

Riello Gateway





CODE

20141213, 20141214

LMV3, LMV5, Array, Massimo, Picollo



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BURNER(S)/BOILER(S) SETUP



1 BURNER(S)/BOILER(S) SETUP

1.1 PRODUCT USAGE

CASE 1 (Array Boiler): The gateway can connect with up to 8 Array boilers...This is 1 boiler



MODULES- There are 8 modules within this one boiler

Note: Number of modules depends on the boiler model. Ex. Array 1000 has 2 modules, Array 3000 has 6 modules, etc.

<u>CASE 2 or 3 (Either LMV3 or LMV5)</u>: Within the R Series burner(s), identify the LMV controller by removing the burner cover. The gateway can connect with up to 6 burners.





1.2 FIELD DEVICE CONNECTIONS

The gateway can connect with up to 8 Array boilers.

Array 1.0 integration



*** RS232 Converter with Array 1.0 is 20147499 (1 per boiler)

*** RS232-RS485 Device on Array V1.0 is powered through the RS232 bus.

*** AL Bus for cascade control is on a separate daisy chain. Please see Array Control System manual

Array 2.0 integration



*** AL Bus for cascade control is on a separate daisy chain. Please see Array Control System manual

*** Please see job specific Riello burner drawings for linkageless LMV3, LMV5 burners

BURNER(S)/BOILER(S) SETUP



1.3 SETTING UP FIELD CONTROLLERS

1.3.1 CASE 1: SETTING UP THE ARRAY BOILER CONTROLLER(S)



<u>**** Important</u>: There is nothing the BAS technician needs to change with respect to the Modbus side of the boilers. Modbus addressing is automatically set up through the cascade

1.3.2 CASE 2: SETTING UP THE LMV3 AND RWF55 CONTROLLER(S)



> 141 - 1

> 145 - Set burner address from 1-6 (each burner must have its own unique address)

>146 - 1

>147 - 0

Conf > Intf > set the following parameters:

> Bdrt - 2

> Adr - Set RWF55 address from 11-16 (each RWF55 much have its own unique Address)

1.3.3 CASE 3: SETTING UP THE LMV5 CONTROLLER(S)

Operation > OPTG Mode Select > Modbus



Params & Display > User level > AZL > Set the following parameters:

> Parity: 0

> Baudrate: 19200

> Address: Set the burner address from 1-6 (each burner address must be unique)

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2 GATEWAY SETUP AND ELECTRICAL CONNECTIONS

2.1 GATEWAY BREAKDOWN





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2.2.1 A DIP SWITCHES - BAS SIDE MAC ADDRESS (ONLY FOR BACNET MS/TP)

| A Dipswitch | | | | | | | | | | | | | | | | | |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|----|-----|---|
| Node Address | A0 | A1 | A2 | A3 | A4 | A5 | A6 | A7 | | | | | | | | | |
| 0 | OFF | | | | | | | | | |
| 1 | ON | OFF | | | | | | | | | _ |
| 2 | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | 33 | ON | OFF | OFF | OFF | OFF | ON | OFF | 0 |
| 3 | ON | ON | OFF | OFF | OFF | OFF | OFF | OFF | 34 | OFF | ON | OFF | OFF | OFF | ON | OFF | 0 |
| 4 | OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | 35 | ON | ON | OFF | OFF | OFF | ON | OFF | 0 |
| 5 | ON | OFF | ON | OFF | OFF | OFF | OFF | OFF | 36 | OFF | OFF | ON | OFF | OFF | ON | OFF | 0 |
| 6 | OFF | ON | ON | OFF | OFF | OFF | OFF | OFF | 37 | ON | OFF | ON | OFF | OFF | ON | OFF | 0 |
| 7 | ON | ON | ON | OFF | OFF | OFF | OFF | OFF | 38 | OFF | ON | ON | OFF | OFF | ON | OFF | 0 |
| 8 | OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | 39 | ON | ON | ON | OFF | OFF | ON | OFF | 0 |
| 9 | ON | OFF | OFF | ON | OFF | OFF | OFF | OFF | 40 | OFF | OFF | OFF | ON | OFF | ON | OFF | 0 |
| 10 | OFF | ON | OFF | ON | OFF | OFF | OFF | OFF | 41 | ON | OFF | OFF | ON | OFF | ON | OFF | 0 |
| 11 | ON | ON | OFF | ON | OFF | OFF | OFF | OFF | 42 | OFF | ON | OFF | ON | OFF | ON | OFF | 0 |
| 12 | OFF | OFF | ON | ON | OFF | OFF | OFF | OFF | 43 | ON | ON | OFF | ON | OFF | ON | OFF | 0 |
| 13 | ON | OFF | ON | ON | OFF | OFF | OFF | OFF | 44 | OFF | OFF | ON | ON | OFF | ON | OFF | 0 |
| 14 | OFF | ON | ON | ON | OFF | OFF | OFF | OFF | 45 | ON | OFF | ON | ON | OFF | ON | OFF | 0 |
| 15 | ON | ON | ON | ON | OFF | OFF | OFF | OFF | 46 | OFF | ON | ON | ON | OFF | ON | OFF | 0 |
| 16 | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | 47 | ON | ON | ON | ON | OFF | ON | OFF | 0 |
| 17 | ON | OFF | OFF | OFF | ON | OFF | OFF | OFF | 48 | OFF | OFF | OFF | OFF | ON | ON | OFF | 0 |
| 18 | OFF | ON | OFF | OFF | ON | OFF | OFF | OFF | 49 | ON | OFF | OFF | OFF | ON | ON | OFF | C |
| 19 | ON | ON | OFF | OFF | ON | OFF | OFF | OFF | 50 | OFF | ON | OFF | OFF | ON | ON | OFF | 0 |
| 20 | OFF | OFF | ON | OFF | ON | OFF | OFF | OFF | 51 | ON | ON | OFF | OFF | ON | ON | OFF | C |
| 21 | ON | OFF | ON | OFF | ON | OFF | OFF | OFF | 52 | OFF | OFF | ON | OFF | ON | ON | OFF | C |
| 22 | OFF | ON | ON | OFF | ON | OFF | OFF | OFF | 53 | ON | OFF | ON | OFF | ON | ON | OFF | 0 |
| 23 | ON | ON | ON | OFF | ON | OFF | OFF | OFF | 54 | OFF | ON | ON | OFF | ON | ON | OFF | 0 |
| 24 | OFF | OFF | OFF | ON | ON | OFF | OFF | OFF | 55 | ON | ON | ON | OFF | ON | ON | OFF | 0 |
| 25 | ON | OFF | OFF | ON | ON | OFF | OFF | OFF | 56 | OFF | OFF | OFF | ON | ON | ON | OFF | 0 |
| 26 | OFF | ON | OFF | ON | ON | OFF | OFF | OFF | 57 | ON | OFF | OFF | ON | ON | ON | OFF | 0 |
| 27 | ON | ON | OFF | ON | ON | OFF | OFF | OFF | 58 | OFF | ON | OFF | ON | ON | ON | OFF | C |
| 28 | OFF | OFF | ON | ON | ON | OFF | OFF | OFF | 59 | ON | ON | OFF | ON | ON | ON | OFF | 0 |
| 29 | ON | OFF | ON | ON | ON | OFF | OFF | OFF | 60 | OFF | OFF | ON | ON | ON | ON | OFF | 0 |
| 30 | OFF | ON | ON | ON | ON | OFF | OFF | OFF | 61 | ON | OFF | ON | ON | ON | ON | OFF | 0 |
| 31 | ON | ON | ON | ON | ON | OFF | OFF | OFF | 62 | OFF | ON | ON | ON | ON | ON | OFF | 0 |
| 32 | OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | 63 | ON | ON | ON | ON | ON | ON | OFF | 0 |

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2.2.1 A DIP SWITCHES - BAS SIDE MAC ADDRESS (ONLY FOR BACNET MS/TP)

