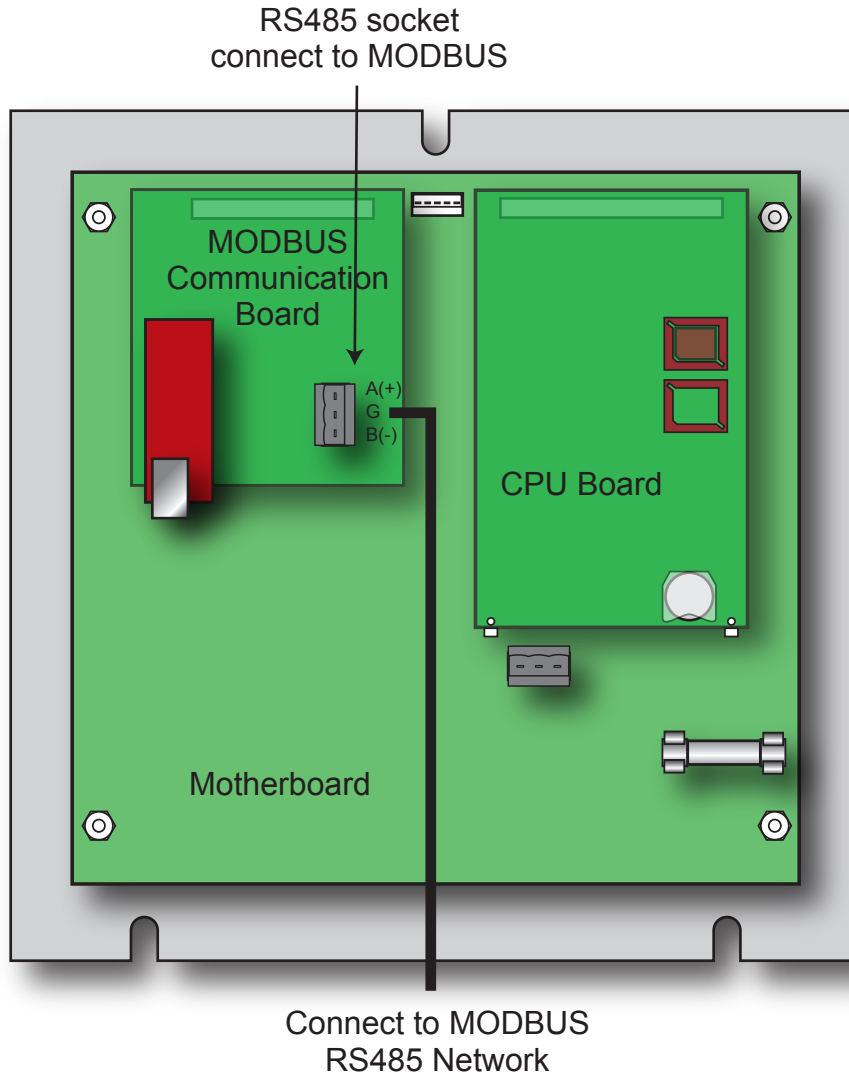


# Installation and Operation Manual

## Installation or Upgrading Platinum Control to MODBUS

# MODBUS RTU (RS485)

### PLATINUM CONTROL REAR VIEW



#### **⚠ WARNING**

This Heat-Timer control is strictly an operating control; it should never be used as a primary limit or safety control. All equipment must have its own certified limit and safety controls required by local codes. The installer must verify proper operation and correct any safety problems prior to the installation of this Heat-Timer control.

# CONTENT

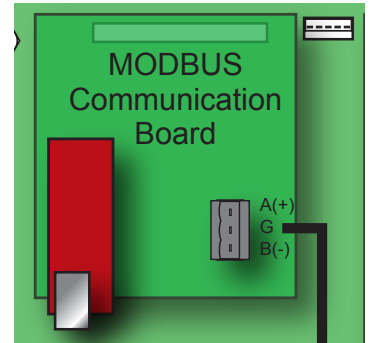
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# MODBUS TYPE

- Heat-Timer Platinum controls can be ordered with or upgraded to MODBUS communication.
- The Platinum MODBUS communication uses RTU protocol and RS485 wiring.
- When upgrading a standard Platinum control to MODBUS communication, the CPU Board on the back of the Platinum control must be replaced. In addition, the MODBUS Communication Board must be installed. See "Platinum Control Rear View" on page 1.

# MODBUS RS485 WIRING

- Heat-Timer Platinum control MODBUS communication uses a RS485 connection.
- Connect the RS485 to the back of the Platinum control's MODBUS Communication Board.
- Use 18 AWG Twisted-Pair cable. The cable length must not exceed 3500 feet.
- The Ground RS485 terminal (G) MUST be connected to the BMS RS485 Ground.



**⚠ ALERT**

DO NOT USE the RS485 Connector on the Motherboard for MODBUS communication.  
Use the RS485 Connector on the MODBUS Communication Board instead.

# MODBUS RTU COMMUNICATION CONFIGURATION

- If the Platinum control was purchased with or upgraded to a MODBUS communication, some of the following settings must be configured to guarantee proper communication.



## MODBUS COMMUNICATION OPTIONS

*SELECT: MENU/<Maintenance>/Network Settings*

*SELECT: MENU/<Settings>/<More Settings>/<Remote Interface>/Network Settings*

- Before connecting the Platinum control to the MODBUS network, the user must set the following parameters according to the MODBUS Network Administrator's instructions.

**Multi-MOD Platinum  
All Other Platinum Controls**

## MAC ADDRESS

*Options: From 1 to 247*

**Default: 1**

- This is a unique ID within the MODBUS network. It must be provided by the MODBUS Network Administrator.

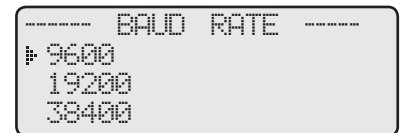


## BAUD

*Options: 9600, 19200, 38400*

**Default: 9600**

- The Baud determines the speed of communication.
- Both the Platinum control and BMS must use the same Baud rate.
- The communication is fixed to 8 Data Bits, No Parity, and 2 Stop Bits.



**⚠ ALERT**

MODBUS capable Platinum controls will display --NETWORK PANEL-- on the 2nd row of the display when in screen saver mode.

# TROUBLESHOOTING

### If no communication is the symptom, check the following:

- Make sure that RS485 A(+) and B(-) terminals polarity is correct. Otherwise, there will be no communication.
- Both devices must have the same Baud rate. Successful communication depends on matching the Baud rate of both devices.
- Check that the RS485 G terminal is connected properly.

