53 | 100 | Chiller | |
| LCWT Emergency High Limit | 43 | -40 | 100 deg C | 54 | 100 | Chiller | |
| LCWT Stage Down Limit | 38 | -40 | 100 deg C | 55 | 100 | Chiller | |
| Lockout Trigger Delay | 1440 | 1 | 5040 min | 56 | 1 | Chiller | |
| Enable Pressure Control | 1 | 0 | 1 None | 57 | 1 | Pressure | |
| Pressure Signal Type | 0 | 0 | 4 None | 58 | 1 | Pressure | 0=0-5VDC / 1=1-5VDC / 2=4-20mA / 3=0.5-4.5VDC / 4=0-20mA |
| Pressure Range Min | 0 | -500 | 500 PSI | 59 | 10 | Pressure | |
| Pressure Range Max | 50 | -500 | 500 PSI | 60 | 10 | Pressure | |
| Pressure Setpoint | 25 | -500 | 500 PSI | 61 | 10 | Pressure | |
| Pressure Proportional Band | 12 | 0 | 500 PSI | 62 | 10 | Pressure | |
| Pressure Integral Band | 30 | 0 | 3600 sec | 63 | 1 | Pressure | |
| Pressure Calibration | 0 | -500 | 500 PSI | 64 | 10 | Calibration | |
| Range AO1 | 0 | 0 | 2 None | 65 | 1 | Pressure | 0=0-10VDC / 1=2-10VDC / 2=0-5VDC |
| Range AO2 | 0 | 0 | 2 None | 66 | 1 | Pressure | 0=0-10VDC / 1=2-10VDC / 2=0-5VDC |
| Range AO3 | 0 | 0 | 2 None | 67 | 1 | | Not Currently in Use |
| Reverse Acting AO1 | 0 | 0 | 1 None | 68 | 1 | Pressure | 0=NORMAL / 1=REVERSE ACTING |
| Reverse Acting AO2 | 0 | 0 | 1 None | 69 | 1 | Pressure | 0=NORMAL / 1=REVERSE ACTING |
| Reverse Acting AO3 | 0 | 0 | 1 None | 70 | 1 | Pressure | Not Currently in Use |
| Qty Chillers | 1 | 1 | 2 None | 71 | 1 | Chiller | |
| Edit Display Features | 0 | 0 | 65535 None | 72 | 1 | Edit Display | Bit1 (LSB): Hide Outside Air Temp / Bit2: Hide Return Temp / Bit3: Hide ECWT / Bit4: Hide LCWT / Bit5: Hide Alarm Contact |

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|-------------------------------------|------|---|------|-------|-----|----|---------------|--|
| VFD Min Value | 0 | 0 | 10 | volts | 73 | 10 | Pressure | |
| VFD Max Value | 10 | 0 | 10 | volts | 74 | 10 | Pressure | |
| Use Same Proof Input for Both Pumps | 0 | 0 | 1 | None | 75 | 1 | Pumps | (M2000 Only) 0=Use AI4 and AI5 for Proof of Pumps 1 and 2 / 1=Use only AI4 as Proof for BOTH Pumps 1 and 2 |
| Reset | 0 | 0 | 1 | None | 100 | 1 | Device | Set to 1 to cause a reset |
| Reprogram | 0 | 0 | 1 | None | 101 | 1 | Device | Set to 255 to enter reprogram mode (Warning: Irreversible action - Reserved for ProLon Focus software) |
| Time Zone | 7 | 0 | 25 | None | 125 | 1 | Visualisation | |
| Use Daylight Savings Time | 1 | 0 | 1 | None | 126 | 1 | Visualisation | |
| DST Active Month | 3 | 1 | 12 | None | 127 | 1 | Visualisation | 1=January ... 12=December |
| DST Active Week | 1 | 0 | 4 | None | 128 | 1 | Visualisation | 0= First weekend of month ... 4=5th weekend of month |
| DST Deactive Month | 11 | 1 | 12 | None | 129 | 1 | Visualisation | 1=January ... 12=December |
| DST Deactive Week | 0 | 0 | 4 | None | 130 | 1 | Visualisation | 0= First weekend of month ... 4=5th weekend of month |
| Locked Address | 0 | 0 | 127 | None | 140 | 1 | Device | Saved address (overrides physical dipswitch address). Set to 0 to return to physical address. |
| DO1 Pump Override | 255 | 0 | 255 | None | 150 | 1 | Visualisation | 0=Override OFF / 1=Override ON / Else=AUTO |
| DO2 Pump Override | 255 | 0 | 255 | None | 151 | 1 | Visualisation | 0=Override OFF / 1=Override ON / Else=AUTO |
| DO3 Chiller Override | 255 | 0 | 255 | None | 152 | 1 | Visualisation | 0=Override OFF / 1=Override ON / Else=AUTO |
| DO4 Chiller Override | 255 | 0 | 255 | None | 153 | 1 | Visualisation | 0=Override OFF / 1=Override ON / Else=AUTO |
| DO5/AO Chiller Override | 255 | 0 | 255 | None | 154 | 1 | Visualisation | (DO5 for M2000, AO for C1000) 0=Override OFF / 1=Override ON / Else=AUTO |
| AO3 Chiller Override | 255 | 0 | 255 | None | 155 | 1 | Visualisation | (M2000 Only) 0=Override OFF / 1=Override ON / Else=AUTO |
| AO1 VFD Override | 25.5 | 0 | 25.5 | volts | 156 | 10 | Visualisation | 0-10=Override 0-10.0V / Else=AUTO |
| AO2 VFD Override | 25.5 | 0 | 25.5 | volts | 157 | 10 | Visualisation | 0-10=Override 0-10.0V / Else=AUTO |