| A Dipswitch | nes · | - Set | : MA | AC A | ddre | ess f | ior E | <u>BAS</u> | | | | | | | | | |
|--------------|-------|-------|------|------|------|-------|-------|------------|-----|-----|-----|-----|-----|-----|----|----|-----|
| Node Address | A0 | A1 | A2 | A3 | A4 | A5 | A6 | A7 | | | | | | | | | |
| 64 | OFF | OFF | OFF | OFF | OFF | OFF | ON | OFF | 97 | ON | OFF | OFF | OFF | OFF | ON | ON | OFF |
| 65 | ON | OFF | OFF | OFF | OFF | OFF | ON | OFF | 98 | OFF | ON | OFF | OFF | OFF | ON | ON | OFF |
| 66 | OFF | ON | OFF | OFF | OFF | OFF | ON | OFF | 99 | ON | ON | OFF | OFF | OFF | ON | ON | OFF |
| 67 | ON | ON | OFF | OFF | OFF | OFF | ON | OFF | 100 | OFF | OFF | ON | OFF | OFF | ON | ON | OFF |
| 68 | OFF | OFF | ON | OFF | OFF | OFF | ON | OFF | 101 | ON | OFF | ON | OFF | OFF | ON | ON | OFF |
| 69 | ON | OFF | ON | OFF | OFF | OFF | ON | OFF | 102 | OFF | ON | ON | OFF | OFF | ON | ON | OFF |
| 70 | OFF | ON | ON | OFF | OFF | OFF | ON | OFF | 103 | ON | ON | ON | OFF | OFF | ON | ON | OFF |
| 71 | ON | ON | ON | OFF | OFF | OFF | ON | OFF | 104 | OFF | OFF | OFF | ON | OFF | ON | ON | OFF |
| 72 | OFF | OFF | OFF | ON | OFF | OFF | ON | OFF | 105 | ON | OFF | OFF | ON | OFF | ON | ON | OFF |
| 73 | ON | OFF | OFF | ON | OFF | OFF | ON | OFF | 105 | OFF | ON | OFF | ON | OFF | ON | ON | OFF |
| 74 | OFF | ON | OFF | ON | OFF | OFF | ON | OFF | 107 | ON | ON | OFF | ON | OFF | ON | ON | OFF |
| 75 | ON | ON | OFF | ON | OFF | OFF | ON | OFF | 109 | OFF | OFF | ON | ON | OFF | ON | ON | OFF |
| 76 | OFF | OFF | ON | ON | OFF | OFF | ON | OFF | 100 | OFF | orr | ON | ON | OFF | ON | ON | OFF |
| 77 | ON | OFF | ON | ON | OFF | OFF | ON | OFF | 109 | ON | OFF | ON | ON | OFF | ON | ON | OFF |
| 78 | OFF | ON | ON | ON | OFF | OFF | ON | OFF | 110 | OFF | ON | ON | ON | OFF | ON | ON | OFF |
| 79 | ON | ON | ON | ON | OFF | OFF | ON | OFF | 111 | ON | ON | ON | ON | OFF | ON | ON | OFF |
| 80 | OFF | OFF | OFF | OFF | ON | OFF | ON | OFF | 112 | OFF | OFF | OFF | OFF | ON | ON | ON | OFF |
| 81 | ON | OFF | OFF | OFF | ON | OFF | ON | OFF | 113 | ON | OFF | OFF | OFF | ON | ON | ON | OFF |
| 82 | OFF | ON | OFF | OFF | ON | OFF | ON | OFF | 114 | OFF | ON | OFF | OFF | ON | ON | ON | OFF |
| 83 | ON | ON | OFF | OFF | ON | OFF | ON | OFF | 115 | ON | ON | OFF | OFF | ON | ON | ON | OFF |
| 04 | OFF | OFF | ON | OFF | ON | OFF | ON | OFF | 116 | OFF | OFF | ON | OFF | ON | ON | ON | OFF |
| 85 | ON | OFF | ON | OFF | ON | OFF | ON | OFF | 117 | ON | OFF | ON | OFF | ON | ON | ON | OFF |
| 97 | OFF | ON | ON | OFF | ON | OFF | ON | OFF | 118 | OFF | ON | ON | OFF | ON | ON | ON | OFF |
| 07 | OFF | OFF | OFF | OFF | ON | OFF | ON | OFF | 119 | ON | ON | ON | OFF | ON | ON | ON | OFF |
| 90 | OFF | 055 | OFF | ON | ON | OFF | ON | 055 | 120 | OFF | OFF | OFF | ON | ON | ON | ON | OFF |
| 90 | OFF | ON | OFF | ON | ON | OFF | ON | OFF | 121 | ON | OFF | OFF | ON | ON | ON | ON | OFF |
| 91 | ON | ON | OFF | ON | ON | OFF | ON | OFF | 122 | OFF | ON | OFF | ON | ON | ON | ON | OFF |
| 92 | OFF | OFF | ON | ON | ON | OFF | ON | OFF | 123 | ON | ON | OFF | ON | ON | ON | ON | OFF |
| 93 | ON | OFF | ON | ON | ON | OFF | ON | OFF | 124 | OFF | OFF | ON | ON | ON | ON | ON | OFF |
| 94 | OFF | ON | ON | ON | ON | OFF | ON | OFF | 125 | ON | OFF | ON | ON | ON | ON | ON | OFF |
| 95 | ON | ON | ON | ON | ON | OFF | ON | OFF | 126 | OFF | ON | ON | ON | ON | ON | ON | OFF |
| 96 | OFF | OFF | OFF | OFF | OFF | ON | ON | OFF | 127 | ON | ON | ON | ON | ON | ON | ON | OFF |

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2.3.2 B DIP SWITCHES—PROFILE SELCTION

For example: On page 3, case 2 is chosen. This means you have an LMV3 on the burner and the BAS network is decided to communicate through BACnet MS/TP. You would choose the 10th profile, using dip switches B0-"ON", B1-"OFF", B2-"OFF", B3-"ON".

| | B Dipswitches - SELECT PROFILE | | | | | | | | | | | | | |
|----|---------------------------------------|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|
| | Profile B0 B1 B2 B3 | | | | | | | | | | | | | |
| 1 | MODBUS TCP/LONWORKS_LMV3 | OFF | OFF | OFF | OFF | | | | | | | | | |
| 2 | MODBUS TCP/LONWORKS_LMV5 | ON | OFF | OFF | OFF | | | | | | | | | |
| 3 | MODBUS TCP/LONWORKS_ARRAY | OFF | ON | OFF | OFF | | | | | | | | | |
| 4 | BACNETIP_LMV3 | ON | ON | OFF | OFF | | | | | | | | | |
| 5 | BACNETIP_LMV5 | OFF | OFF | ON | OFF | | | | | | | | | |
| 6 | BACNETIP_ARRAY | ON | OFF | ON | OFF | | | | | | | | | |
| 7 | ETHERNETIP_LMV3 | OFF | ON | ON | OFF | | | | | | | | | |
| 8 | ETHERNETIP_LMV5 | ON | ON | ON | OFF | | | | | | | | | |
| 9 | ETHERNETIP_ARRAY | OFF | OFF | OFF | ON | | | | | | | | | |
| 10 | BACNETMSTP_LMV3 | ON | OFF | OFF | ON | | | | | | | | | |
| 11 | BACNETMSTP_LMV5 | OFF | ON | OFF | ON | | | | | | | | | |
| 12 | BACNETMSTP_ARRAY | ON | ON | OFF | ON | | | | | | | | | |
| 13 | METASYSN2_LMV3 | OFF | OFF | ON | ON | | | | | | | | | |
| 14 | METASYSN2_LMV5 | ON | OFF | ON | ON | | | | | | | | | |
| 15 | METASYSN2_ARRAY | OFF | ON | ON | ON | | | | | | | | | |

2.3.3 S DIP SWITCHES- NUMBER OF BOILER(S)/BURNER(S)

| S Dipswitches - Number of | burr | ners | /boi | ilers |
|---------------------------|------|------|------|------------|
| Profile | S0 | S1 | S2 | S 3 |
| 1 BURNER/BOILER | OFF | OFF | OFF | ON |
| 2 BURNERS/BOILERS | ON | OFF | OFF | ON |
| 3 BURNERS/BOILERS | OFF | ON | OFF | ON |
| 4 BURNERS/BOILERS | ON | ON | OFF | ON |
| 5 BURNERS/BOILERS | OFF | OFF | ON | ON |
| 6 BURNERS/BOILERS | ON | OFF | ON | ON |
| 7 BOILERS | OFF | ON | ON | ON |
| 8 BOILERS | ON | ON | ON | ON |

2.4 SETTING UP YOUR DESKTOP

2.4.1 DISCOVERING A DEVICE

1. Please download fieldserver toolbox from the following link: <u>https://www.sierramonitor.com/content/fieldserver-toolbox-0</u>

2. Open toolbox application, at this point the toolbox will discover the gateway connected to your laptop

2.4.2 SETTING UP YOUR LAPTOP TO CONNECT TO THE GATEWAY

Assuming the gateway has the following default IP address: 192.168.1.24 and Subnet Mask: 255.255.0....

Step 1: Right click on the Local Area Network Connection and go into "properties"



| Access type: | | No Internet access |
|--------------|---|-----------------------|
| Connections: | Q | Local Area Connection |

Step 2: Select "properties"

| Activity | | | |
|------------|-----------|----------|----------|
| | Sent | S | Received |
| Bytes: | 281,466 | I | 960,952 |
| Properties | 🧐 Disable | Diagnose |) |
| | | | Close |

Step 3: Right click on "Internet Protocol Version 4(TCP/IP/IPV4)"

This connection uses the following items:



<u>Step 4:</u> Change IP and Subnet Mask to match the network of the gateway.



2.5 CHANGING THE GATEWAY IP

<u>Step 1</u>: Open up your internet browser, enter IP address of gateway, and click on "Diagnostics & Debugging" at the bottom right hand side of the page.



Step 2: On the Nav tree, click "Setup", then "Network Settings"

2.5 CHANGING THE GATEWAY IP

<u>Step 1</u>: Open up your internet browser, enter IP address of gateway, and click on "Diagnostics & Debugging" at the bottom right hand side of the page.

Step 2: On the Nav tree, click "Setup", then "Network Settings"

| No. foot | | | | | | | | | |
|---|---|--------------------|--|--|--|--|--|--|--|
| Navigation | Note | | | | | | | | |
| DCC1170 QS.CSV v1.00a About Setup | Updated settings only take effect after a System Restart. If the IP Address is changed you will need to direct your browser to the new IP Address after the System Restart. | | | | | | | | |
| File Transfer | | | | | | | | | |
| Network Settings | N1 IP Address | 192.168.1.24 | | | | | | | |
| Passwords | hit Nutreest | DEF DEF DEF A | | | | | | | |
| Time Settings | NI Wetmask | 255.255.255.0 | | | | | | | |
| > View | N1 DHCP Client State | DISABLED * | | | | | | | |
| User Messages | Default Gateway | 0.0.0.0 | | | | | | | |
| • Diagnosocs | Domain Name Server1 | 0.0.0.0 | | | | | | | |
| | Domain Name Server2 | 0.0.0.0 | | | | | | | |
| | Cancel | Update IP Settings | | | | | | | |

3 TROUBLESHOOTING

3.1 GATEWAY LIGHTS

SPL - Will light if the gateway is offline.

RUN - Will start flashing 20 seconds after power indicating normal operation.

ERR - Will go solid 15 seconds after power up. It will turn off after 5 seconds. A steady red light indicates that there is an error.

RX - Will flash when a message is received on the host port.

TX - Will flash when a message is sent from the host port.

PWR - This is the power light and should show a steady green at all times when the gateway is powered

*** RX and TX lights should be flashing indicating that there is communication between the gateway and burner(s)/boiler(s)

3.2 ACCESSING GATEWAY TO TROUBLESHOOT

Troubleshooting steps after setup, if red light is flashing or gateway is not communicating:

Is ERR light flashing?

If ERR light is NOT flashing then:

1. Connect to the gateway from your internet browser by entering the gateway IP address (see section 2.4). Verify that the gateway is reading data from the burner(s).