### If intermittent communication is the symptom, check the following:

- Make sure that the communication cable is of the twisted-pair type.
- Reliable communication depends on the cable length and Baud rate used. Long cable length may require a lower Baud rate.

# HWR PLATINUM MODBUS VARIABLE LIST

| HWR REG / VARIABLE# | DESCRIPTION         | MULT <sup>†1</sup><br>(if not 1) | UOM                 | RANGE / STATES / SPECIAL VALUES  | READ ONLY |
|---------------------|---------------------|----------------------------------|---------------------|--|-----------|
| 1 – 3               | Model               |                                  |                     | 6 Character string <sup>†3</sup>   | X         |
| 4 – 13              | Serial Number       |                                  |                     | 20 Character string <sup>†3</sup>  | X         |
| 14                  | Firmware Version    | 100                              |                     |  | X         |
| 15                  | Burner Differential |                                  | °C, °F              | 0 - 8°C, 0 - 15°F  |           |
| 16                  | Boost Offset        |                                  | °C, °F              | 0 - 33°C, 0 - 60°F   |           |
| 17                  | Boost Mode          |                                  |                     | 0=Off, 1=Vari Boost, 2=Vari-Boost + ESD  |           |
| 18,19               | Bypass Time(4)      |                                  | Minutes             | 0 - 2,147,483,647 <sup>†4</sup>  | X         |
| 20                  | Burner              |                                  |                     | 0=Off, 1=On  | X         |
| 21                  | Bypass Mode         |                                  |                     | 0=Auto, 1=Valve Close, 2=Valve Open / Bypass                                   |           |
| 22                  | Outdoor Cutoff      |                                  | °C, °F              | 0 - 25°C, 30 - 75°F  |           |
| 23                  | DHW Call Mode       |                                  |                     | 0=No Priority, 1= Priority   |           |
| 24                  | Day Light Saving    |                                  |                     | 0=Enable, 1=Disable  |           |
| 25                  | Sensor Fault Mode   |                                  |                     | 0=Output On, 1=Output Off  |           |
| 26                  | Fast Cool Down      |                                  |                     | 0=Minimum Water Temp, 1=Off  |           |
| 27                  | Sensor Type         |                                  |                     | 0=°F, 1=°C   |           |
| 28                  | Minimum Water Temp  |                                  | °C, °F              | 21 - 71°C, 70 - 170°F  |           |
| 29                  | Outdoor Sensor      |                                  | °C, °F              | -40 - +122°C, -40 - +250°F<br>(32000 =Open, 32001=Shorted) <sup>†2</sup>       | X         |
| 30                  | Outdoor Sensor Trim |                                  | °C, °F              | -3 - +3°C, -5 - +5°F   |           |
| 31                  | Offset Temperature  |                                  | °C, °F              | -22 - +22°C, -40 - +40°F   |           |
| 32                  | Output Mode         |                                  |                     | 0=Burner, 1=Motorized Valve  |           |
| 33                  | Panel Date          |                                  | Days since 1/1/1981 | 0 - 36500  |           |
| 34                  | Pump Run-On         |                                  | Minutes             | 0 - 60   |           |
| 35                  | Panel Time          |                                  | Minutes since 0:00  | 0 - 1439, 1440=not set   |           |
| 36                  | Pump                |                                  |                     | 0=Off, 1=On  | X         |
| 37                  | Reset Ratio         |                                  |                     | 0=1:3, 1=1:2, 2=1:1.5, 3=1:1.25, 4=1:1, 5=1.25:1, 6=1.5:1, 7=2:1, 8=3:1, 9=4:1 |           |
| 38 through 93       | Day/Night Schedules |                                  | Minutes since 0:00  | 0 - 1439, 1440=empty schedule  |           |
| 94                  | Season              |                                  |                     | 0=Winter, 1=Summer   |           |
| 95                  | Night Setback Temp  |                                  | °C, °F              | -44 - 0°C, -80 - 0°F   |           |
| 96                  | Day Night Shift     |                                  |                     | 0=ToDay, 1=ToNight, 2=ExtendDay, 3= Resync                                     |           |
| 97                  | System Sensor       |                                  | °C, °F              | -40 - +122°C, -40 - +250°F<br>(32000=Open, 32001=Shorted) <sup>†2</sup>        | X         |
| 98                  | System Sensor Trim  |                                  | °C, °F              | -3 - +3°C, -5 - +5°F   |           |
| 99                  | Calculated Target   |                                  | °C, °F              | 0 - 116°C, 0 - 240°F   | X         |
| 100                 | Motorized Valve     |                                  |                     | 0=Inactive, 1=Closing, 2=Opening   | X         |
| 101                 | Max Target Temp     |                                  | °C, °F              | 32 - 116°C, 90 - 240°F   |           |

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## HWR Platinum Notes

- ◆1 If specified, divide a read value by this to obtain the actual value – Multiply desired value by this before writing.
- ◆2 For variables that specify them, if a read value is a special value (32000 - 32005), do not divide by 'MULT'.
- ◆3 Strings are packed 2 characters per register, most significant byte first.
- ◆4 Multi-register values are stored **big endian** (first register x 65536 + second register = value).

**Note:** All variables are stored as 'Holding Registers'. MODBUS functions :

- 'Read Holding Registers' (function code 3),
- 'Write Single Register' (function code 6),
- and 'Write Multiple Registers' (function code 16) are supported.

**Note:** All variables with multiple UOM's depend upon the value of 'Input Mode' to determine which to use.

**Note:** Use 'Burner Differential' and 'Burner' when 'Output Mode' is set to Burner.  
Use 'Valve' when 'Output Mode' is set to Motorized Valve.

**Note:** Use 'Boost' when 'Boost Mode' is set to Vari Boost or Vari Boost + ESD.

**Note:** The HWR Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Register 38 is the first DAY schedule of Monday; Register 39 is the first NIGHT schedule of Monday; Register 46 is the first DAY schedule of Tuesday; Register 47 is the first NIGHT schedule of Tuesday and so on.

