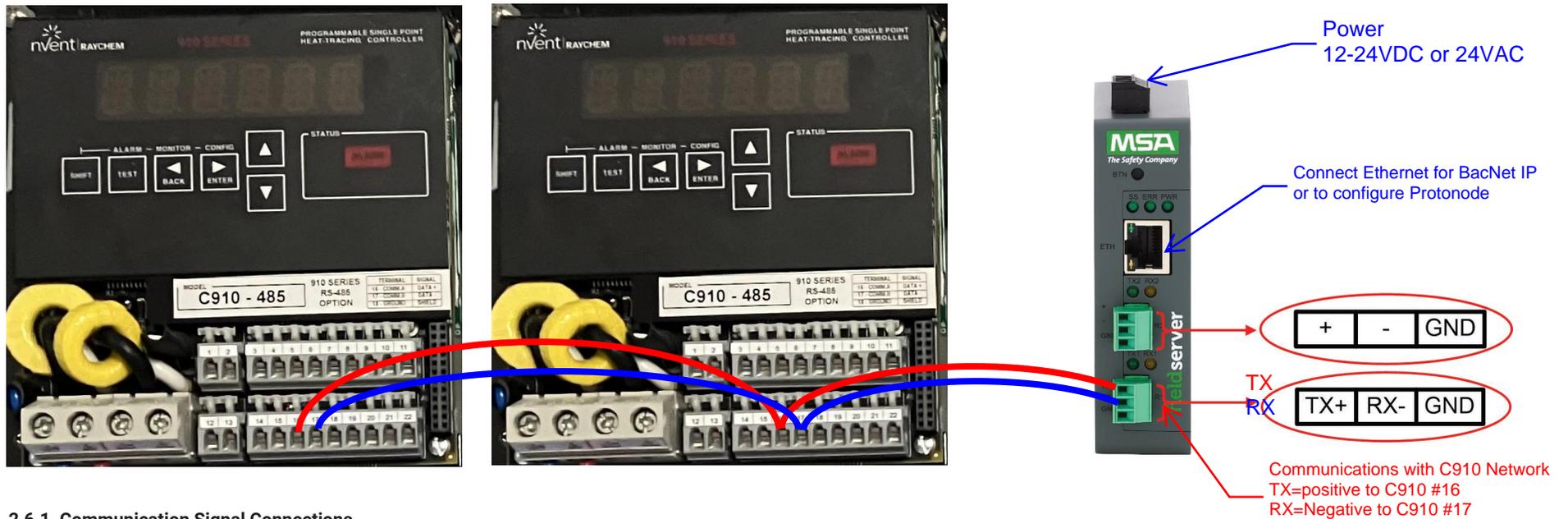See C910 installation manual here:
https://cdn.chemelex.com/Product%20Documents/Installation%20Manuals/Raychem-IM-H58415-C910series-EN.pdf
See protonode Start up Guide look here:
https://cdn.chemelex.com/Product%20Documents/Installation%20Manuals/Raychem-IM-H58622-ProtoNode-EN.pdf

Power
12-24VDC or 24VAC

Connect Ethernet for BacNet IP
or to configure Protonode

| + | - | GND |

TX
RX

| TX+ | RX- | GND |

Communications with C910 Network
TX=positive to C910 #16
RX=Negative to C910 #17

2.6.1 Communication Signal Connections

The C910-485 controller includes a RS-485 communications interface. Use twisted pair, shielded cable communication wiring. Ground the shield on communications wiring at one end only, using the terminals provided.
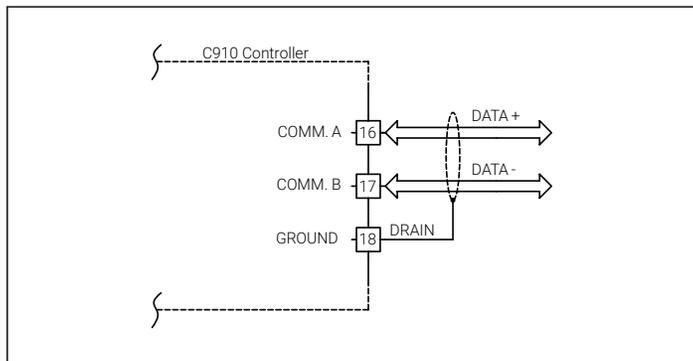