Example: if burner 1 is connected and data is showing in the bottom right matrix as shown below, then the gateway is communicating to the first burner/boiler. If all data is reading '0', then the gateway is not communicating with the burner/boiler.

| Navigation | Burr | er1 | | | | | | | | | | | |
|---|------------------|-----------------|-------|------------|-------|-----|-------|---------|-------|--------|-------|---|--|
| DOC1170-QS-CSV-v1.00a About Setup | Dut | o Array | | | | | | | | | | | |
| ¥ Ves | Data Array Annib | | | | | | | | | - | | | |
| > Connections | Data Arr | Data Anay Name | | | | | | Butter1 | | | | | |
| · Control in the second | Oats Format | | | | | | 15406 | | | | | | |
| Burner 1 | Length in Items | | | | | | 25 | | | | | | |
| borner a | Bytes per 2tem | | | | | | 2 | | | | | | |
| burner o | Data Ag | Outs Ape 5.598s | | | | | | | | | | | |
| Burners Burners | | | Oispi | lay Format | 10416 | | | | | | | | |
| > Nodes | Data Arts | er i i i | | | | | | | | | | 0 | |
| Map Descriptors | Offset | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 9 | | |
| User Messates | 0 | 12 | 50 | 50 | 65404 | 50 | 65434 | 45434 | 65404 | 0 | 0 | | |
| Disenseting | 10 | 0 | 75 | 4 | 0 | 0 | 32766 | 1252 | 0 | 1807 | 0 | | |
| - Later Anna | 29 | 63 | 63 | 0 | 24 | 203 | 32767 | 32267 | 30767 | \$2640 | 65535 | | |
| | 30 | 0 | 0 | 0 | 10 | 0 | | | | | | | |

If ERR light is flashing then:

- 1. Verify wiring is correct between gateway and burner(s)/boiler(s).
- 2. Verify correct address, baud rate, and parity on field devices (See section 1.3).

4 OBJECT TABLES

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4.1 LMV3 BURNER(S) TABLE

BACnet MS/TP - Default: Baud Rate - 38400 (adjustable through internet GUI), Parity - none, Data Bits - 8, Stop Bits - 1, Node ID - 1547 (adjustable through internet GUI), Max Master - 127, and MAC address is set through dip switches A.

BACnet IP - Default: IP - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 1547

Modbus TCP - Default: - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 154

Ethernet IP - Default: - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 154

Metasys N2 - Default - Baud Rate - 9600 (non adjustable), Node ID - 154 (adjustable through internet GUI)

| LMV3 BACnet MS/TP, BACnet IP, Modbus TCP, Lonworks, and Metasys N2, Ethernet IP | | | | | | | | | | | | | | |
|---|--|------------|---------|--------------------|------------|-------------------|--------------------------|-------|----------------|------|-----------|--|--|--|
| | B1 add B2 add B3 add B4 add B5 add B6 add Point Name LON fun., SVNT Opt+type EIP Att., Modbus TCP Data Unit/ | | | | | | | | | | | | | |
| B1 add | BZ add | 83 900 | 64 add | 82 add | 86 add | Point Name | LON fun., SVNT Opt+type | Class | Data type | Туре | SNVT_Type | | | |
| 1 | 25 | 50 | 75 | 100 | 125 | B(X)_Phase | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 2 | 26 | 51 | 76 | 101 | 126 | B(X)_VFD Output | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| 3 | 27 | 52 | 77 | 102 | 127 | B(X)_Fuel Type | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 4 | 28 | 53 | 78 | 103 | 128 | B(X)_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| 5 | 29 | 54 | 79 | 104 | 129 | B(X)_Flame Signal | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 6 | 30 | 55 | 80 | 105 | 130 | B(X)_Fuel Flow | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 7 | 31 | 56 | 81 | 106 | 131 | B(X)_Start Count | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| 8 | 32 | 57 | 82 | 107 | 132 | B(X)_Error Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 9 | 33 | 58 | 83 | 108 | 133 | B(X)_Diag code | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| | | | | | | | | | | | | | | |
| | | | | | | Inputs | | | | | | | | |
| 1/301* | 10/310* | 20/320* | 30/330* | 40/340* | 50/350* | B(X)_Safety Loop | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BI | No Unit | | | |
| 2/302* | 11/311 | 21/321* | 31/331* | 41/341* | 51/351* | B(X)_Gas Switches | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BI | No Unit | | | |
| | | | | | | Outputs | | | | | | | | |
| 3/303* | 12/312* | 22/322* | 32/332* | 42/342* | 52/352* | B(X)_Alarm | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BO | No Unit | | | |
| 4/304* | 13/313* | 23/323* | 33/333* | 43/343* | 53/353* | B(X)_Fan | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BO | No Unit | | | |
| | | | | | | | | | | | | | | |
| 10 | 34 | 59 | 84 | 109 | 134 | B(X)_Loc_Rem | NVUI, -, - | 3,4 | Holding Reg. | AV | No Unit | | | |
| 11 | 35 | 60 | 85 | 110 | 135 | B(X)_RemOnOffAuto | NVUI, -, - | 3,4 | Holding Reg. | AV | No Unit | | | |
| 12 | 36 | 61 | 86 | 111 | 136 | B(X)_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AV | % | | | |
| 13 37 62 87 112 137 RWF(X)_Process Value | | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | | | | | | |
| 14 38 63 88 113 138 RWF(X)_Setpoint | | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | | | | | | |
| 15 39 64 89 114 139 RWF(X)_PID Loc/Rem | | | | RWF(X)_PID Loc/Rem | NVUI, -, - | 3,4 | Holding Reg. | AV | No Unit | | | | | |
| 16 | 40 | 65 | 90 | 115 | 140 | RWF(X)_Setpoint | NVUI, -, - | 3,4 | Holding Reg. | AV | No Unit | | | |

4.2 LMV5 BURNER(S) TABLE

BACnet MS/TP - Default: Baud Rate - 38400 (adjustable through internet GUI), Parity - none, Data Bits - 8, Stop Bits - 1, Node ID - 1547 (adjustable through internet GUI), Max Master - 127, and MAC address is set through dip switches A.

BACnet IP - Default: IP - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 1547

Modbus TCP - Default: - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 154

Ethernet IP - Default: - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 154

Metasys N2 - Default - Baud Rate - 9600 (non adjustable), Node ID - 154 (adjustable through

| | LMV5 BACnet MS/TP, BACnet IP, Modbus TCP, Lonworks, and Metasys N2, Ethernet IP | | | | | | | | | | | | | |
|---------------------------------------|--|------------|---------|--------------|---------|--------------------|-------------------------------|-------|----------------|------|-----------|--|--|--|
| D1 add | B1 add B2 add B3 add B4 add B5 add B6 add Point Name LON fun. SVNT Opt+type EIP Att., Modbus TCP D | | | | | | | | | | | | | |
| DI duu | DZ duu | DO duu | D4 duu | D5 duu | DO aŭŭ | Point Name | LON IUIL, SVNT Opt+type | Class | Data type | Туре | SNVT_Type | | | |
| 1 | 25 | 50 | 75 | 100 | 125 | B(X)_Phase | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 2 | 26 | 51 | 76 | 101 | 126 | B(X)_VFD Output | NVUI, Value, SVNT_lev_percent | 3,4 | Holding Reg. | AI | % | | | |
| 3 | 27 | 52 | 77 | 102 | 127 | B(X)_Fuel Type | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 4 | 28 | 53 | 78 | 103 | 128 | B(X)_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| 5 | 29 | 54 | 79 | 104 | 129 | B(X)_Setpoint | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 6 | 30 | 55 | 80 | 105 | 130 | B(X)_Process Value | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 7 | 31 | 56 | 81 | 106 | 131 | B(X)_Flame Signal | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| 8 | 32 | 57 | 82 | 107 | 132 | B(X)_Fuel Flow | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 9 | 33 | 58 | 83 | 108 | 133 | B(X)_O2 Value | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| 10 | 34 | 59 | 84 | 109 | 134 | B(X)_Start Count | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 11 | 35 | 60 | 85 | 110 | 135 | B(X)_Hours | NVUI, -, - | 3,4 | Holding Reg. | AI | Hours | | | |
| 12 | 36 | 61 | 86 | 111 | 136 | B(X)_Error Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 13 | 37 | 62 | 87 | 112 | 137 | B(X)_Diag Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 14 | - 38 | 63 | 88 | 113 | 138 | B(X)_Supp Air Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 15 | 39 | 64 | 89 | 114 | 139 | B(X)_Flue Gas Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | | | |
| 16 | 40 | 65 | 90 | 115 | 140 | B(X)_Comb Eff | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | | | |
| | | | | | | | | | | | | | | |
| | | | | | | Inputs | | | | AI | No Unit | | | |
| 1/301* | 10/310* | 20/320* | 30/330* | 40/340* | 50/350* | B(X)_Safety Loop | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BI | | | | |
| 2/302* | 11/311 | 21/321* | 31/331* | 41/341* | 51/351* | B(X)_Gas Switches | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BI | | | | |
| | | | | | | Outputs | | | | AI | No Unit | | | |
| 3/303* | 12/312* | 22/322* | 32/332* | 42/342* | 52/352* | B(X)_Alarm | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BO | | | | |
| 4/304* | 13/313* | 23/323* | 33/333* | 43/343* | 53/353* | B(X)_Fan | NVUI, State, SNVT_switch | 3,4 | Discrete_Input | BO | | | | |
| | | | | | | | | | | | | | | |
| 17 | 41 | 66 | 91 | 116 | 141 | B(X)_Loc_Rem | NVUI, -, - | 3,4 | Holding Reg. | AV | No Unit | | | |
| 18 42 67 92 117 142 B(X)_RemOnOffAuto | | NVUI, -, - | 3,4 | Holding Reg. | AV | No Unit | | | | | | | | |
| 19 43 68 93 118 143 B(X)_Setpoint | | | | | 143 | B(X)_Setpoint | NVUI, -, - | 3,4 | Holding Reg. | AV | No Unit | | | |
| 20 | 44 | 69 | 94 | 119 | 144 | B(X)_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AV | % | | | |

4.3 ARRAY BOILER(S) TABLE

BACnet MS/TP - Default: Baud Rate (adjustable through internet GUI) - 38400, Parity - none, Data Bits - 8, Stop Bits - 1, Node ID - 1547(adjustable through internet GUI), Max Master - 127, and MAC address is set through dip switches A.