**Note:** Use HWR Platinum Installation and Operation manual for supplementary information.

# HWRQ PLATINUM MODBUS VARIABLE LIST

| HWRQ REG / VARIABLE# | DESCRIPTION  | MULT *1<br>(if not 1) | UOM  | RANGE / STATES / SPECIAL VALUES  | READ ONLY |
|----------------------|--|-----------------------|--|--|-----------|
| 1 – 3                | Model  |                       |  | 6 Character string *3  | X         |
| 4 – 13               | Serial Number  |                       |  | 20 Character string *3   | X         |
| 14                   | Firmware Version   | 100                   |  |  | X         |
| 15                   | Boost Offset   |                       | °C, °F   | 0 - 33°C, 0 - 60°F   |           |
| 16                   | Boost Mode   |                       |  | 0=Off, 1=Vari Boost, 2=Vari Boost + ESD  |           |
| 17,18                | Bypass Time  |                       | Minutes  | 0 - 2,147,483,647 *4   | X         |
| 19 through 50        | Boiler Status  |                       | (BTYPE=0)®<br>(BTYPE=1)®<br>(BTYPE=2)®<br>(BTYPE=3)® | 0=Off, 1=On<br>0=Off, 1=Low, 2=High<br>0=Off, 1=Low, 2=Med, 3=High,<br>0=Off, 1=Low, 2=MLow, 3=Mhigh, 4=High | X         |
| 51                   | Boiler Type. See "HWRQ Platinum Boiler Type Table" on page 7 |                       |  | 0=On/Off, 1=2-Stage, 2=3-Stage, 3=4-Stage  |           |
| 52                   | Bypass Mode  |                       |  | 0=Auto, 1=Bypass   |           |
| 53 through 84        | Extension Panel Stage Communication Error                    |                       |  | 0="", 1=C/E  | X         |
| 85                   | Control Mode   |                       |  | 0=Reset, 1=Set Point   |           |
| 86                   | Outdoor Cut-off  |                       | °C, °F   | 0 - 25°C, 30 - 75°F  |           |
| 87                   | DHW Call Mode  |                       |  | 0=No Priority, 1= Priority   |           |
| 88                   | Day Light Saving   |                       |  | 0=Enable, 1=Disable  |           |
| 89                   | Sensor Fault Mode  |                       |  | 0=Stages On, 1=Stages Off  |           |
| 90                   | Fast Cool Down   |                       |  | 0=Minimum Target Temp, 1=Off   |           |
| 91                   | Sensor Type  |                       |  | 0=°F Sensor, 1=°C Sensor   |           |
| 92                   | Lead Boiler  |                       |  | See "HWRQ Platinum Boiler Type Table" on page 7  |           |
| 93 through 124       | Lockout Input  |                       |  | 0=(inactive), 1=L/O  | X         |
| 125                  | Logic Mode   |                       |  | 0=PID, 1=OSS   |           |
| 126                  | Last Stage Hold  |                       | °C, °F   | 0 -17°C, 0 - 30°F  |           |
| 127                  | Min Runtime  |                       | Minutes  | 1-60   |           |
| 128                  | Min Water Temp   |                       | °C, °F   | 21 - 77°C, 70 - 170°F  |           |
| 129 through 160      | Boiler Mode  |                       |  | 0=Auto, 1=Standby, 2=Off, 3=On   |           |
| 161                  | Total Boilers  |                       |  | 1 – 32 / (BTYPE+1)   |           |
| 162                  | Outdoor Sensor   |                       | °C, °F   | -40 – 121°C, -40 - +250°F<br>(32000=Open, 32001=Shorted)*2   | X         |
| 163                  | Outdoor Sensor Trim  |                       | °C, °F   | -3 - +3°C, -5 - +5°F   |           |
| 164                  | Offset Temp  |                       | °C, °F   | -22 - +22°C, -40 - +40°F   |           |
| 165                  | Panel Date   |                       | Days since 1/1/1981                                  | 0 – 36500  |           |
| 166                  | Pump Run-On  |                       | Minutes  | 0 - 60   |           |
| 167                  | Panel Time   |                       | Minutes since 0:00                                   | 0 – 1439, 1440=not set   |           |
| 168                  | Pump   |                       |  | 0=Off, 1=On  | X         |
| 169                  | Purge Delay  |                       | Minutes  | 0-10   |           |
| 170                  | Reset Ratio  |                       |  | 0=1:3, 1=1:2, 2=1:1.5, 3=1:1.25, 4=1:1, 5=1.25:1, 6=1.5:1, 7=2:1, 8=3:1, 9=4:1                               |           |
| 171                  | Reaction Time  |                       | Minutes  | 1 - 10   |           |

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| HWRQ REG / VARIABLE# | DESCRIPTION                | MULT <sup>†1</sup> (if not 1) | UOM                | RANGE / STATES / SPECIAL VALUES                                     | READ ONLY |
|----------------------|----------------------------|-------------------------------|--------------------|---|-----------|
| 172                  | Lead Stage Rotation Mode   |                               |                    | 0=Time, 1=Manual, 2=FOFO (No FOFO for 'Logic Mode'=OSS)             |           |
| 173                  | Periodic Rotation Interval |                               | Hours              | 1 - 999   |           |
| 174 through 229      | Day/Night Schedules        |                               | Minutes since 0:00 | 0 – 1439, 1440=not set  |           |
| 230                  | Season                     |                               |                    | 0=Winter, 1=Summer  |           |
| 231                  | Sequence                   |                               |                    | 0=Lo/Hi/Lo/Hi, 1=Lo/Lo/Hi/Hi  |           |
| 232                  | Night Setback Temp         |                               | °C, °F             | -44 - 0°C, -80 – 0°F  |           |
| 233                  | Set point                  |                               | °C, °F             | 21 - 116°C, 70 - 240°F,   |           |
| 234                  | Day Night Shift            |                               |                    | 0=To-Day, 1= To-Night, 3=To-Schedule, 2=Extend-Day,                 |           |
| 235                  | Standby Delay              |                               | Minutes            | 1 - 60  |           |
| 236                  | System Sensor              |                               | °C, °F             | -40 – 121°C, -40 - +250°F (32000=Open, 32001=Shorted) <sup>†2</sup> | X         |
| 237                  | System Sensor Trim         |                               | °C, °F             | -3 - +3°C, -5 - +5°F  |           |
| 238                  | Calculated Target          |                               | °C, °F             | 0 - 116°C, 0 – 240°F (32003 - Off) <sup>†2</sup>                    | X         |
| 239                  | 'Throttle Range' Range     |                               | °C, °F             | 1 – 11°C, 2 - 20°F  |           |
| 240                  | Max Target Temp            |                               | °C, °F             | 32 – 116°C, 90 – 240°F  |           |

### HWRQ Platinum Boiler Type Table

| Boiler Type | LEAD – Special value (Up to Total Boilers – 1)                           |
|-------------|--|
| 0           | 0 – 31 ► 'A', 'B', 'C', ..., 'X', 'Y', 'Z', 'a', 'b', 'c', 'd', 'e', 'f' |
| 1           | 0 – 15 ► 'AB', 'CD', 'EF', ..., 'WX', 'YZ', 'ab', 'cd', 'ef'             |
| 2           | 0 – 9 ► 'ABC', 'DEF', 'GHI', ..., 'STU', 'VWX', 'abc', 'def'             |
| 3           | 0 – 7 ► 'ABCD', 'EFGH', 'IJKL', 'MNOP', 'QRST', 'UVWX', 'abcd', 'efgh'   |

### HWRQ Platinum Notes

- ♦1 If specified, divide a read value by this to obtain the actual value – Multiply desired value by this before writing.
- ♦2 For variables that specify them, if a read value is a special value (32000 - 32005), do not divide by 'MULT'.
- ♦3 Strings are packed 2 characters per register, most significant byte first.
- ♦4 Multi-register values are stored **big endian** (first register x 65536 + second register = value).