| | | | | | | | | |
|-----------------------------|-----|---|-----|------|-----|---|---------------|---|
| Schedule Override | 255 | 0 | 255 | None | 158 | 1 | Visualisation | 0=Unoccupied / 1=Occupied / Else=AUTO |
| Clear Lead Pump Timers | 0 | 0 | 1 | None | 165 | 1 | Device | Set to 1 to clear these timers |
| Clear Pump DO1 Timers | 0 | 0 | 1 | None | 166 | 1 | Device | Set to 1 to clear these timers |
| Clear Pump DO2 Timers | 0 | 0 | 1 | None | 167 | 1 | Device | Set to 1 to clear these timers |
| Clear Lead Chiller Timers | 0 | 0 | 1 | None | 168 | 1 | Device | Set to 1 to clear these timers |
| Clear Chiller DO3 Timers | 0 | 0 | 1 | None | 169 | 1 | Device | Set to 1 to clear these timers |
| Clear Chiller DO4 Timers | 0 | 0 | 1 | None | 170 | 1 | Device | Set to 1 to clear these timers |
| Clear Chiller DO5/AO Timers | 0 | 0 | 1 | None | 171 | 1 | Device | (DO5 for M2000, AO for C1000) Set to 1 to clear these timers |
| Clear Chiller AO3 Timers | 0 | 0 | 1 | None | 172 | 1 | Device | Set to 1 to clear these timers |
| Clear Lockout Mode | 0 | 0 | 1 | None | 173 | 1 | Device | Set to 1 to clear Lockout Mode |
| Time - Set Year | 0 | 0 | 99 | None | 175 | 1 | Visualisation | |
| Time - Set Month | 0 | 1 | 12 | None | 176 | 1 | Visualisation | |
| Time - Set Weekday | 0 | 0 | 6 | None | 177 | 1 | Visualisation | |
| Time - Set Day | 0 | 1 | 31 | None | 178 | 1 | Visualisation | |
| Time - Set Hours | 0 | 0 | 23 | None | 179 | 1 | Visualisation | |
| Time - Set Minutes | 0 | 0 | 59 | None | 180 | 1 | Visualisation | |
| Time - Set Seconds | 0 | 0 | 59 | None | 181 | 1 | Visualisation | |
| Weekly Schedule | 127 | 0 | 127 | None | 200 | 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 | 328 | 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. |

Modbus Chiller Network Variable Outputs

Modbus Object Type: Input Registers

| Name | Units | Modbus Reg # | Mult | Modbus Notes |
|--------------------------------------|-------|--------------|------|--|
| Supply Water Temperature | deg C | 1 | 100 | |
| Outside Air Temperature | deg C | 2 | 100 | |
| Return Water Temperature | deg C | 3 | 100 | |
| Entering Condenser Water Temp (ECWT) | deg C | 4 | 100 | |
| Leaving Condenser Water Temp (LCWT) | deg C | 5 | 100 | |
| Supply Water Target Temperature | deg C | 6 | 100 | |
| Occupancy | None | 7 | 1 | |
| Pump DO1 Call | None | 8 | 1 | |
| Pump DO2 Call | None | 9 | 1 | |
| Pump DO1 Proof | None | 10 | 1 | |
| Pump DO2 Proof | None | 11 | 1 | |
| Chiller Stage DO3 Call | None | 12 | 1 | |
| Chiller Stage DO4 Call | None | 13 | 1 | |
| Chiller Stage (DO5 / AO) Call | None | 14 | 1 | DO5 on M2000, AO on C1000 |
| Chiller Stage AO3 Call | None | 15 | 1 | M2000 Only |
| VFD AO1 Value | volts | 16 | 1 | M2000 Only |
| VFD AO2 Value | volts | 17 | 1 | M2000 Only |
| Water Pressure | PSI | 18 | 10 | M2000 Only |
| Alarm Contact State | None | 19 | 1 | M2000 Only: 0=NO ALARM (open contact) / 1=ALARM (closed contact) |
| Pump Status | None | 20 | 1 | 0=OK / 1=LEAD FAIL / 2=BOTH FAIL |
| Lockout Mode | None | 21 | 1 | 0=OK / 1=LOCKOUT MODE ACTIVE |
| ECWT High Limit Triggered | None | 22 | 1 | 0=NO / 1= YES |

| | | | | |
|----------------------------|------|----|---|---|
| LCWT High Limit Triggered | None | 23 | 1 | 0=NO / 1= YES |
| Lead Pump is DO1 | None | 24 | 1 | 0=NO / 1= YES |
| Lead Chill ID | None | 25 | 1 | 0=DO3 / 1=DO4 / 2=DO5(AO for C1000) / 3=AO3 |
| Lead Pump Total Minutes | min | 30 | 1 | |
| Lead Pump OFF Minutes | min | 31 | 1 | The amount of time the lead pump has been OFF |
| DO1 Total Days | days | 32 | 1 | |
| DO1 Total Minutes | min | 33 | 1 | |
| DO2 Total Days | days | 34 | 1 | |
| DO2 Total Minutes | min | 35 | 1 | |
| Lead Chiller Total Minutes | min | 36 | 1 | |
| DO3 Total Days | days | 37 | 1 | |
| DO3 Total Minutes | min | 38 | 1 | |
| DO4 Total Days | days | 39 | 1 | |
| DO4 Total Minutes | min | 40 | 1 | |
| DO5 Total Days | days | 41 | 1 | DO5 on M2000, AO on C1000 |
| DO5 Total Minutes | min | 42 | 1 | DO5 on M2000, AO on C1000 |
| AO3 Total Days | days | 43 | 1 | |
| AO3 Total Minutes | min | 44 | 1 | |

Modbus
Chiller 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. |