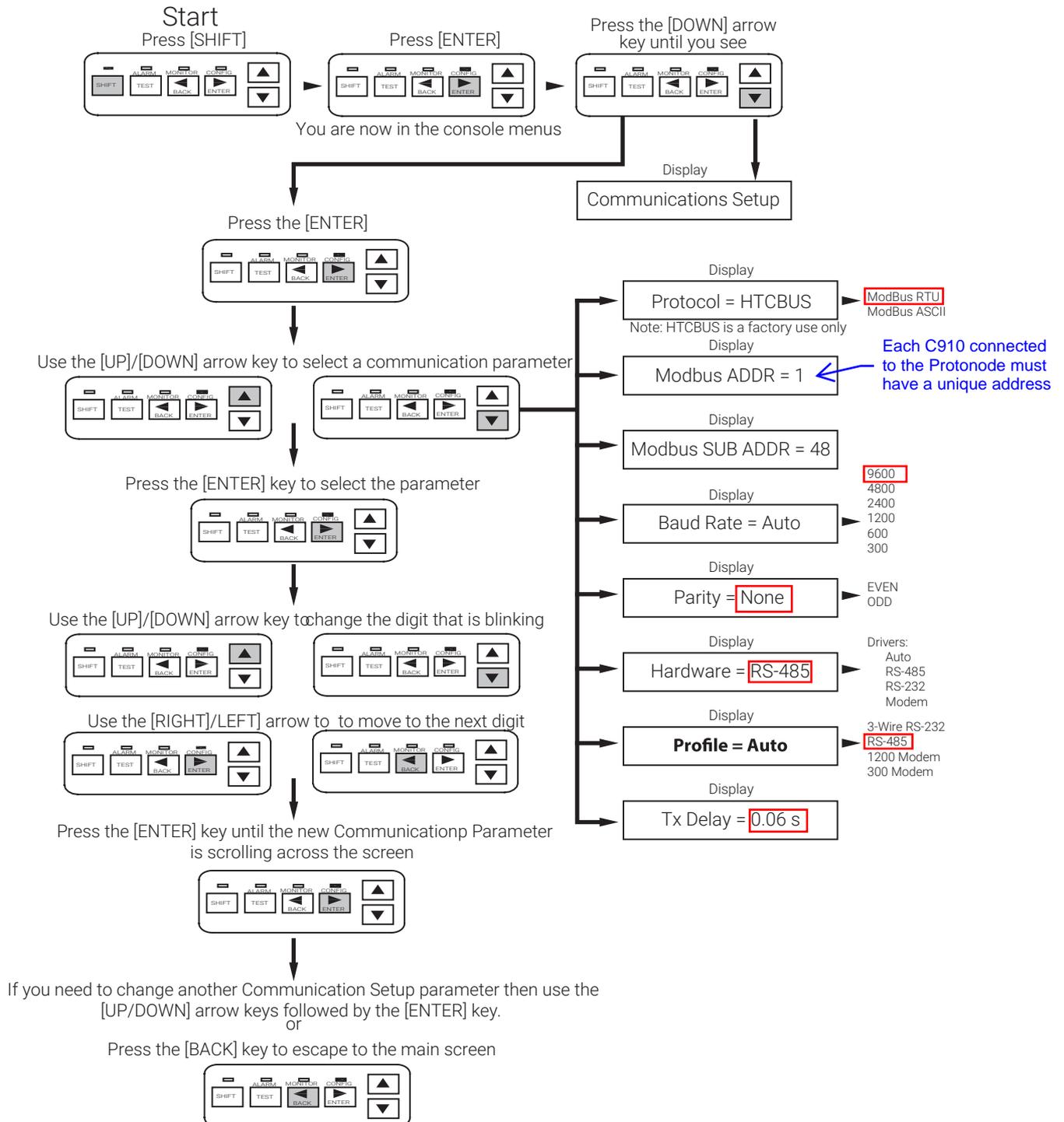Fig. 2.10 – Communication Wiring (C910-485 only) RS-485 (2-Wire) Connections

Commercial Services LLC

TITLE:
Connecting the
Protonode and C910s

SCALE	DATE	REV.
NONE	11/18/24	A

4.2.23 Communications Setup

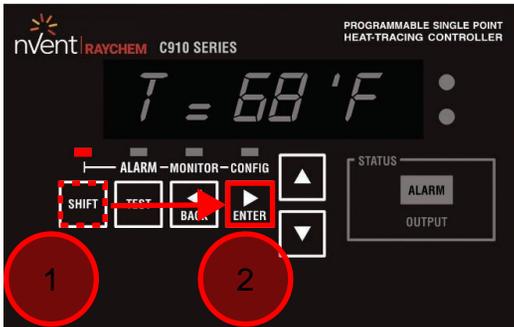| **Purpose**	Defines the communications language used by the controller to communicate with other devices. The C910-485 only communicates using Modbus Protocol. The C910-485 automatically detects when it is connected to the ACS-30 network.		
Setting/Range	See C910-485 Communication Parameters Table	**Factory Default**	HTCBus

Keystrokes for Communication Setup

Start
Press [SHIFT]

Press [ENTER]

You are now in the console menus

Press the [DOWN] arrow key until you see

Display
Communications Setup

Press the [ENTER]

Use the [UP]/[DOWN] arrow key to select a communication parameter

Press the [ENTER] key to select the parameter

Use the [UP]/[DOWN] arrow key to change the digit that is blinking

Use the [RIGHT]/LEFT] arrow to to move to the next digit

Press the [ENTER] key until the new Communicationp Parameter is scrolling across the screen

If you need to change another Communication Setup parameter then use the [UP/DOWN] arrow keys followed by the [ENTER] key.
or
Press the [BACK] key to escape to the main screen

Display
Protocol = HTCBUS → ModBus RTU / ModBus ASCII
Note: HTCBUS is a factory use only