**Note:** All variables are stored as 'Holding Registers'. MODBUS functions :

- 'Read Holding Registers' (function code 3),
- 'Write Single Register' (function code 6),
- and 'Write Multiple Registers' (function code 16) are supported.

**Note:** All variables with multiple UOM's depend upon the value of 'Input Mode' to determine which to use.

**Note:** Use 'Burner Differential' and 'Burner' when 'Output Mode' is set to Burner.  
Use 'Valve' when 'Output Mode' is set to Motorized Valve.

**Note:** Use 'Boost' when 'Boost Mode' is set to Vari Boost or Vari Boost + ESD.

**Note:** 'Boiler Status' range changes with 'Boiler Type'. For example: when 'Boiler Type' is set to 0, 'Boiler Status' range is 0 to 1; when 'Boiler Type' is set to 1, 'Boiler Status' range is 0 to 2

**Note:** Use 'Last Stage Hold', 'Min Runtime', 'Offset', 'Purge', 'Reset Ratio', 'Reaction Time', 'Standby Delay' when 'Logic Mode' is set to 0.

**Note:** Use 'Reaction Time' when 'Lead Stage Rotation Mode' is set to 0.

**Note:** Use 'Throttle Range' when 'Logic Mode' is set to 1.

**Note:** Use 'Max Target' when 'Control Mode' is set to 0.

**Note:** The HWRQ Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Register 38 is the first DAY schedule of Monday; Register 39 is the first NIGHT schedule of Monday; Register 46 is the first DAY schedule of Tuesday; Register 47 is the first NIGHT schedule of Tuesday and so on.

**Note:** Use HWRQ Platinum Installation and Operation manual for supplementary information.

# MULTI-MOD PLATINUM MODBUS VARIABLE LIST

| Multi-MOD REG / VARIABLE#  | DESCRIPTION   | MULT *1 (if not 1) | UOM                       | RANGE / STATES / SPECIAL VALUES   | READ ONLY |
|----------------------------|---|--------------------|---------------------------|---|-----------|
| 1 – 3                      | Model   |                    |                           | 6 Character string *3   | X         |
| 4 – 13                     | Serial Number   |                    |                           | 20 Character string *3  | X         |
| 14                         | Firmware Version  | 100                |                           |   | X         |
| (15-16) through (53-54) *4 | Stage Run-Time *4 (Stages 1-20) (Two registers per stage) |                    | Minutes                   | 0 - 2,147,483,647 *4  | X         |
| 55                         | Outdoor Cutoff Temp                                       |                    | °C, °F                    | -6 - 38°C (-7=OFF, 39=ON)<br>20 - 100°F (19=OFF, 101=ON)  |           |
| 56 through 75              | Ignition Level(Stages 1-20)                               |                    | %                         | 1 - 50  |           |
| 76                         | Modulation Gain   | 20                 | none                      | -10 - +10 (non process),<br>1.0 - 10.0 (process temp),<br>0.25 - 20.0(process psi)                    |           |
| 77                         | Heat/Cool Mode  |                    |                           | 0=heat, 1=cool  |           |
| 78                         | High Fire Hold  |                    | Minutes                   | 0 - 60  |           |
| 79                         | Input Mode  |                    |                           | 0=°F, 1=°C,<br>2=15psi, 3=30psi, 4=100psi,<br>5=200psi, 6=300psi,<br>7=HWR,<br>8=Reset °F, 9=Reset °C | X         |
| 80                         | Lead Stage  |                    |                           | 0 - 19 = A - T  |           |
| 81                         | Pre-purge Delay   | 10                 | Minutes                   | 0.0 - 10.0  |           |
| 82 through 101             | Lockout Input(Stages 1-20)                                |                    |                           | 0=(inactive),<br>1=Lockout,<br>2=Comm Error   | X         |
| 102                        | Last Stage Hold   | 10                 | Psi,<br>Psi,<br>°C,<br>°F | 0 - 3.0psi<br>0 - 30psi,<br>°C,<br>°F   |           |
| 103 through 122            | Manual Modulation Level(Stages 1-20)                      |                    | %                         | 0 - 100   |           |
| 123                        | Maximum Stages  |                    | none                      | 4 - 20  | X         |
| 124                        | Minimum Target  |                    | °C,<br>°F                 | 21 - 68°C,<br>70 - 180°F  |           |
| 125 through 144            | Stage Mode(Stages 1-20)                                   |                    |                           | 0=Auto, 1=Standby, 2=Manual,<br>3=Off, 4=On   |           |
| 145 through 164            | Modulation Start Point(Stages 1-20)                       |                    | %                         | 0 - 99  |           |
| 165 through 184            | Modulation Output Trim(Stages 1-20)                       | 10                 | none                      | -1.0 - +1.0   |           |
| 185                        | Outdoor Sensor  |                    | °C,<br>°F                 | -40 - +122°C, -40 - +250°F<br>(32000=Open, 32001=Shorted)*2   | X         |
| 186                        | Outdoor Sensor Trim                                       |                    | °C, °F                    | -5 - +5   |           |
| 187                        | Offset Temp   |                    | °C,<br>°F                 | -28 - +28°C,<br>-50 - +50°F   |           |
| 188                        | Panel Date  |                    | Days since<br>1/1/1981    | 0 – 36,500  |           |
| 189                        | Panel Time  |                    | Minutes<br>since 0:00     | 0 – 1439<br>(1440='not set')  |           |