BACnet IP - Default: IP - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 1547

Modbus TCP - Default: - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 154

Ethernet IP - Default: - 192.168.1.24, Subnet Mask - 255.255.255.0, Node ID - 154

Metasys N2 - Default - Baud Rate - 9600 (non adjustable), Node ID - 154 (adjustable through internet GUI)

| | Array BACnet MS/TP, BACnet IP, Modbus TCP, LONworks, and Metasys N2, Ethernet IP | | | | | | | | | | | | | |
|---------|--|----------|------------|------------|----------|----------|------------|-----------------------------|-----------------------------|--------------------|----------------------|-----|------------|--|
| B1 | B2 | B3 | B 4 | B 5 | B6 | B7 | B 8 | Point Name | LON fun. , SVNT Opt+type | EIP Att., Class | Modbus TCP Data type | R/W | Unit | |
| 11 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | System SP | NVUI, -, - | 3,4 | Holding Reg. | AV | Deg F | |
| 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | System OAT | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | System Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | |
| 3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | System SP | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | System Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 1/*1001 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | System Pump Status | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | |
| | | | | | | | | | | | Holding Reg. | | | |
| 5/*1005 | 10/*1010 | 15/*1015 | 20/*1020 | 25/*1405 | 30/*1030 | 35/*1035 | 40/*1040 | Boiler(x)_Running | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | |
| 6/*1006 | 11/*1012 | 16/*1016 | 21/*1021 | 26/*1406 | 31/*1031 | 36/*1036 | 41/*1041 | Boiler(x)_Error | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | |
| 7 | 107 | 207 | 307 | 407 | 507 | 607 | 707 | Boiler(x)_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | |
| 8 | 108 | 208 | 308 | 408 | 508 | 608 | 708 | Boiler(x)_SP | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 9 | 109 | 209 | 309 | 409 | 509 | 609 | 709 | Boiler(x)_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 10 | 110 | 210 | 310 | 410 | 510 | 610 | 710 | Boiler(x)_Hours | | 3,4 | Holding Reg. | AI | Hours | |
| | | | | | | | | | | | | | | |
| 14 | 114 | 214 | 314 | 414 | 514 | 614 | 714 | Boiler(x)Mod1_State | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | |
| 15 | 115 | 215 | 315 | 415 | 515 | 615 | 715 | Boiler(x) Mod1_Error Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | |
| 16 | 116 | 216 | 316 | 416 | 516 | 616 | 716 | Boiler(x) Mod1_SP | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 17 | 117 | 217 | 317 | 417 | 517 | 617 | 717 | Boiler(x) Mod1_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | |
| 18 | 118 | 218 | 318 | 418 | 518 | 618 | 718 | Boiler(x) Mod1_Water Flow | | 3,4 | Holding Reg. | AI | Litres/Min | |
| 19 | 119 | 219 | 319 | 419 | 519 | 619 | 719 | Boiler(x) Mod1_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 20 | 120 | 220 | 320 | 420 | 520 | 620 | 720 | Boiler(x) Mod1_Return Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 21 | 121 | 221 | 321 | 421 | 521 | 621 | 721 | Boiler(x) Mod1_Flue Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 22 | 122 | 222 | 322 | 422 | 522 | 622 | 722 | Boiler(x) Mod1_Hours | | 3,4 | Holding Reg. | AI | Hours | |
| | | | | | | | | | | | | | | |
| 23 | 123 | 223 | 323 | 423 | 523 | 623 | 723 | Boiler(x) Mod2_State | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | |
| 24 | 124 | 224 | 324 | 424 | 524 | 624 | 724 | Boiler(x) Mod2_Error Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit | |
| 25 | 125 | 225 | 325 | 425 | 525 | 625 | 725 | Boiler(x) Mod2_SP | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 26 | 126 | 226 | 326 | 426 | 526 | 626 | 726 | Boiler(x) Mod2_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % | |
| 27 | 127 | 227 | 327 | 427 | 527 | 627 | 727 | Boiler(x) Mod2_Water Flow | | 3,4 | Holding Reg. | AI | Litres/Min | |
| 28 | 128 | 228 | 328 | 428 | 528 | 628 | 728 | Boiler(x) Mod2_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 29 | 129 | 229 | 329 | 429 | 529 | 629 | 729 | Boiler(x) Mod2_Return Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 30 | 130 | 230 | 330 | 430 | 530 | 630 | 730 | Boiler(x) Mod2_Flue Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F | |
| 31 | 131 | 231 | 331 | 431 | 531 | 631 | 731 | Boiler(x) Mod2_Hours | | | Holding Reg. | AI | Hours | |
| | | | | | | | | | | | | | | |