Display
Modbus ADDR = 1 ← Each C910 connected to the Protonode must have a unique address

Display
Modbus SUB ADDR = 48

Display
Baud Rate = Auto → 9600 / 4800 / 2400 / 1200 / 600 / 300

Display
Parity = None → EVEN / ODD

Display
Hardware = RS-485 → Drivers: Auto / RS-485 / RS-232 / Modem

Display
Profile = Auto → 3-Wire RS-232 / RS-485 / 1200 Modem / 300 Modem

Display
Tx Delay = 0.06 s

1. Press SHIFT
2. Press ENTER (CONFIG)
3. Arrow down to COMMUNICATIONS SETUP then press enter
4. Select by arrowing down and then pressing ENTER.
5. Within the sub-menu arrow down to selection then press ENTER

From page 39

Key	Function
SHIFT	Press to activate a shifted function; the next key pressed uses the alternate (shifted) function (ALARM, MONITOR and CONFIG)
	The SHIFT LED illuminates, indicating the next key uses the alternate (shifted) function
	Pressing SHIFT again cancels the alternate (shifted) function
TEST	Turns on heating cable circuit for 30 seconds
	SHIFT + TEST Switches the console to the Alarm/reset mode
BACK	Exits the current menu (or cancels the new setting when editing a parameter)
	Moves the cursor to the left when editing an alphanumeric parameter
	[SHIFT + MONITOR] Switches the console to the Monitor mode
ENTER	Selects the item in the display (or accepts the setting when editing a parameter)
	Moves the cursor to the right when editing an alphanumeric parameter
	[shift + CONFIG] Switches the console to the CONFIG mode
	Moves to the previous item in a menu
	Increments the value when editing
	Moves to the next item in a menu
	Decrements the value when editing
Up/Down Arrow Keys	Once the main menu has been entered, use the Up/down arrow keys to navigate the program options

C910-485 Communication Parameters

Parameter	Settings	Notes
Protocol	HTCBus (default) Modbus RTU Modbus ASCII	If you are communicating directly with the controller using a different device, select the MODBUS protocol. For a detailed description of the controller's MODBUS mapping please refer to C910-485 Heat Trace Controller. ⚡ **Note:** HTCBus is for factory use only.
Modbus Addr	1 - 247	Set the communications address as desired. Each controller on the serial communication bus must have its own unique address.
Modbus Baud Rate	Auto, 9600, 4800, 2400 1200, 600, 300. Default =Auto	Select the data rate to be compatible with other devices that will be connected to the controller for communications Purposes. It is recommended that the Setting be set to AUTO. The controller will automatically select a BAUD RATE that is compatible with the communications interface installed.
Parity	NONE, EVEN, ODD	Defines the type of parity bit to be used with MODBUS communications. Select the desired type of parity. Note that PARITY can only be selected when using MODBUS protocol.
Hardware	RS-485	Identifies the type of communications interface installed in the C910-485.
Driver	Auto, RS-485, RS-232, Modem.	Defines the way in which the controller's program communicates with the communications interface.
Profile	Auto, 3-wire RS232, RS485, 1200 BAUD Modem, 300 BAUD Modem	Defines the way in which the controller's program supports communications handshaking and communication interface signals.
Tx Delay	0.00 to 2.50 seconds	Allows a programmable delay between the receipt of a communications message and the controller's reply. In some applications, it may be necessary to delay the controller's response to an inquiry for a short period of time to allow external devices to start up, stabilize and/or synchronize.

Each C910 connected to the Protonode must have a unique address
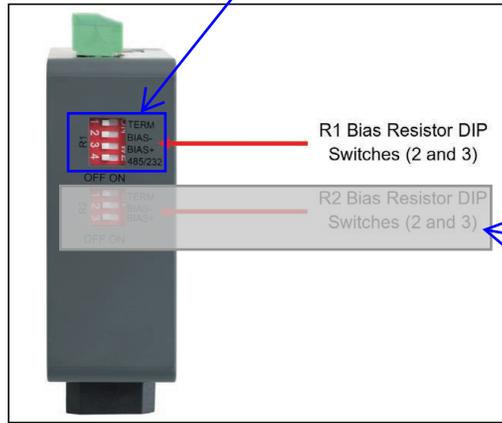
Commercial Services LLC

TITLE: Set up C910 for use w Protonode

SCALE: NONE
DATE: 11/18/24
REV: A

See protonode Start up Guide look here:
https://cdn.chemelex.com/Product%20Documents/Installation%20Manuals/Raychem-IM-H58622-ProtoNode-EN.pdf

From Page 7

For this set up leave these off to start

3.1.1 Bias Resistors

R1 Bias Resistor DIP Switches (2 and 3)

R2 Bias Resistor DIP Switches (2 and 3)

To enable Bias Resistors, move both the BIAS- and BIAS+ DIP switches to the right in the orientation shown above.

The bias resistors are used to keep the RS-485 bus to a known state, when there is no transmission on the line (bus is idling), to help prevent false bits of data from being detected. The bias resistors typically pull one line high and the other low - far away from the decision point of the logic.