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| Multi-MOD REG / VARIABLE# | DESCRIPTION                   | MULT <sup>♦1</sup> (if not 1) | UOM                       | RANGE / STATES / SPECIAL VALUES   | READ ONLY |
|---------------------------|-------------------------------|-------------------------------|---------------------------|---|-----------|
| 190                       | Reset Ratio                   |                               |                           | 0=1:4, 1=1:3, 2=1:2, 3=1:1.5, 4=1:1.25, 5=1:1, 6=1.25:1, 7=1.5:1, 8=2:1, 9=3:1, 10=4:1  |           |
| 191                       | Lead Stage Rotation Mode      |                               |                           | 0=Manual, 1=Time, 2=Last-On   |           |
| 192                       | Periodic Rotation Interval    |                               | Hours                     | 1 - 999   |           |
| 193                       | Setback                       | 10                            | Psi,<br>Psi,<br>°C,<br>°F | 0 - 7.5psi<br>0 - 75psi,<br>°C,<br>°F   |           |
| 194                       | Set point                     | 10                            | Psi,<br>Psi,<br>°C,<br>°F | 0.0-15.0psi, 0.0-30.0psi<br>0-100psi,<br>-40 to +122°C,<br>-40 to +250°F  |           |
| 195                       | System Run-on                 |                               | Minutes                   | 0 to 360  |           |
| 196                       | Standby Delay                 |                               | Minutes                   | 1 - 60  |           |
| 197 through 216           | Stage Relay(Stages 1-20)      |                               |                           | 0=Off, 1=On   | X         |
| 217 through 236           | Modulation Level(Stages 1-20) |                               | %                         | 0 to 100  | X         |
| 237                       | System Relay                  |                               |                           | 0=Off, 1=On   | X         |
| 238                       | System Sensor                 | 10                            | Psi,<br>Psi,<br>°C,<br>°F | 0.0 to 15.0psi,<br>0.0 to 30.0psi, 0 - 100psi,<br>-40 - +122°C,<br>-40 - +250°F<br>(32000 =Open, 32001=Shorted) <sup>♦2</sup> | X         |
| 239                       | Calculated Target             |                               | °C, °F                    | 21 - 122°C, 70 - 250°F  | X         |

### Multi-MOD Platinum Notes

- ♦1 If specified, divide a read value by this to obtain the actual value – Multiply desired value by this before writing.
- ♦2 For variables that specify them, if a read value is a special value (32000 - 32005), do not divide by 'MULT'.
- ♦3 Strings are packed 2 characters per register, most significant byte first.
- ♦4 Multi-register values are stored **big endian** (first register x 65536 + second register = value).

**Note:** All variables are stored as 'Holding Registers'. MODBUS functions

- 'Read Holding Registers' (function code 3),
- 'Write Single Register' (function code 6),
- and 'Write Multiple Registers' (function code 16) are supported.

**Note:** All variables with multiple UOM's depend upon the value of 'Input Mode' to determine which to use. Objects with only °F/°C UOM's default to °F when 'Input Mode' is not temperature.

**Note:** 'Offset Temp', 'Reset Ratio' and 'Calculated Target' are not used unless 'Input Mode' is set to 'Reset °F' or 'Reset °C'.

**Note:** When writing to the 'Manual Modulation Level' of a stage, the 'Stage Mode' of that stage will change to 'Manual'.

**Note:** Use the Multi-Mod Platinum Installation and Operation manual for supplementary information.

# MPC PLATINUM MODBUS VARIABLE LIST

| MPC REG / VARIABLE# | DESCRIPTION            | MULT <sup>♦1</sup><br>(if not 1) | UOM                    | RANGE / STATES / SPECIAL VALUES  | READ ONLY |
|---------------------|------------------------|----------------------------------|------------------------|--|-----------|
| 1 – 3               | Model                  |                                  |                        | 6 Character string <sup>♦3</sup>                                       | X         |
| 4 – 13              | Serial Number          |                                  |                        | 20 Character string <sup>♦3</sup>                                      | X         |
| 14                  | Firmware Version       | 100                              |                        |  | X         |
| 15                  | Vari-Boost Adjustment  | 10                               | none                   | 0.1 – 6.4  |           |
| 16                  | Boost Mode             |                                  |                        | 0=Disabled, 1=Manual, 2=Vari, 3=Vari+ESD                               |           |
| 17                  | Manual Boost Time      |                                  | Minutes                | 0 – 120  |           |
| 18,19               | Bypass Time            |                                  | Minutes                | 0 – 2,147,483,647 <sup>♦4</sup>  | X         |
| 20                  | Bypass Mode            |                                  |                        | 0=AUTO, 1=ON   |           |
| 21                  | Cycle Length           |                                  | Minutes                | 10 – 240   |           |
| 22                  | Day Heat Adjustment    |                                  |                        | 0 – 15 = A – P   |           |
| 23                  | Outdoor Day Cutoff     |                                  | °C, °F                 | -6 – 38°C, 20 – 100°F  |           |
| 24                  | Day Light Saving       |                                  |                        | 0=Enable, 1=Disable  |           |
| 25                  | Sensor Fault Mode      |                                  |                        | 0=OutputOn, 1=OutputOff  |           |
| 26                  | System Differential    |                                  | °C, °F                 | 2 – 42°C, 3 – 75°F   |           |
| 27                  | Sensor Mode            |                                  |                        | 0=°F, 1=°C   |           |
| 28                  | Night Heat Adjustment  |                                  |                        | 0 – 15 = A – P   |           |
| 29                  | Outdoor Night Cutoff   |                                  | °C, °F                 | -6 – 38°C, 20 – 100°F  |           |
| 30                  | Outdoor Sensor         |                                  | °C, °F                 | -40 – 122°C, -40 – +250°F<br>(32000=Open, 32001=Shorted) <sup>♦2</sup> | X         |
| 31                  | Outdoor Sensor Trim    |                                  | °C, °F                 | -3 – +3°C, -5 – +5°F   |           |
| 32                  | Operation Mode         |                                  |                        | 0=Burner/valve, 1=District Steam                                       |           |
| 33                  | Output Relay           |                                  |                        | 0=Off, 1=On  | X         |
| 34                  | Panel Date             |                                  | Days since<br>1/1/1981 | 0 – 36500  |           |
| 35                  | Panel Time             |                                  | Minutes<br>since 0:00  | 0 – 1439, 1440=not set   |           |
| 36 through 91       | Day/Night Schedules    |                                  | Minutes<br>since 0:00  | 0 – 1439, 1440=not set   |           |
| 92                  | Season                 |                                  |                        | 0=Winter, 1=Summer   |           |
| 93                  | Day/Night Shift        |                                  |                        | 0=To-Day, 1=To-Night, 2=Extend-Day, 3=To-Schedule                      |           |
| 94                  | System Run-on          |                                  | Minutes                | 0 – 60   |           |
| 95                  | System Sensor          |                                  | °C, °F                 | -40 – 122°C, -40 – +250°F<br>(32000=Open, 32001=Shorted) <sup>♦2</sup> | X         |
| 96                  | System Relay           |                                  |                        | 0=Off, 1=On  | X         |
| 97                  | System Sensor Trim     |                                  | °C, °F                 | -3 – +3°C, -5 – +5°F   |           |
| 98                  | Thermal Lockout Enable |                                  |                        | 0=OFF, 1=ON  |           |
| 99                  | District Steam Delay   |                                  | Minutes                | 0 – 30   |           |
| 100                 | System Setpoint        |                                  | °C, °F                 | 21 – 122°C, 70 – 250°F   |           |