OBJECT TABLES

4.3 ARRAY BOILER(S) TABLE

| 32 132 232 132 432 532 633 733 Boller() Mod 2 Nov (); 3,4 Holding Reg. AI No Unit 33 133 233 533 633 633 733 Boller() Mod 2 Nov (); 3,4 Holding Reg. AI No Unit 34 134 234 354 455 555 655 775 Boller() Mod 3, Wolt ;, 3,4 Holding Reg. AI Degr 35 135 235 435 535 655 776 Boller() Mod 3, Wolt ;, 3,4 Holding Reg. AI Degr 38 138 238 538 537 778 Boller() Mod 3, Mod 2, Mod 2, Mod 2, Mod 2, Mod 3, Mod 2, Mod 2, Mod 2, Mod 2, Mod 3, Mod 2, Mod 2, Mod 2, Mod 2, Mod 3, Mod 2, Mod | | | | | Array I | BACnet | MS/TP, | BACnet | IP, Modbus TCP, LONwo | orks, and Metasys N2, | Etherne | t IP | | |
|---|----|-----|-----|-----|---------|--------|--------|--------|-----------------------------|--------------------------|---------|--------------|------------|------------|
| 33 133 233 433 433 433 633 734 Boller(h) Mod5 Prov Tocke PVUL, :- 3,4 Holding Reg. AI No Unit 34 144 234 334 434 534 654 734 Boller(h) Mod5 PP IVUL, :- 3,4 Holding Reg. AI No Lint 35 155 255 655 755 Boller(h) Mod5 PP IVUL, :- 3,4 Holding Reg. AI Utrex/M 37 137 237 337 437 Sile (r) Mod3 Rever Flow IVUL, :- 3,4 Holding Reg. AI Deg F 38 138 238 338 438 538 658 738 Boller(r) Mod3 Rever Flow IVUL, :- 3,4 Holding Reg. AI Deg F 39 139 239 339 439 539 559 779 Boller(r) Mod3 Rever Flow IVUL, :- 3,4 Holding Reg. AI Deg F 41 141 241 241 242 442 542 | 32 | 132 | 232 | 332 | 432 | 532 | 632 | 732 | Boiler(x) Mod3_State | NVUI, -, - | 3,4 | Holding Reg. | Al | No Unit |
| 34 134 234 334 434 534 634 734 Bolier(n) Mod2, Siming Rate. WUL, ' 3.4 Holding Reg. AI Deg F 35 135 255 335 435 535 635 755 Bolier(n) Mod2, Siming Rate. WUU, Yue, SWT, switch. 3.4 Holding Reg. AI Deg F 36 136 238 438 538 638 738 Bolier(n) Mod2, Suppi Temp. WUU, ' 3.4 Holding Reg. AI Deg F 39 139 239 384 438 538 619 779 Bolier(n) Mod2, Rue m Temp WUU, ' 3.4 Holding Reg. AI Deg F 40 140 240 340 440 640 740 Bolier(n) Mod2, Rue m WUU, ' 3.4 Holding Reg. AI Deg F 41 141 241 242 442 544 641 741 Bolier(n) Mod2, Rue m NUU, ' 3.4 Holding Reg. AI | 33 | 133 | 233 | 333 | 433 | 533 | 633 | 733 | Boiler(x) Mod3_Error Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit |
| 35 135 235 435 635 735 Boller(r) ModS_fring frame NVUL, Yolue, SWT_swhtch 3,4 Holding Reg. Al N 36 136 236 436 535 635 77 Roll (r) ModS_program. NVUL, '-: 3,4 Holding Reg. Al Deg F 37 137 237 | 34 | 134 | 234 | 334 | 434 | 534 | 634 | 734 | Boiler(x) Mod3_SP | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| 36 136 236 336 436 536 636 736 Delefyl Mod2, Supply Temp. NVU, ;-: 3,4 Holding Reg. AI Deep F 37 137 237 337 437 537 637 737 Boiler(I) Mod2, Supply Temp. NVU, ;-: 3,4 Holding Reg. AI Deep F 38 138 238 338 438 538 639 739 Boiler(I) Mod2, Supply Temp. NVU, ;-: 3,4 Holding Reg. AI Deep F 40 140 240 340 440 540 640 740 Boiler(I) Mod4, Even NVU, ;-: 3,4 Holding Reg. AI Deep F 41 141 241 341 341 541 641 741 Boiler(I) Mod4, Even C NVU, ;-: 3,4 Holding Reg. AI Do Unit 42 142 242 342 445 643 743 Boiler(I) Mod4, Even C NVU, ;-: 3,4 Holding Reg. AI | 35 | 135 | 235 | 335 | 435 | 535 | 635 | 735 | Boiler(x) Mod3_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % |
| 37 137 237 587 637 737 Boller(t) Mod3, Supply Temp. NVU, :, - 3,4 Holding Reg. AI Deg F 38 138 238 338 438 538 638 738 Boiler(t) Mod3, Reum Temp NVU, :, - 3,4 Holding Reg. AI Deg F 40 140 240 340 440 540 640 740 Boiler(t) Mod3, Reum Temp NVU, :, - 3,4 Holding Reg. AI Mount 41 141 241 341 441 541 641 741 Boiler(t) Mod4, State NVU, :, - 3,4 Holding Reg. AI No Unit 42 142 242 342 442 542 642 742 Boiler(t) Mod4, State NVU, :, - 3,4 Holding Reg. AI No Unit 43 143 243 343 443 544 744 Boiler(t) Mod4, State NVU, :, - 3,4 Holding Reg. AI Neg F 441 144 444 444 444 544 745 Boiler(t) Mo | 36 | 136 | 236 | 336 | 436 | 536 | 636 | 736 | Boiler(x) Mod3_Water Flow | NVUI, -, - | 3,4 | Holding Reg. | Al | Litres/Min |
| 38 138 238 538 438 538 638 738 Boiler() ModS, Fleur Temp NVU, 3,4 Holding Reg AI Deg F 39 139 239 333 439 539 639 739 Boiler() ModS, Fleur Temp NVU, A Holding Reg AI Deg F 41 141 241 341 440 540 640 740 Boiler() ModS, Fleur Temp NVU, A Holding Reg AI No Unit 42 142 242 542 641 741 Boiler() ModS, Firm Carc NVU, 3,4 Holding Reg AI No Unit 43 143 243 343 443 543 643 743 Boiler() ModS, Firm Carc NVU, 3,4 Holding Reg AI Deg F 441 144 244 344 544 546 646 746 Boiler() ModS, Firm Carc NVU, 3,4 Holding Reg AI Deg F | 37 | 137 | 237 | 337 | 437 | 537 | 637 | 737 | Boiler(x) Mod3_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 39 139 239 339 439 539 639 739 Baller(r) Mod3, Flue Temp NVU, ;, - 3,4 Holding Reg AI Depf 40 140 240 340 440 540 640 740 Baller(r) Mod3, Flue Temp NVU, ;, - 3,4 Holding Reg AI Hours 41 141 241 341 441 541 641 741 Baller(r) Mod4, Store NVU, ;, - 3,4 Holding Reg AI No Unit 42 142 242 342 443 543 643 743 Baller(r) Mod4, Eror Code NVU, ;, - 3,4 Holding Reg AI Dep F 44 144 244 344 444 546 644 744 Baller(r) Mod4, Eror Code NVU, ;, - 3,4 Holding Reg AI Dep F 441 144 244 344 445 546 647 Baller(r) Mod4, Ware Frow NVU, ;, - 3,4 Holding Reg AI | 38 | 138 | 238 | 338 | 438 | 538 | 638 | 738 | Boiler(x) Mod3_Return Temp | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| 40 10 240 40 40 50 640 740 Boiler(i) Mod3_krous NVU(;; Holding Reg. Al Hours 41 141 241 341 441 541 641 741 Boiler(i) Mod4_sronc NVU(; 3,4 Holding Reg. Al No Unit 42 142 242 342 442 542 642 742 Boiler(i) Mod4_sronc NVU(; 3,4 Holding Reg. Al No Unit 43 143 245 342 445 544 644 744 Boiler(i) Mod4_sronc NVU(; 3,4 Holding Reg. Al Deg F 44 144 245 345 445 546 645 745 Boiler(i) Mod4_sronc NVU(; 3,4 Holding Reg. Al Deg F 47 17 737 747 Boiler(i) Mod4_sronc Torm NVU(; 3,4 Holding Reg. Al Deg F 49 149 2 | 39 | 139 | 239 | 339 | 439 | 539 | 639 | 739 | Boiler(x) Mod3_Flue Temp | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| Image: Constraint of the second sec | 40 | 140 | 240 | 340 | 440 | 540 | 640 | 740 | Boiler(x) Mod3_Hours | NVUI, -, - | | Holding Reg. | Al | Hours |
| 41 141 241 341 441 541 741 Boiler(r) Mod4_stree NVU1, :- 3,4 Holding Reg. AI No Unit 42 142 242 342 442 542 642 742 Boiler(r) Mod4_stroe NVU1, :- 3,4 Holding Reg. AI No Unit 43 143 243 344 444 544 644 744 Boiler(r) Mod4_stroe NVU1, :- 3,4 Holding Reg. AI No Unit 44 144 244 344 545 645 745 Boiler(r) Mod4_Water Flow NVU1, :- 3,4 Holding Reg. AI Deg F 44 146 246 346 446 546 647 747 Boiler(r) Mod4_Water Tree NVU1, :- 3,4 Holding Reg. AI Deg F 49 148 248 348 548 648 748 Boiler(r) Mod5_State NVU1, :- 3,4 Holding Reg. AI No Unit 51 </td <td></td> | | | | | | | | | | | | | | |
| 42 142 242 342 442 542 642 742 Boiler(r) Mode_S ^D NVUL; 3,4 Holding Reg. AI Ne Unit 43 143 243 343 443 543 643 743 Boiler(r) Mode_S ^D NVUL; 3,4 Holding Reg. AI Deg F 44 144 244 344 444 544 644 745 Boiler(r) Mode_Sing Reg. NVUL; 3,4 Holding Reg. AI Deg F 45 145 245 345 645 745 Boiler(r) Mode_SupplyTemp. NVUL; 3,4 Holding Reg. AI Deg F 47 147 247 347 447 547 647 747 Boiler(r) Mode_SupplyTemp. NVUL; 3,4 Holding Reg. AI Deg F 49 149 249 349 449 549 649 749 Boiler(r) Mode_SupplyTemp. NVUL; 3,4 Holding Reg. AI No Unit 50 150 250 550 650 750 Boiler(r) Mode_Supl | 41 | 141 | 241 | 341 | 441 | 541 | 641 | 741 | Boiler(x) Mod4_State | NVUI, -, - | 3,4 | Holding Reg. | Al | No Unit |
| 43 143 243 343 443 543 743 Boiler(1) Mod4_SP NVUL '1- 3,4 Holding Reg. AI Deg F 44 144 244 344 444 544 644 744 Boiler(1) Mod4_Sign Reg. NVUL '1- 3,4 Holding Reg. AI % 45 145 245 345 445 545 645 745 Boiler(1) Mod4_Water Flow NVUL', 3,4 Holding Reg. AI Deg F 46 146 246 346 447 547 647 747 Boiler(1) Mod4_Not4_Reum Temp NVUL', 3,4 Holding Reg. AI Deg F 47 147 247 347 447 547 647 747 Boiler(1) Mod4_Rous NVUL', 3,4 Holding Reg. AI Deg F 49 149 249 349 549 649 749 Boiler(1) Mod5_Exter NVUL', 3,4 Holding Reg. AI Nuth | 42 | 142 | 242 | 342 | 442 | 542 | 642 | 742 | Boiler(x) Mod4_Error Code | NVUI, -, - | 3,4 | Holding Reg. | Al | No Unit |