The bias resistor is 510 ohms which is in line with the BACnet spec. It should only be enabled at one point on the bus (for example, on the field port were there are very weak bias resistors of 100k). Since there are no jumpers, many ProtoNodes can be put on the network without running into the bias resistor limit which is < 500 ohms.
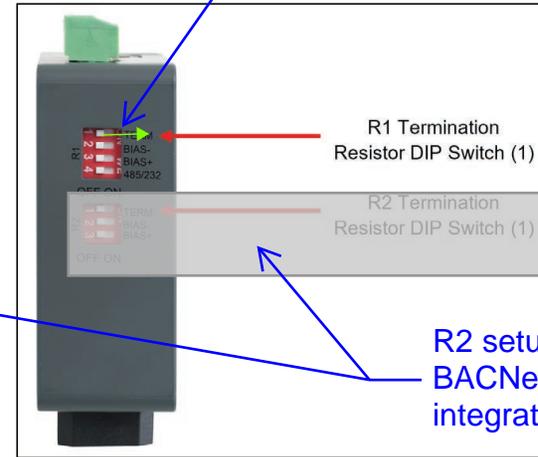
NOTE: See the **Termination and Bias Resistance Enote** for additional information.

NOTE: **The R1 and R2 DIP Switches apply settings to the respective serial port.**

NOTE: **If the gateway is powered on, DIP switch settings will not take effect unless the unit is power cycled.**

From Page 8

For this setup the R1 "TERM" should be on

3.1.2 Termination Resistor

R1 Termination Resistor DIP Switch (1)

R2 Termination Resistor DIP Switch (1)

R2 setup is for BACNet MS/TP integrator connection

If the gateway is the last device on the serial trunk, then the End-Of-Line Termination Switch needs to be enabled. **To enable the termination resistor, move the TERM dip switch to the right in the orientation shown in above**.

The termination resistor is also used to reduce noise. It pulls the two lines of an idle bus together. However, the resistor would override the effect of any bias resistors if connected. The R1 termination resistor is 120 Ohms.

NOTE: **The R1 and R2 DIP Switches apply settings to the respective serial port.**

NOTE: **If the gateway is already powered on, DIP switch settings will not take effect unless the unit is power cycled.**

Ethernet port: BACNet IP connection.

R2 setup is for integrator connection to BACNet MS/TP

RS1 Serial Port connection to RAYCHEM controller

| + | - | GND |

| TX+ | RX- | GND |

Commercial Services LLC

TITLE: Set Protonode DIP switches

SCALE NONE   DATE. 11/18/24   REV. A

Configure the computer with static IP address
Control Panel/ Network and Internet/ Network and Sharing Center/ Change adapter setting/ Ethernet
Right click, Properties/ Internet Protocol Version 4

select "Use the following IP address"
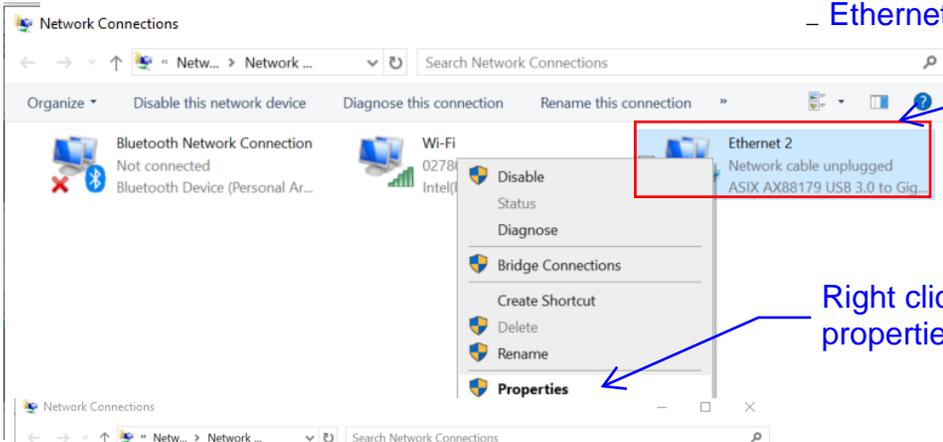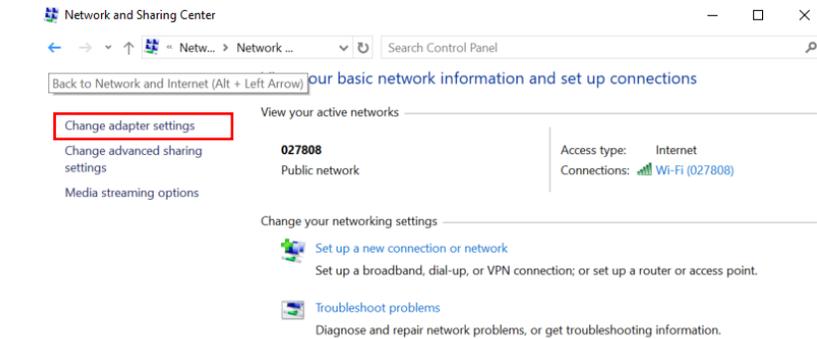
You must have an Ethernet Port