## MPC Platinum Notes

- ♦1 If specified, divide a read value by this to obtain the actual value – Multiply desired value by this before writing.
- ♦2 For variables that specify them, if a read value is a special value (32000 - 32005), do not divide by 'MULT'.
- ♦3 Strings are packed 2 characters per register, most significant byte first.
- ♦4 Multi-register values are stored **big endian** (first register x 65536 + second register = value).

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**Note:** All variables are stored as 'Holding Registers'. MODBUS functions :

- 'Read Holding Registers' (function code 3),
- 'Write Single Register' (function code 6),
- and 'Write Multiple Registers' (function code 16) are supported.

**Note:** All variables with multiple UOM's depend upon the value of 'Input Mode' to determine which to use.

**Note:** Use 'District Steam Delay' when 'Operating Mode' is set to District Steam. Use 'System Setpoint', 'System Differential' and 'Thermal Lockout Enable' when 'Operation Mode' is set to Burner/valve.

**Note:** Use 'Vari-Boost Adjustment' when 'Boost Mode' is set to Vari-Day or Vari+ESD. Use 'Manual Boost Time' when 'Vari-Boost Adjustment' is set to Manual Boost.

**Note:** The MPC Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Register 38 is the first DAY schedule of Monday; Register 39 is the first NIGHT schedule of Monday; Register 46 is the first DAY schedule of Tuesday; Register 47 is the first NIGHT schedule of Tuesday and so on.

**Note:** Use MPC Platinum Installation and Operation manual for supplementary information.

## MPCQ PLATINUM MODBUS VARIABLE LIST

| MPCQ REG / VARIABLE# | DESCRIPTION  | MULT *1 (if not 1) | UOM  | RANGE / STATES / SPECIAL VALUES   | READ ONLY |
|----------------------|--|--------------------|--|---|-----------|
| 1 – 3                | Model  |                    |  | 6 Character string *3   | X         |
| 4 – 13               | Serial Number  |                    |  | 20 Character string *3  | X         |
| 14                   | Firmware Version   | 100                |  |   | X         |
| 15                   | Vari-Boost Adjustment  | 10                 |  | 0.1 – 6.4   |           |
| 16                   | Boost Mode   |                    |  | 0=Disabled, 1=Manual, 2=Vari, 3=Vari+ESD  |           |
| 17                   | Manual Boost Time  |                    | Minutes  | 0 – 120   |           |
| 18,19                | Bypass Time  |                    | Minutes  | 0 – 2,147,483,647 *4  | X         |
| 20 through 51        | Boiler Status  |                    | (BTYP=0)®<br>(BTYP=1)®<br>(BTYP=2)®<br>(BTYP=3)® | 0=Off, 1=On0=Off, 1=Low, 2=High, 0=Off, 1=Low, 2=Med, 3=High, 0=Off, 1=Low, 2=MLow, 3=Mhigh, 4=High | X         |
| 52                   | Boiler Type See "MPCQ Platinum Boiler Type Table" on page 12 |                    |  | 0=On/Off, 1=2-Stage2=3-Stage, 3=4-Stage   |           |
| 53                   | Bypass Mode  |                    |  | 0=AUTO, 1=ON  |           |
| 54                   | Cycle Length   |                    | Minutes  | 10 – 240  |           |
| 55 through 86        | Extension Panel Stage Communication Error                    |                    |  | 0="", 1=C/E   | X         |
| 87                   | Day Heat Adjustment  |                    |  | 0 – 15 = A – P  |           |
| 88                   | Outdoor Day Cutoff   |                    | °C, °F   | -6 - 38°C, 20 - 100°F   |           |
| 89                   | Day Light Saving   |                    |  | 0=Enable, 1=Disable   |           |
| 90                   | Sensor Fault Mode  |                    |  | 0=OutputOn,1=OutputOff  |           |
| 91                   | Sensor Mode  |                    |  | 0=°F, 1=°C  |           |
| 92                   | Lead Boiler  |                    |  | See "MPCQ Platinum Boiler Type Table" on page 12  |           |
| 93 through 124       | Lockout Input  |                    |  | 0=(inactive), 1=L/O   | X         |
| 125                  | Logic Mode   |                    |  | 0-PID, 1-OSS  |           |
| 126                  | Last Stage Hold  | 10                 | psi  | 0.0 – 5.0   |           |
| 127                  | Min Runtime  |                    | Minutes  | 1 – 60  |           |
| 128 through 159      | Boiler Mode  |                    |  | 0=Auto, 1=Standby, 2=Off, 3=On  |           |
| 160                  | Total Boilers  |                    |  | 1 – 32/(BTYP+1)   |           |
| 161                  | Night Heat Adjustment  |                    |  | 0 – 15 = A – P  |           |