| 44 144 244 344 444 544 644 744 Boiler(x) Mod_ Witer Flow NVUL /vlue, SNVT_switch 3,4 Holding Reg. AI %s 45 145 245 345 445 545 645 745 Boiler(x) Mod_ Water Flow NVUL, ·. 3,4 Holding Reg. AI Litres/Min 45 146 246 346 446 546 646 747 Boiler(x) Mod_ Fuen NVUL, ·. 3,4 Holding Reg. AI Litres/Min 48 148 248 348 448 548 648 748 Boiler(x) Mod_ Fuer NVUL, ·. 3,4 Holding Reg. AI Deg F 49 149 249 349 449 550 650 750 Boiler(x) Mod_ Fuer NVUL, ·. 3,4 Holding Reg. AI Modinits 50 150 250 350 450 550 650 750 Boiler(x) Mod_ Fuer NVUL, ·. 3,4 Holding Reg. | 43 | 143 | 243 | 343 | 443 | 543 | 643 | 743 | Boiler(x) Mod4_SP | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| 45 145 245 345 445 545 645 745 Boiler(x) Mod_Water Flow NVUl, $;$ 3,4 Holding Reg. AI Litres/Min 46 146 246 346 446 546 646 746 Boiler(x) Mod_Return Temp NVUl, $;$ 3,4 Holding Reg. AI Deg F 47 147 247 347 447 547 647 747 Boiler(x) Mod_Return Temp NVUl, $;$ 3,4 Holding Reg. AI Deg F 48 148 248 348 448 549 649 749 Boiler(x) Mod_Return Temp NVUl, $;$ 3,4 Holding Reg. AI Deg F 49 149 249 349 449 549 649 750 Boiler(x) Mod_Stron Core NVUl, $;$ 3,4 Holding Reg. AI No Unit 50 150 250 450 550 650 750 Boiler(x) Mod_Stron Core NVUl, $;$ 3,4 Holding Reg. AI No Unit 51 151 251 351 453 | 44 | 144 | 244 | 344 | 444 | 544 | 644 | 744 | Boiler(x) Mod4_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | Al | % |
| 46 146 246 346 446 546 646 746 Bailer(x) Mod4_supp) Temp. NVUl, \c; 3,4 Holding Reg. AI Deg F 47 147 247 347 447 547 647 747 Boller(x) Mod4_supp) Temp. NVUl, \c; 3,4 Holding Reg. AI Deg F 48 148 248 343 448 548 648 748 Boller(x) Mod4_Hours NVUl, \c; 3,4 Holding Reg. AI Deg F 50 150 250 350 450 550 650 750 Boiler(x) Mod5_State NVUl, \c; 3,4 Holding Reg. AI No Unit 51 151 251 52 | 45 | 145 | 245 | 345 | 445 | 545 | 645 | 745 | Boiler(x) Mod4_Water Flow | NVUI, -, - | 3,4 | Holding Reg. | Al | Litres/Min |
| 47 147 247 347 447 547 647 747 Boiler(x) Mod4_Reum Temp NVUl, γ . 3,4 Holding Reg. AI Deg F 48 148 248 348 448 548 648 748 Boiler(x) Mod4_Ruur NVUl, γ . 3,4 Holding Reg. AI Deg F 49 149 249 349 449 549 649 749 Boiler(x) Mod4_Ruur NVUl, γ . 3,4 Holding Reg. AI Deg F 50 150 250 350 450 550 650 750 Boiler(x) Mod5_State NVUl, γ . 3,4 Holding Reg. AI No Unit 51 151 251 351 451 551 651 752 Boiler(x) Mod5_State NVUl, γ . 3,4 Holding Reg. AI No Unit 52 152 252 353 453 553 653 754 Boiler(x) Mod5_Water Flow NVUl, γ . 3,4 Holding Reg. <t< td=""><td>46</td><td>146</td><td>246</td><td>346</td><td>446</td><td>546</td><td>646</td><td>746</td><td>Boiler(x) Mod4_Supply Temp.</td><td>NVUI, -, -</td><td>3,4</td><td>Holding Reg.</td><td>Al</td><td>Deg F</td></t<> | 46 | 146 | 246 | 346 | 446 | 546 | 646 | 746 | Boiler(x) Mod4_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| 48 148 248 348 448 548 648 748 Boiler(x) Mod4_Fuer Temp NVUL, 3,4 Holding Reg. AI Deg F 49 149 249 349 449 549 649 749 Boiler(x) Mod4_Fuers NVUL, NUL, Holding Reg. AI Hours 50 150 250 350 450 550 650 751 Boiler(x) Mod5_Error Code NVUL, 3,4 Holding Reg. AI No Unit 51 151 251 351 451 551 652 752 Boiler(x) Mod5_Error Code NVUL, 3,4 Holding Reg. AI No Unit 52 152 252 352 452 552 652 754 Boiler(x) Mod5_Error Code NVUL, 3,4 Holding Reg. AI Deg F 53 153 253 353 453 553 655 755 Boiler(x) Mod5_Error Code NVUL, 3,4 Holding Reg. | 47 | 147 | 247 | 347 | 447 | 547 | 647 | 747 | Boiler(x) Mod4_Return Temp | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| 49 149 249 349 449 549 649 749 Baller(x) Mod_Hours NVUL, ;. Image: All Hours Holding Reg. All Hours 50 150 250 350 450 550 650 750 Bailer(x) Mod5_State NVUL, ;. 3,4 Holding Reg. All No Unit 51 151 251 351 451 551 651 751 Bailer(x) Mod5_State NVUL;. 3,4 Holding Reg. Al Deg F 53 153 251 351 453 553 653 754 Bailer(x) Mod5_State NVUL;. 3,4 Holding Reg. Al Deg F 53 153 253 353 453 553 655 755 Bailer(x) Mod5_Supply Temp. NVUL;. 3,4 Holding Reg. Al Deg F 54 154 254 354 455 555 655 755 Bailer(x) Mod5_Fluer Temp NVUL;. 3,4 Holding Reg. A | 48 | 148 | 248 | 348 | 448 | 548 | 648 | 748 | Boiler(x) Mod4_Flue Temp | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| Image: Constraint of the state of | 49 | 149 | 249 | 349 | 449 | 549 | 649 | 749 | Boiler(x) Mod4_Hours | NVUI, -, - | | Holding Reg. | Al | Hours |
| 50 150 250 350 450 550 650 750 Boiler(x) Mod5_State NVUI, 3,4 Holding Reg. AI No Unit 51 151 251 351 451 551 651 751 Boiler(x) Mod5_Error Code NVUI, 3,4 Holding Reg. AI No Unit 52 152 252 352 452 552 652 752 Boiler(x) Mod5_SP NVUI, 3,4 Holding Reg. AI Deg F 53 153 253 353 453 554 654 754 Boiler(x) Mod5_Water Flow NVUI, 3,4 Holding Reg. AI Litres/Min 54 154 254 354 454 554 654 756 Boiler(x) Mod5_Suply Temp. NVUI, 3,4 Holding Reg. AI Deg F 55 155 255 655 755 Boiler(x) Mod5_Return Temp NVUI, 3,4 Holding Reg. AI Deg F 57 157 257 357 657 757 Boiler(x) Mod5_Flue Temp | | | | | | | | | | | | | | |
| 51 151 251 351 451 551 651 751 Boiler(x) Mod5_Error Code NVUI, ·,· 3,4 Holding Reg. AI Deg F 53 153 253 353 453 553 653 753 Boiler(x) Mod5_Error Code NVUI, ·,· 3,4 Holding Reg. AI Deg F 53 153 253 353 453 553 653 754 Boiler(x) Mod5_Error Code NVUI, ·,· 3,4 Holding Reg. AI % 54 154 254 354 454 554 654 754 Boiler(x) Mod5_Kater Flow NVUI, ·,· 3,4 Holding Reg. AI Litres/Min 55 155 255 355 455 555 655 755 Boiler(x) Mod5_Kater Flow NVUI, ·,· 3,4 Holding Reg. AI Deg F 56 156 256 356 455 557 657 757 Boiler(x) Mod5_Flow Temp NVUI, ·,· 3,4 Holding Reg. AI Deg F 57 157 257 357 457 | 50 | 150 | 250 | 350 | 450 | 550 | 650 | 750 | Boiler(x) Mod5_State | NVUI, -, - | 3,4 | Holding Reg. | Al | No Unit |
| 52 152 252 352 452 552 652 752 Boiler(x) Mod5_SP NVUI, ·,· 3,4 Holding Reg. AI Deg F 53 153 253 353 453 553 653 753 Boiler(x) Mod5_SP NVUI, view, SNVT_switch 3,4 Holding Reg. AI % 54 154 254 354 454 554 654 754 Boiler(x) Mod5_Supply Temp. NVUI, view, SNVT_switch 3,4 Holding Reg. AI Uitres/Min 55 155 255 355 455 555 655 755 Boiler(x) Mod5_Supply Temp. NVUI, ·,· 3,4 Holding Reg. AI Deg F 56 156 256 356 455 555 657 757 Boiler(x) Mod5_Flue Temp NVUI, ·,· 3,4 Holding Reg. AI Deg F 57 157 257 357 457 557 657 757 Boiler(x) Mod5_Hours NVUI, ·,· 3,4 Hold | 51 | 151 | 251 | 351 | 451 | 551 | 651 | 751 | Boiler(x) Mod5_Error Code | NVUI, -, - | 3,4 | Holding Reg. | Al | No Unit |
| 53 153 253 353 453 553 653 753 Boiler(x) Mod5_Firing Rate NVUL, vir. 3,4 Holding Reg. AI % 54 154 254 354 454 554 654 754 Boiler(x) Mod5_Water Flow NVUL, ·, · 3,4 Holding Reg. AI Litres/Min 55 155 255 355 455 555 655 755 Boiler(x) Mod5_Supply Temp. NVUL, ·, · 3,4 Holding Reg. AI Deg F 56 156 256 356 456 556 657 757 Boiler(x) Mod5_Return Temp NVUL, ·, · 3,4 Holding Reg. AI Deg F 57 157 257 357 457 557 657 757 Boiler(x) Mod5_Hours NVUL, ·, · 3,4 Holding Reg. AI Deg F 58 158 258 358 458 558 659 759 Boiler(x) Mod6_State NVUL, ·, · 3,4 Holding Reg. </td <td>52</td> <td>152</td> <td>252</td> <td>352</td> <td>452</td> <td>552</td> <td>652</td> <td>752</td> <td>Boiler(x) Mod5_SP</td> <td>NVUI, -, -</td> <td>3,4</td> <td>Holding Reg.</td> <td>AI</td> <td>Deg F</td> | 52 | 152 | 252 | 352 | 452 | 552 | 652 | 752 | Boiler(x) Mod5_SP | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 54 154 254 354 454 554 654 754 Boiler(x) Mod5_Water Flow NVUl, .,. 3,4 Holding Reg. AI Litres/Min 55 155 255 355 455 555 655 755 Boiler(x) Mod5_Supply Temp. NVUl, .,. 3,4 Holding Reg. AI Deg F 56 156 256 356 456 556 655 756 Boiler(x) Mod5_Return Temp NVUl, .,. 3,4 Holding Reg. AI Deg F 57 157 257 357 457 557 657 757 Boiler(x) Mod5_Return Temp NVUl, .,. 3,4 Holding Reg. AI Deg F 58 158 258 358 458 558 659 759 Boiler(x) Mod5_Hours NVUl, .,. 3,4 Holding Reg. AI Hours 59 159 259 359 459 559 659 759 Boiler(x) Mod6_State NVUl, .,. 3,4 Holding Reg. <td>53</td> <td>153</td> <td>253</td> <td>353</td> <td>453</td> <td>553</td> <td>653</td> <td>753</td> <td>Boiler(x) Mod5_Firing Rate</td> <td>NVUI, Value, SNVT_switch</td> <td>3,4</td> <td>Holding Reg.</td> <td>AI</td> <td>%</td> | 53 | 153 | 253 | 353 | 453 | 553 | 653 | 753 | Boiler(x) Mod5_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % |
| 55 155 255 355 455 555 655 755 Boiler(x) Mod5_Supply Temp. NVUl, ·, · 3,4 Holding Reg. AI Deg F 56 156 256 356 456 556 656 756 Boiler(x) Mod5_Return Temp NVUl, ·, · 3,4 Holding Reg. AI Deg F 57 157 257 357 457 557 657 757 Boiler(x) Mod5_Return Temp NVUl, ·, · 3,4 Holding Reg. AI Deg F 58 158 258 358 458 558 658 759 Boiler(x) Mod5_Hours NVUl, ·, · 3,4 Holding Reg. AI Deg F 59 159 259 359 459 559 659 759 Boiler(x) Mod6_State NVUl, ·, · 3,4 Holding Reg. AI No Unit 60 160 260 360 460 560 660 760 Boiler(x) Mod6_State NVUl, ·, · 3,4 Holding Reg. AI Deg F 61 161 261 361 461 | 54 | 154 | 254 | 354 | 454 | 554 | 654 | 754 | Boiler(x) Mod5_Water Flow | NVUI, -, - | 3,4 | Holding Reg. | Al | Litres/Min |
| 56 156 256 356 456 556 656 756 Boiler(x) Mod5_Return Temp NVUl, -, - 3,4 Holding Reg. AI Deg F 57 157 257 357 457 557 657 757 Boiler(x) Mod5_Flue Temp NVUl, -, - 3,4 Holding Reg. AI Deg F 58 158 258 358 458 558 658 758 Boiler(x) Mod5_Flue Temp NVUl, -, - 3,4 Holding Reg. AI Deg F 59 159 259 359 459 559 659 759 Boiler(x) Mod6_State NVUl, -, - 3,4 Holding Reg. AI No Unit 60 160 260 360 460 560 660 760 Boiler(x) Mod6_State NVUl, -, - 3,4 Holding Reg. AI No Unit 61 161 261 361 461 561 661 761 Boiler(x) Mod6_SP NVUl, -, - 3,4 Holding Reg. | 55 | 155 | 255 | 355 | 455 | 555 | 655 | 755 | Boiler(x) Mod5_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 56 156 256 356 456 556 656 756 Boiler(x) Mod5_Return Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 57 157 257 357 457 557 657 757 Boiler(x) Mod5_Flue Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 58 158 258 358 458 558 658 758 Boiler(x) Mod5_Hours NVUI, -, - 3,4 Holding Reg. AI Hours 59 159 259 359 459 559 659 759 Boiler(x) Mod6_State NVUI, -, - 3,4 Holding Reg. AI No Unit 60 160 260 360 460 560 660 760 Boiler(x) Mod6_State NVUI, -, - 3,4 Holding Reg. AI No Unit 61 161 261 361 461 561 661 761 Boiler(x) Mod6_SP NVUI, -, - 3,4 Holding Reg. <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | | | | | | | | | | | | | | |
| 50 160 16 | 56 | 156 | 256 | 356 | 456 | 556 | 656 | 756 | Boiler(x) Mod5 Return Temn | NVIII | 34 | Holdina Rea | 41 | Dea F |
| 57 127 <th127< th=""> <th127< th=""> <th127< th=""></th127<></th127<></th127<> | 57 | 157 | 257 | 357 | 457 | 557 | 657 | 757 | Boiler(x) Mod5 Elue Temp | NVUI | 3.4 | Holding Reg. | <u>A</u> I | Deg F |
| 100 100 <td>58</td> <td>158</td> <td>258</td> <td>358</td> <td>458</td> <td>558</td> <td>658</td> <td>758</td> <td>Boiler(x) Mod5 Hours</td> <td>NVUI</td> <td>v,+</td> <td>Holding Reg.</td> <td>AI</td> <td>Hours</td> | 58 | 158 | 258 | 358 | 458 | 558 | 658 | 758 | Boiler(x) Mod5 Hours | NVUI | v,+ | Holding Reg. | AI | Hours |
| 59 159 259 359 459 559 659 759 Boiler(x) Mod6_State NVUl, ·, · 3,4 Holding Reg. AI No Unit 60 160 260 360 460 560 660 760 Boiler(x) Mod6_State NVUl, ·, · 3,4 Holding Reg. AI No Unit 61 161 261 361 461 561 661 761 Boiler(x) Mod6_SP NVUl, ·, · 3,4 Holding Reg. AI Deg F 62 162 262 362 462 562 662 762 Boiler(x) Mod6_SP NVUl, value, SNVT_switch 3,4 Holding Reg. AI Deg F 63 163 263 363 463 563 663 764 Boiler(x) Mod6_Supply Temp. NVUl, value, SNVT_switch 3,4 Holding Reg. AI Litres/Min 64 164 264 364 464 564 664 764 Boiler(x) Mod6_Supply Temp. NVUl, ·, · 3,4 | | | | | | | | | benetiky mods_nodis | | | norang reg. | | |
| 60 160 260 360 460 560 660 760 Boiler(x) Mod6_Error Code NVUI, -, - 3,4 Holding Reg. AI No Unit 61 161 261 361 461 561 661 761 Boiler(x) Mod6_SP NVUI, -, - 3,4 Holding Reg. AI Deg F 62 162 262 362 462 562 662 763 Boiler(x) Mod6_Firing Rate NVUI, v., - 3,4 Holding Reg. AI Deg F 63 163 263 363 463 563 663 763 Boiler(x) Mod6_Water Flow NVUI, v., - 3,4 Holding Reg. AI % 63 163 263 363 463 563 663 764 Boiler(x) Mod6_Supply Temp. NVUI, v., - 3,4 Holding Reg. AI Deg F 64 164 264 364 464 564 664 764 Boiler(x) Mod6_Supply Temp. NVUI, -, - 3,4 Holding Reg | 59 | 159 | 259 | 359 | 459 | 559 | 659 | 759 | Boiler(x) Mod6_State | NVUI, -, - | 3,4 | Holding Reg. | Al | No Unit |
| 61 161 261 361 461 561 661 761 Boiler(x) Mod6_SP NVUI, -, - 3,4 Holding Reg. AI Deg F 62 162 262 362 462 562 662 762 Boiler(x) Mod6_Fining Rate NVUI, value, SNVT_switch 3,4 Holding Reg. AI % 63 163 263 363 463 563 663 763 Boiler(x) Mod6_Water Flow NVUI, -, - 3,4 Holding Reg. AI % 64 164 264 364 464 564 664 764 Boiler(x) Mod6_Water Flow NVUI, -, - 3,4 Holding Reg. AI Litres/Min 64 164 264 364 464 564 664 764 Boiler(x) Mod6_Supply Temp. NVUI, -, - 3,4 Holding Reg. AI Deg F 65 165 265 365 465 565 665 765 Boiler(x) Mod6_Return Temp NVUI, -, - 3,4 Ho | 60 | 160 | 260 | 360 | 460 | 560 | 660 | 760 | Boiler(x) Mod6_Error Code | NVUI, -, - | 3,4 | Holding Reg. | Al | No Unit |
| 62 162 262 362 462 562 662 762 Boiler(x) Mod6_Firing Rate NVUI, Value, SNVT_switch 3,4 Holding Reg. AI % 63 163 263 363 463 563 663 763 Boiler(x) Mod6_Water Flow NVUI, -, - 3,4 Holding Reg. AI Litres/Min 64 164 264 364 464 564 664 764 Boiler(x) Mod6_Supply Temp. NVUI, -, - 3,4 Holding Reg. AI Litres/Min 65 165 265 365 465 565 665 765 Boiler(x) Mod6_Supply Temp. NVUI, -, - 3,4 Holding Reg. AI Deg F 65 165 265 365 465 565 665 765 Boiler(x) Mod6_Flue Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 66 166 266 366 466 566 666 766 Boiler(x) Mod6_Flue Temp NVUI, -, - 3,4 <td>61</td> <td>161</td> <td>261</td> <td>361</td> <td>461</td> <td>561</td> <td>661</td> <td>761</td> <td>Boiler(x) Mod6_SP</td> <td>NVUI, -, -</td> <td>3,4</td> <td>Holding Reg.</td> <td>Al</td> <td>Deg F</td> | 61 | 161 | 261 | 361 | 461 | 561 | 661 | 761 | Boiler(x) Mod6_SP | NVUI, -, - | 3,4 | Holding Reg. | Al | Deg F |
| 63 163 263 363 463 563 663 763 Boiler(x) Mod6_Water Flow NVUI, -, - 3,4 Holding Reg. AI Litres/Min 64 164 264 364 464 564 664 764 Boiler(x) Mod6_Supply Temp. NVUI, -, - 3,4 Holding Reg. AI Litres/Min 65 165 265 365 465 565 665 765 Boiler(x) Mod6_Return Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 66 166 266 366 466 566 666 766 Boiler(x) Mod6_Return Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 66 166 266 366 466 566 666 766 Boiler(x) Mod6_Flue Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 67 167 267 367 467 567 667 767 Boiler(x) Mod6_Hours NVUI, -, - Holding Reg. | 62 | 162 | 262 | 362 | 462 | 562 | 662 | 762 | Boiler(x) Mod6_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % |
| 64 164 264 364 464 564 664 764 Boiler(x) Mod6_Supply Temp. NVUI, -, - 3,4 Holding Reg. AI Deg F 65 165 265 365 465 565 665 765 Boiler(x) Mod6_Return Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 66 166 266 366 466 566 666 766 Boiler(x) Mod6_Flue Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 66 166 266 366 466 566 666 766 Boiler(x) Mod6_Flue Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 67 167 267 367 467 567 667 767 Boiler(x) Mod6_Hours NVUI, -, - Holding Reg. AI Hours | 63 | 163 | 263 | 363 | 463 | 563 | 663 | 763 | Boiler(x) Mod6_Water Flow | NVUI, -, - | 3,4 | Holding Reg. | AI | Litres/Min |
| 65 165 265 365 465 565 665 765 Boiler(x) Mod6_Return Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 66 166 266 366 466 566 666 766 Boiler(x) Mod6_Flue Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 67 167 267 367 467 567 667 767 Boiler(x) Mod6_Hours NVUI, -, - Holding Reg. AI Deg F 67 167 267 367 467 567 667 767 Boiler(x) Mod6_Hours NVUI, -, - Holding Reg. AI Hours | 64 | 164 | 264 | 364 | 464 | 564 | 664 | 764 | Boiler(x) Mod6_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 66 166 266 366 466 566 666 766 Boiler(x) Mod6_Flue Temp NVUI, -, - 3,4 Holding Reg. AI Deg F 67 167 267 367 467 567 667 767 Boiler(x) Mod6_Hours NVUI, -, - Holding Reg. AI Hours | 65 | 165 | 265 | 365 | 465 | 565 | 665 | 765 | Boiler(x) Mod6_Return Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 67 167 267 367 467 567 667 767 Boiler(x) Mod6_Hours NVUI, -, - Holding Reg. AI Hours | 66 | 166 | 266 | 366 | 466 | 566 | 666 | 766 | Boiler(x) Mod6_Flue Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| | 67 | 167 | 267 | 367 | 467 | 567 | 667 | 767 | Boiler(x) Mod6_Hours | NVUI, -, - | | Holding Reg. | AI | Hours |
| | | | | | | | | | | | | | | |