Input the following

Right click and select properties
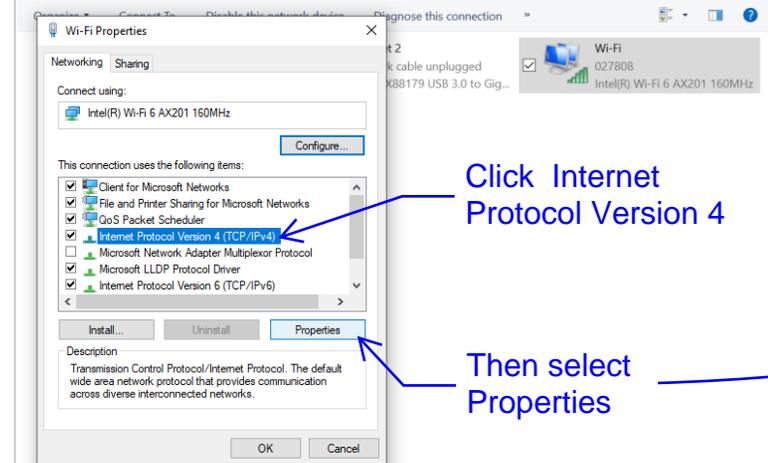
Click Internet Protocol Version 4

Then select Properties
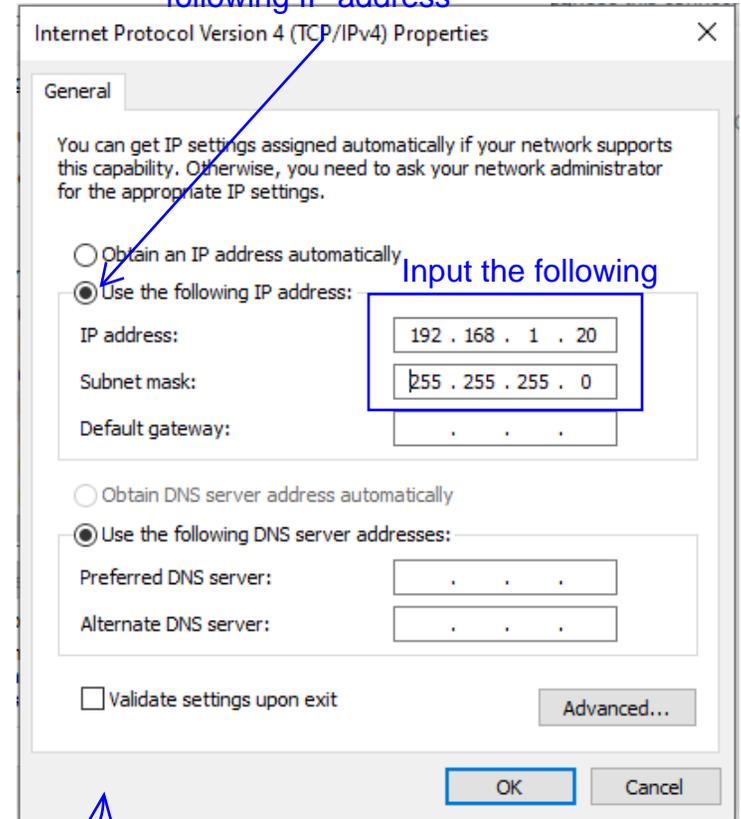
Commercial Services LLC

TITLE: Set computer to static IP address

SCALE	DATE	REV.
NONE	11/18/24	A

Open browser (chrome is best)
Enter web address 192.168.1.24 (where 4 is one of the SIMs)
At Log in screen enter "Admin" as user
Get the password from the sticker on the protonode (see below)

9.7   Internet Browser Software Support

The following web browsers are supported:

- Chrome Rev. 57 and higher
- Firefox Rev. 35 and higher
- Microsoft Edge Rev. 41 and higher
- Safari Rev. 3 and higher

From back of Protonode
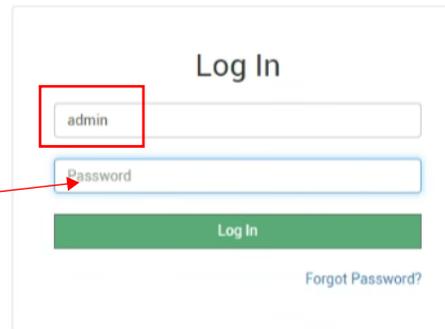
Two new part numbers were released, these are:

2000004256 (ProtoNode-RER 1.5K) FPC-N54-225 is 1.5K and

2000004257 (ProtoNode-RER-10K) FPC-N54-226 is 10K

Commercial Services LLC

TITLE: Log into Protonode		
SCALE NONE	DATE 11/18/24	REV. A

MSA

Configuration Parameters

Parameter Name	Parameter Description	Value	
protocol_select	**Protocol Selector** Set to 1 for BACnet IP/Modbus TCP Set to 2 for BACnet MSTP Set to 3 for BACnet MSTP (single node)	1	Submit
mod_baud_rate	**Modbus RTU Baud Rate** This sets the Modbus RTU baud rate. (9600/19200/38400/57600)	9600	Submit
mod_parity	**Modbus RTU Parity** This sets the Modbus RTU parity. (None/Even/Odd)	None	Submit
mod_data_bits	**Modbus RTU Data Bits** This sets the Modbus RTU data bits. (7 or 8)	8	Submit
mod_stop_bits	**Modbus RTU Stop Bits** This sets the Modbus RTU stop bits. (1 or 2)	2	Submit
network_nr	**BACnet Network Number** This sets the BACnet network number of the Gateway. (1 - 65535)	50	Submit
node_offset	**BACnet Node Offset** This is used to set the BACnet device instance. The device instance will be sum of the Modbus device address and the node offset. (0 - 4194303)	50000	Submit
bac_ip_port	**BACnet IP Port** This sets the BACnet IP port of the Gateway. The default is 47808. (1 - 65535)	47808	Submit
bac_ip_port	**BACnet IP Port** This sets the BACnet IP port of the Gateway. The default is 47808. (1 - 65535)	47808	Submit
bac_cov_option	**BACnet COV** This enables or disables COVs for the BACnet connection. Use COV_Enable to enable. Use COV_Disable to disable. (COV_Enable/COV_Disable)	COV_Disable	Submit
bac_bbmd_option	**BACnet BBMD** This enables BBMD on the BACnet IP connection. Use BBMD to enable. Use - to disable. The bdt.ini files also needs to be downloaded. (BBMD/-)	-	Submit
bac_virt_nodes	**BACnet Virtual Server Nodes** Set to NO if the unit is only converting 1 device to BACnet. Set to YES if the unit is converting multiple devices. (No/Yes)	No	Submit

PICK BASED ON CUSTOMER INTEGRATOR

If Bacnet IP enter 1 (default)
If BacNet MSTP enter 2

Use stop of 1

BASED ON INTEGRATOR

Active profiles

Nr	Node ID	Current profile	Parameters	
1	1	BAC_IP_ACS30_MultiCkt		Remove

[Add]

[HELP (?)] [Clear Profiles and Restart] [System Restart] [Diagnostics & Debugging]

Must hit restart to change to take effect

add each C910 using their Modbus address

BACnet Virtual Server Nodes ...is only converting 1 device to BACnet. ...is converting multiple devices.

bac_virt_nodes [No] Submit

Dropdown:
- BAC_IP_ACS30
- BAC_IP_ACS30_MultiCkt
- BAC_IP_C910
- BAC_IP_TS12_SIMs_1-050
- BAC_IP_TS12_SIMs_1-100
- BAC_IP_TS12_SIMs_1-150
- BAC_IP_TS12_SIMs_1-200
- BAC_IP_TS12_SIMs_1-255
- BAC_IP_TT_Sim

Active profile

Nr	Node ID		Parameters	
1	2			Remove
	3	BAC_IP_ACS30		Submit Cancel

This would look different if you selected MSTP

add each C910 using their address

If using BacNet IP, when the Protonode is set up, the integrator can speak to it directly by going to the Navigation/Settings screen

MSA — FieldServer Manager

Navigation
- CN2225 nVent v5.00a
  - About
  - Setup:
    - File Transfer
    - Network Settings
    - User Management
    - Security
    - Time Settings
  - View
  - User Messages
  - Diagnostics

Network Settings

ETH 1   Routing

☐ Enable DHCP

IP Address: 192.168.1.24

Netmask: 255.255.255.0

Gateway: 192.168.1.1

Domain Name Server 1 (Optional): 8.8.8.8

Domain Name Server 2 (Optional): 8.8.4.4

[Cancel] [Save]

Network Status
Connection Status	✓ Connected
MAC Address	00:50:4e:61:c6:6b
Ethernet Tx Msgs	4,821
Ethernet Rx Msgs	5,446
Ethernet Tx Msgs Dropped	0
Ethernet Rx Msgs Dropped	0

[Home] [HELP (?)] [Contact Us] [Logout]   fieldserver

This is for integrator to talk to protonode if using Bacnet IP
If changed your computer will no longer connect unless reconfigured to new IP address/settings

---

Commercial Services LLC

TITLE:	Set up Protonode	
SCALE: NONE	DATE: 11/18/24	REV. A

8 Configuring the ProtoNode

8.4   Test and Commission the ProtoNode

- Connect the ProtoNode to the third party device(s), and test the application.