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| MPCQ REG / VARIABLE# | DESCRIPTION                | MULT <sup>†1</sup> (if not 1) | UOM                 | RANGE / STATES / SPECIAL VALUES  | READ ONLY |
|----------------------|----------------------------|-------------------------------|---------------------|--|-----------|
| 162                  | Outdoor Night Cutoff       |                               | °C, °F              | -6 – 38°C, 20 – 100°F  |           |
| 163                  | Outdoor Sensor             |                               | °C, °F              | -40 – 122°C, -40 – +250°F<br>(32000=Open, 32001=Shorted) <sup>†2</sup> | X         |
| 164                  | Outdoor Sensor Trim        |                               | °C, °F              | -3 – +3°C, -5 – +5°F   |           |
| 165                  | Operation Mode             |                               |                     | 0=Cycle, 1=Set Point   |           |
| 166                  | Panel Date                 |                               | Days since 1/1/1981 | 0 – 36500  |           |
| 167                  | Pressure Sensor Trim       | 10                            | psi                 | -3.0 – +3.0  |           |
| 168                  | Panel Time                 |                               | Minutes since 0:00  | 0 – 1439, 1440=not set   |           |
| 169                  | Purge Delay                | 2                             | Minutes             | 0 – 10   |           |
| 170                  | Reaction Time              |                               | Minutes             | 1 – 10   |           |
| 171                  | Lead Stage Rotation Mode   |                               |                     | 0=Time   |           |
| 172                  | Periodic Rotation Interval |                               | Hours               | 1 – 999  |           |
| 173 through 228      | Day/Night Schedules        |                               | Minutes since 0:00  | 0 – 1439, 1440=not set   |           |
| 229                  | Season                     |                               |                     | 0=Winter, 1=Summer   |           |
| 230                  | Sequence                   |                               |                     | 0=Lo/Hi/Lo/Hi1=Lo/Lo/Hi/Hi   |           |
| 231                  | Night Setback Temp         | 10                            | psi                 | -10.0 – 0.0  |           |
| 232                  | Set Point                  | 10                            | psi                 | 0.0 – 30.0   |           |
| 233                  | Day/Night Shift            |                               |                     | 0=To-Day, 1=To-Night, 2=Extend-Day,                                    |           |
| 234                  | Standby Delay              |                               | Minutes             | 1 – 60   |           |
| 235                  | System Pressure Sensor     | 10                            | psi                 | -5.0 – +35.0<br>(32000=Open,32001=Shorted) <sup>†2</sup>               | X         |
| 236                  | System Run-on              |                               | Minutes             | 0 – 60   |           |
| 237                  | System Relay               |                               |                     | 0=Off, 1=On  | X         |
| 238                  | Throttle Range             | 2                             | psi                 | 0.5 – 5.0  |           |
| 239                  | Heat Establish Pressure    | 10                            | psi                 | 0.5 – 5.0  |           |

### MPCQ Platinum Boiler Type Table

| Boiler Type | LEAD – Special value (Up to Total Boilers – 1)                           |
|-------------|--|
| 0           | 0 – 31 ► 'A', 'B', 'C', ..., 'X', 'Y', 'Z', 'a', 'b', 'c', 'd', 'e', 'f' |
| 1           | 0 – 15 ► 'AB', 'CD', 'EF', ..., 'WX', 'YZ', 'ab', 'cd', 'ef'             |
| 2           | 0 – 9 ► 'ABC', 'DEF', 'GHI', ..., 'STU', 'VWX', 'abc', 'def'             |
| 3           | 0 – 7 ► 'ABCD', 'EFGH', 'IJKL', 'MNOP', 'QRST', 'UVWX', 'abcd', 'efgh'   |

### MPCQ Platinum Notes

- ◆1 If specified, divide a read value by this to obtain the actual value – Multiply desired value by this before writing.
- ◆2 For variables that specify them, if a read value is a special value (32000 - 32005), do not divide by 'MULT'.
- ◆3 Strings are packed 2 characters per register, most significant byte first.
- ◆4 Multi-register values are stored **big endian** (first register x 65536 + second register = value).

**Note:** All variables are stored as 'Holding Registers'. MODBUS functions :

- 'Read Holding Registers' (function code 3),
- 'Write Single Register' (function code 6),
- and 'Write Multiple Registers' (function code 16) are supported.

**Note:** All variables with multiple UOM's depend upon the value of 'Input Mode' to determine which to use.

**Note:** Use 'Burner Differential' and 'Burner' when 'Output Mode' is set to Burner.  
Use 'Valve' when 'Output Mode' is set to Motorized Valve.

- Note:** Use 'Vari-Boost Adjustment' when 'Boost Mode' is set to Vari-Day or Vari+ESD. Use 'Manual Boost Time' when 'Vari-Boost Adjustment' is set to Manual Boost.
- Note:** 'Boiler Status' range changes with 'Boiler Type'. For example: when 'Boiler Type' is set to 0, 'Boiler Status' range is 0 to 1; when 'Boiler Type' is set to 1, 'Boiler Status' range is 0 to 2
- Note:** Use 'Day Heat Adjustment', 'Fast Cycle', 'Night Heat Adjustment', and 'Heat Establish Pressure' if 'Operation Mode' is set to 0.
- Note:** Use 'Setback' if 'Operation Mode' is set to 1.
- Note:** Use 'Last Stage Hold', 'Min Runtime', 'Purge', 'Reaction Time', 'Standby Delay' when 'Logic Mode' is set to 0.
- Note:** Use 'Reaction Time' when 'Lead Stage Rotation Mode' is set to 0.
- Note:** Use 'Throttle Range' when 'Logic Mode' is set to 1.
- Note:** Use 'Max Target' when 'Control Mode' is set to 0.
- Note:** The MPCQ Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Register 38 is the first DAY schedule of Monday; Register 39 is the first NIGHT schedule of Monday; Register 46 is the first DAY schedule of Tuesday; Register 47 is the first NIGHT schedule of Tuesday and so on.
- Note:** Use MPCQ Platinum Installation and Operation manual for supplementary information.