OBJECT TABLES

4.3 ARRAY BOILER(S) TABLE

| | | | | Array I | BACnet I | MS/TP, | BACnet | IP, Modbus TCP, LONwo | orks, and Metasys N2, | Etherne | t IP | | |
|----|-----|-----|-----|---------|----------|--------|--------|-----------------------------|--------------------------|---------|--------------|----|------------|
| 68 | 168 | 268 | 368 | 468 | 568 | 668 | 768 | Boiler Mod7_State | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit |
| 69 | 169 | 269 | 369 | 469 | 569 | 669 | 769 | Boiler Mod7_Error Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit |
| 70 | 170 | 270 | 370 | 470 | 570 | 670 | 770 | Boiler Mod7_SP | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 71 | 171 | 271 | 371 | 471 | 571 | 671 | 771 | Boiler Mod7_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % |
| 72 | 172 | 272 | 372 | 472 | 572 | 672 | 772 | Boiler Mod7_Water Flow | NVUI, -, - | 3,4 | Holding Reg. | AI | Litres/Min |
| 73 | 173 | 273 | 373 | 473 | 573 | 673 | 773 | Boiler Mod7_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 74 | 174 | 274 | 374 | 474 | 574 | 674 | 774 | Boiler Mod7_Return Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 75 | 175 | 275 | 375 | 475 | 575 | 675 | 775 | Boiler Mod7_Flue Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 76 | 176 | 276 | 376 | 476 | 576 | 676 | 776 | Boiler Mod7_Hours | NVUI, -, - | | Holding Reg. | AI | Hours |
| | | | | | | | | | | | | | |
| 77 | 177 | 277 | 377 | 477 | 577 | 677 | 777 | Boiler(x) Mod8_State | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit |
| 78 | 178 | 278 | 378 | 478 | 578 | 678 | 778 | Boiler(x) Mod8_Error Code | NVUI, -, - | 3,4 | Holding Reg. | AI | No Unit |
| 79 | 179 | 279 | 379 | 479 | 579 | 679 | 779 | Boiler(x) Mod8_SP | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 80 | 180 | 280 | 380 | 480 | 580 | 680 | 780 | Boiler(x) Mod8_Firing Rate | NVUI, Value, SNVT_switch | 3,4 | Holding Reg. | AI | % |
| 81 | 181 | 281 | 381 | 481 | 581 | 681 | 781 | Boiler(x) Mod8_Water Flow | NVUI, -, - | 3,4 | Holding Reg. | AI | Litres/Min |
| 82 | 182 | 282 | 382 | 482 | 582 | 682 | 782 | Boiler(x) Mod8_Supply Temp. | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 83 | 183 | 283 | 383 | 483 | 583 | 683 | 783 | Boiler(x) Mod8_Return Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 84 | 184 | 284 | 384 | 484 | 584 | 684 | 784 | Boiler(x) Mod8_Flue Temp | NVUI, -, - | 3,4 | Holding Reg. | AI | Deg F |
| 85 | 185 | 285 | 385 | 485 | 585 | 685 | 785 | Boiler(x) Mod8_Hours | NVUI, -, - | | Holding Reg. | AI | Hours |

4.3.1 ARRAY STATE/ERROR TABLE

| STATE TABLE (Boiler(x)Mod(x)_State) | | | | | | |
|-------------------------------------|----------------|------------------------------|--|--|--|--|
| Pr | DESCRIPTION | | | | | |
| | | INITIALIZATION VARIABLES FOR | | | | |
| 0 | INITIALIZATION | RESET (START-UP) STATE | | | | |
| 1 | RESET | RESET (START-UP) STATE | | | | |
| 2 | STANDBY | STANDBY | | | | |
| 3or4 | PRE-PURGE | PRE-PURGING | | | | |
| 5or6 | PRE-IGNITION | PRE-IGNITION | | | | |
| 7 | FLAME PROVING | FLAME PROVING | | | | |
| 8or9 | BURN | BURN | | | | |
| 10or11 | POST PURGE | POST-PURGE | | | | |
| 12 | ERROR | ERROR | | | | |
| 13 | ALARM | ALARM | | | | |
| 14 | WARNING | WARNING | | | | |
| 15 | BURNER BOOT | REBOOTING CONTROLLER | | | | |

4.3.1 ARRAY STATE/ERROR TABLE

| ERROR TABLE (Boiler(x)Mod(x)_Error | | | | | |
|------------------------------------|-------------------------|--|--|--|--|
| | Code) | | | | |
| 0 | E2PROM_READ_ERROR | | | | |
| 1 | IGNIT_ERROR | | | | |
| 2 | GV_RELAY_ERROR | | | | |
| 3 | SAFETY_RELAY_ERROR | | | | |
| 4 | BLOCKING_TOO_LONG | | | | |
| 5 | FAN_ERROR_NOT_RUNNING | | | | |
| 6 | FAN_ERROR_TOO_SLOW | | | | |
| 7 | FAN_ERROR_TOO_FAST | | | | |
| 8 | RAM_ERROR | | | | |
| 9 | WRONG_EEPROM_SIGNATURE | | | | |
| 10 | E2PROM_ERROR | | | | |
| 11 | | | | | |
| 12 | ROM_ERROR | | | | |
| 13 | APS_NOT_OPEN | | | | |
| 14 | APS_NOT_CLOSED | | | | |
| 15 | MAX_TEMP_ERROR | | | | |
| 16 | | | | | |
| 17 | STACK_ERROR | | | | |
| 18 | | | | | |
| 19 | ION_CHECK_FAILED | | | | |
| 20 | FLAME_OUT_TOO_LATE | | | | |
| 21 | FLAME_BEFORE_IGNIT | | | | |
| 22 | TOO_MANY_FLAME_LOSS | | | | |
| 23 | CORRUPTED_ERROR_NR | | | | |
| 24 | FLUE_SWITCH_NOT_CLOSING | | | | |
| 25 | SUPPLY_DIFF_ERROR | | | | |
| 26 | TFLUE_DIFF_ERROR | | | | |
| 27 | FILLING_TOO_MUCH | | | | |
| 28 | FILL_TIME_ERROR | | | | |
| 29 | PSM_ERROR | | | | |
| 30 | REGISTER_ERROR | | | | |
| 31 | T_EXCHANGE_LOCK_ERROR | | | | |
| 32 | T_EXCHANGE_DIFF_ERROR | | | | |
| 33 | LWCO_1_ERROR | | | | |
| 34 | LWCO_2_ERROR | | | | |
| 35 | GAS_PRESSURE_ERROR | | | | |
| 36 | AIR_DAMPER_LOCKING | | | | |
| 37 | FLUE_PRESSURE_LOCKING | | | | |

| BLOCKING | | | | | |
|----------|---------------------------|--|--|--|--|
| 100 | WD_ERROR_RAM | | | | |
| 101 | WD_ERROR_RAM | | | | |
| 102 | WD_ERROR_STACK | | | | |
| 103 | WD_ERROR_REGISTER | | | | |
| 104 | WD_ERROR_XRL | | | | |
| 105 | HIGH_TEMP_ERROR | | | | |
| 106 | REFHI_TOO_HIGH | | | | |
| 107 | REFHI_TOO_LOW | | | | |
| 108 | REFLO_TOO_HIGH | | | | |
| 109 | REFLO_TOO_LOW | | | | |
| 110 | REFHI2_TOO_HIGH | | | | |
| 111 | REFHI2_TOO_LOW | | | | |
| 112 | REFLO2_TOO_HIGH | | | | |
| 113 | REFLO2_TOO_LOW | | | | |
| 114 | FALSE_FLAME | | | | |
| 115 | LOW_WATER_PRESSURE_ERROR | | | | |
| 116 | LOW_WATER_PRESSURE_SENSOR | | | | |
| 117 | BLOCKED_DRAIN | | | | |
| 118 | WD_COMM_ERROR | | | | |
| 119 | RETURN_OPEN | | | | |
| 120 | SUPPLY_OPEN | | | | |
| 121 | SUPPLY2_OPEN | | | | |
| 122 | DHW_OPEN | | | | |
| 123 | FLUE_OPEN | | | | |
| 124 | FLUE2_OPEN | | | | |
| 125 | OUTDOOR_OPEN | | | | |
| 126 | RETURN_SHORTED | | | | |
| 127 | SUPPLY_SHORTED | | | | |
| 128 | SUPPLY2_SHORTED | | | | |
| 129 | DHW_SHORTED | | | | |
| 130 | FLUE_SHORTED | | | | |
| 131 | FLUE2_SHORTED | | | | |
| 132 | OUTDOOR_SHORTED | | | | |
| 133 | RESET_BUTTON_ERROR | | | | |
| 135 | T_EXCHANGE_BLOCK_ERROR | | | | |
| 136 | T_CHIMNEY_OPEN | | | | |
| 137 | T_EXCHANGE1_OPEN | | | | |
| 138 | T_EXCHANGE2_OPEN | | | | |

4.3.1 ARRAY STATE/ERROR TABLE

| 139 | T_SELECTION1_OPEN |
|-----|---------------------------|
| 140 | T_SELECTION2_OPEN |
| 141 | T_SELECTION3_OPEN |
| 142 | T_OPTIONAL1_OPEN |
| 143 | T_OPTIONAL2_OPEN |
| 144 | T_AMBIENT_OPEN |
| 145 | T_CHIMNEY_CLOSED |
| 146 | T_EXCHANGE1_CLOSED |
| 147 | T_EXCHANGE2_CLOSED |
| 148 | T_SELECTION1_CLOSED |
| 149 | T_SELECTION2_CLOSED |
| 150 | T_SELECTION3_CLOSED |
| 151 | T_OPTIONAL1_CLOSED |
| 152 | T_OPTIONAL2_CLOSED |
| 153 | T_AMBIENT_CLOSED |
| 154 | WD_CONFIG_ERROR |
| 155 | FLUE_PRESSURE_ERROR |
| 156 | AIR_DAMPER_ERROR |
| 157 | T_SECONDARY_SUPPLY_OPEN |
| 158 | T_SECONDARY_RETURN_OPEN |
| 159 | T_SECONDARY_SUPPLY_CLOSED |
| 160 | T_SECONDARY_RETURN_CLOSED |
| 161 | FILL_WARNING |
| 162 | FLUE_BLOCKED |
| 163 | LOWEXFLOW_PROTECTION |
| | |

| WARNINGS | | | | | |
|----------|-----------------------|--|--|--|--|
| 200 | CC_LOSS_COMMUNICATION | | | | |
| 201 | CC_LOSS_BOILER_COMM | | | | |
| 202 | OUTDOOR_WRONG | | | | |
| 203 | T_SYSTEM_WRONG | | | | |
| 204 | T_CASCADE_WRONG | | | | |
| 255 | NOTHING IS WRONG | | | | |

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