- From the landing page of the FS-GUI click on "View" in the navigation tree, then "Connections" to see the number of messages on each protocol.
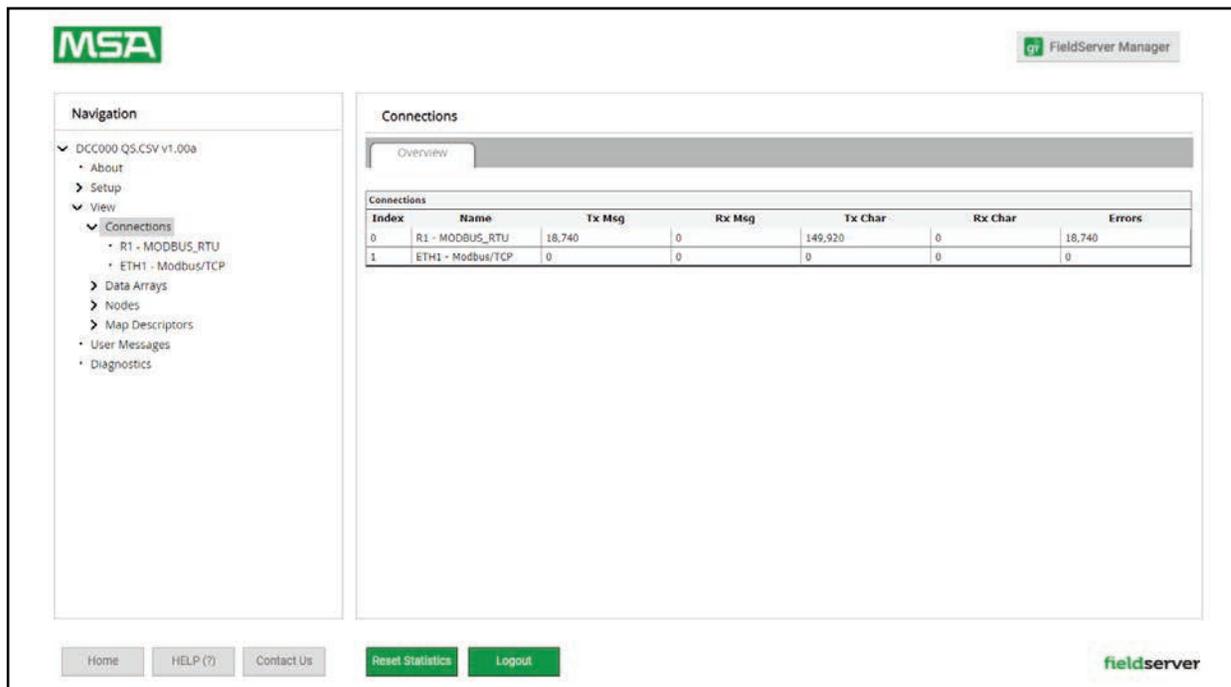
NOTE: For troubleshooting assistance refer to Section 9 Troubleshooting, or any of the troubleshooting appendices in the related driver supplements and configuration manual.

		TITLE:
		System integrators interpretation of values

SCALE	DATE	REV.
NONE	11/18/24	A

Commercial Services LLC

Appendix A. C910 Modbus RTU Mappings to BACnet MS/TP, BACnet/IP, Metasys N2

Point Name	BACnet Object Type	BACnet Object ID	N2 Data Type	N2 Point Address
Device Type	AI	1	AI	1
Firmware Version	AI	2	AI	2
Firmware Version	AI	3	AI	3
Firmware Version	AI	4	AI	4
Manufactured Year	AI	5	AI	5
Manufactured Month	AI	6	AI	6
Manufactured Day	AI	7	AI	7
Controller's Serial Number	AI	8	AI	8
Setpoint and TS Range Maximum	AI	9	AI	9
Setpoint and TS Range Minimum	AI	10	AI	10
Current Range Maximum	AI	11	AI	11
Current Range Minimum	AI	12	AI	12
GFI Range Maximum	AI	13	AI	13
GFI Range Minimum	AI	14	AI	14
Control Output Duty Cycle	AI	15	AI	15
Tracing Control Status	AI	16	AI	16
PASC On-Count	AI	17	AI	17
PASC Off-Count	AI	18	AI	18
PASC Next Switch Count	AI	19	AI	19
PASC Percent On	AI	20	AI	20
PASC Output State	AI	21	AI	21
PASC Total Time	AI	22	AI	22
Current Schedule Segment value	AI	23	AI	23
EXT Transition Countdown	AI	24	AI	24
Cycle On Count	AI	25	AI	25
Cycle Off Count	AI	26	AI	26
Cycle Next Switch Count	AI	27	AI	27
Average Control Temperature	AI	28	AI	28
Average TS 1 Temperature	AI	29	AI	29
Average TS 2 Temperature	AI	30	AI	30
Average Load Current	AI	31	AI	31
Instantaneous Gnd Flt Current	AI	32	AI	32
Average Voltage	AI	33	AI	33
Average Power Consumption	AI	34	AI	34
Average Tracing Resistance	AI	35	AI	35
HighTS 1 Alarm Value	AI	36	AI	36
Low TS 1 Alarm Value	AI	37	AI	37
High TS 2 Alarm Value	AI	38	AI	38
Low TS 2 Alarm Value	AI	39	AI	39
Low Load Current Alarm Value	AI	40	AI	40
GF High Alarm Value	AI	41	AI	41
GF Current Trip Alarm Value	AI	42	AI	42
Maximum Control Temperature	AI	43	AI	43
Minimum Control Temperature	AI	44	AI	44
Maximum TS 1 Temperature	AI	45	AI	45
Minimum TS 1 Temperature	AI	46	AI	46
Maximum TS 2 Temperature	AI	47	AI	47
Minimum TS 2 Temperature	AI	48	AI	48
Power Accumulator	AI	49	AI	49
Highest Instantaneous Ld Current	AI	50	AI	50