# SRC PLATINUM MODBUS VARIABLE LIST

| SRC REG / VARIABLE# | DESCRIPTION           | MULT *1 (if not 1) | UOM                 | RANGE / STATES / SPECIAL VALUES                          | READ ONLY |
|---------------------|-----------------------|--------------------|---------------------|--|-----------|
| 1 – 3               | Model                 |                    |                     | 6 Character string *3                                    | X         |
| 4 – 13              | Serial Number         |                    |                     | 20 Character string *3                                   | X         |
| 14                  | Firmware Version      | 100                |                     |  | X         |
| 15                  | Vari-Boost Adjustment | 10                 |                     | 0.1 – 6.4  |           |
| 16                  | Boost Mode            |                    |                     | 0=BoostOff, 1=ManualBoost, 2=VariDay, 3=VariDayNight     |           |
| 17                  | Manual Boost Time     |                    | Minutes             | 0 – 120  |           |
| 18,19               | Bypass Time           |                    | Minutes             | 0 – 2,147,483,647 *4                                     | X         |
| 20                  | Burner Status         |                    |                     | 0=Off, 1=On  | X         |
| 21                  | Bypass Mode           |                    |                     | 0=Auto, 1=Manual, 2=Bypass                               |           |
| 22                  | Cycle Length          |                    | Minutes             | 10 – 240   |           |
| 23                  | Valve % at Cutoff     |                    | %                   | 0 – 100  |           |
| 24                  | Day Heat Adjustment   |                    |                     | 0 – 15 = A – P   |           |
| 25                  | Outdoor Day Cutoff    |                    | °C, °F              | -6 – 38°C, 20 – 100°F                                    |           |
| 26                  | Day Light Saving      |                    |                     | 0=Enable, 1=Disable                                      |           |
| 27                  | Sensor Fault Mode     |                    |                     | 0=OutputOn, 1=OutputOff                                  |           |
| 28                  | Valve % at Freezing   |                    | %                   | 0 - 100  |           |
| 29                  | Sensor Mode           |                    |                     | 0=°F, 1=°C   | X         |
| 30                  | Motor Time            |                    | Seconds             | 120 – 600  |           |
| 31                  | Manual Valve Target   |                    | %                   | 0 – 100  |           |
| 32                  | Night Heat Adjustment |                    |                     | 0 – 15 = A – P   |           |
| 33                  | Outdoor Night Cutoff  |                    | °C, °F              | -6 – 38°C, 20 – 100°F                                    |           |
| 34                  | Outdoor Sensor        |                    | °C, °F              | -40 – 122°C, -40 – +250°F (32000=Open, 32001=Shorted)*2  | X         |
| 35                  | Outdoor Sensor Trim   |                    | °C, °F              | -3 – +3°C, -5 – +5°F                                     |           |
| 36                  | Valve Off %           |                    | %                   | 0 – 100  |           |
| 37                  | Operation Mode        |                    |                     | 0=Burner/valve, 1=District Steam                         |           |
| 38                  | Pause Time            |                    | Seconds             | 0 – 60   |           |
| 39                  | Panel Date            |                    | Days since 1/1/1981 | 0 – 36500  |           |
| 40                  | Panel Time            |                    | Minutes since 0:00  | 0 – 1439, 1440=not set                                   |           |
| 41                  | Pulse Close Enable    |                    |                     | 0=No, 1=Yes  |           |
| 42                  | Vacuum Pump Relay     |                    |                     | 0=Off, 1=On  |           |
| 43 – 98             | Day/Night Schedules   |                    | Minutes since 0:00  | 0 – 1439, 1440=not set                                   |           |
| 99                  | Season                |                    |                     | 0=Winter, 1=Summer                                       |           |
| 100                 | Day/Night Shift       |                    |                     | 0=To-Day, 1=To-Night, 2=Extend-Day, 3=To-Schedule        |           |
| 101                 | System Sensor         |                    | °C, °F              | -40 – 122°C, -40 – +250°F (32000=Open, 32001=Shorted) *2 | X         |

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| SRC REG / VARIABLE# | DESCRIPTION           | MULT <sup>♦1</sup><br>(if not 1) | UOM     | RANGE / STATES / SPECIAL VALUES    | READ ONLY |
|---------------------|-----------------------|----------------------------------|---------|------------------------------------|-----------|
| 102                 | System Sensor Trim    |                                  | °C, °F  | -3 – +3°C, -5 – +5°F               |           |
| 103                 | Valve Position        |                                  | %       | 0 – 100                            | X         |
| 104                 | Valve Close Overdrive |                                  | Seconds | 0 – 90                             |           |
| 105                 | Valve Close Trim      |                                  | %       | 0 – 5                              |           |
| 106                 | Valve Mode            |                                  |         | 0=Positioning Sensor, 1=Time-Based |           |
| 107                 | Valve Open Trim       |                                  | %       | 0 – 5                              |           |
| 108                 | Valve Trim            |                                  | %       | 0 – 20                             |           |
| 109                 | District Steam Delay  |                                  | Minutes | 0 – 30                             |           |
| 110                 | System Setpoint       |                                  | °C, °F  | 21 – 122°C, 70 – 250°F             |           |

### SRC Platinum Notes

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**Note:** All variables are stored as 'Holding Registers'. MODBUS functions :

- 'Read Holding Registers' (function code 3),
- 'Write Single Register' (function code 6),
- and 'Write Multiple Registers' (function code 16) are supported.

**Note:** All variables with multiple UOM's depend upon the value of 'Input Mode' to determine which to use.

**Note:** Use 'District Steam Delay' when 'Operating Mode' is set to District Steam. Use 'System Setpoint', 'System Differential' and 'Thermal Lockout Enable' when 'Operation Mode' is set to Burner/valve.

**Note:** Use 'Vari-Boost Adjustment' when 'Boost Mode' is set to Vari-Day or Vari+ESD. Use 'Manual Boost Time' when 'Vari-Boost Adjustment' is set to Manual Boost.

**Note:** The SRC Platinum has a schedule, which is 7-days, 4 day/night pairs per day. For example: Register 38 is the first DAY schedule of Monday; Register 39 is the first NIGHT schedule of Monday; Register 46 is the first DAY schedule of Tuesday; Register 47 is the first NIGHT schedule of Tuesday and so on.

**Note:** Use SRC Platinum Installation and Operation manual for supplementary information.

# WARRANTY

WARRANTIES AND LIMITATIONS OF LIABILITY AND DAMAGE: Heat-Timer Corporation warrants that it will replace, or at its option, repair any Heat-Timer Corporation manufactured product or part thereof which is found to be defective in material workmanship within one year from the date of installation only if the warranty registration has been properly filled out and returned within 30 days of the date of installation. Damages to the product or part thereof due to misuse, abuse, improper installation by others or caused by power failure, power surges, fire, flood or lightning are not covered by this warranty. Any service, repairs, modifications or alterations to the product not expressly authorized by Heat-Timer Corporation will invalidate the warranty. Batteries are not included in this warranty. This warranty applies only to the original user and is not assignable or transferable. Heat-Timer Corporation shall not be responsible for any maladjustments of any control installed by Heat-Timer Corporation. It is the users responsibility to adjust the settings of the control to provide the proper amount of heat or cooling required in the premises and for proper operation of the heating or cooling system. Heat-Timer Corporation shall not be required to make any changes to any building systems, including but not limited to the heating system, boilers or electrical power system, that is required for proper operation of any controls or other equipment installed by Heat-Timer Corporation or any contractor. Third Party products and services are not covered by this Heat-Timer Corporation warranty and Heat-Timer Corporation makes no representations or warranties on behalf of such third parties. Any warranty on such products or services is from the supplier, manufacturer, or licensor of the product or service. See separate Terms and Conditions of Internet Control Management System (“ICMS”) services, including warranties and limitations of liability and damages, for ICMS services.

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