Point Name	BACnet Object Type	BACnet Object ID	N2 Data Type	N2 Point Address
Highest Instantane Gnd Flt Crrnt	AI	51	AI	51
Contactor Cycle Count	AI	52	AI	52
Number of Hours In Use	AI	53	AI	53
Number of Hours Since Last Reset	AI	54	AI	54
Control Temperature Setpoint	AV	1	AV	1
TS Control Mode	AV	2	AV	2
Switch Control Mode	AV	3	AV	3
Deadband	AV	4	AV	4
PASC Minimum Ambient Temperature	AV	5	AV	5
PASC Minimum Pipe Size	AV	6	AV	6
PASC Power Adjust	AV	7	AV	7
Remote Override Status	AV	8	AV	8
High TS 1 Alarm Setpoint	AV	9	AV	9
Low TS 1 Alarm Setpoint	AV	10	AV	10
High TS 2 Alarm Setpoint	AV	11	AV	11
Low TS 2 Alarm Setpoint	AV	12	AV	12
TS1 Configuration	AV	13	AV	13
TS2 Configuration	AV	14	AV	14
TS1 High Temp Cutoff	AV	15	AV	15
TS2 High Temp Cutoff	AV	16	AV	16
Low Load Current Alarm Setpoint	AV	17	AV	17
Ground Fault High Current SP	AV	18	AV	18
Ground Fault Trip Current SP	AV	19	AV	19
Controller Identification Tag 0	AV	20	AV	20
Controller Identification Tag 1	AV	21	AV	21
Controller Identification Tag 2	AV	22	AV	22
Controller Identification Tag 3	AV	23	AV	23
Controller Identification Tag 4	AV	24	AV	24
Controller Identification Tag 5	AV	25	AV	25
Controller Identification Tag 6	AV	26	AV	26
Controller Identification Tag 7	AV	27	AV	27
Controller Identification Tag 8	AV	28	AV	28
Controller Identification Tag 9	AV	29	AV	29
Auto-cycle Interval	AV	30	AV	30
Contactor Cycle Count Alm Lim SP	AV	31	AV	31
External Input Configuration	AV	32	AV	32
Console Security Passcode	AV	33	AV	33
MODBus Address	AV	34	AV	34
Communications Protocol	AV	35	AV	35
Communications Baud Rate	AV	36	AV	36
Communications MODBus Parity	AV	37	AV	37
Communications I/O Driver	AV	38	AV	38
Communications Profile	AV	39	AV	39
Communications TX Delay	AV	40	AV	40
Communications Activity Time-out	AV	41	AV	41
Wall-clock Day of Week	AV	42	AV	42
Wall-clock Hour	AV	43	AV	43
Wall-Clock Minute	AV	44	AV	44
Wall-clock Seconds	AV	45	AV	45
Schedule Cycle Period	AV	46	AV	46
Economy Duty Cycle	AV	47	AV	47

Point Name	BACnet Object Type	BACnet Object ID	N2 Data Type	N2 Point Address
Maintain Duty Cycle	AV	48	AV	48
Economy Setpoint	AV	49	AV	49
Maintain Setpoint	AV	50	AV	50
Bracketed High Setpoint	AV	51	AV	51
Bracketed Low Setpoint	AV	52	AV	52
Turn on Delay	AV	53	AV	53
Turn off Delay	AV	54	AV	54
Sunday 12AM - 3:30 AM	AV	55	AV	55
Sunday 4AM - 7:30AM	AV	56	AV	56
Sunday 8AM -11:30 AM	AV	57	AV	57
Sunday 12 PM - 3:30 PM	AV	58	AV	58
Sunday 4PM - 7:30PM	AV	59	AV	59
Sunday 8PM -11:30 PM	AV	60	AV	60
Monday 12AM - 3:30 AM	AV	61	AV	61
Monday 4AM - 7:30AM	AV	62	AV	62
Monday 8AM -11:30 AM	AV	63	AV	63
Monday 12 PM - 3:30 PM	AV	64	AV	64
Monday 4PM - 7:30PM	AV	65	AV	65
Monday 8PM -11:30 PM	AV	66	AV	66
Tuesday 12AM - 3:30 AM	AV	67	AV	67
Tuesday 4AM - 7:30AM	AV	68	AV	68
Tuesday 8AM -11:30 AM	AV	69	AV	69
Tuesday 12 PM - 3:30 PM	AV	70	AV	70
Tuesday 4PM - 7:30PM	AV	71	AV	71
Tuesday 8PM -11:30 PM	AV	72	AV	72
Wednesday 12AM - 3:30 AM	AV	73	AV	73
Wednesday 4AM - 7:30AM	AV	74	AV	74
Wednesday 8AM -11:30 AM	AV	75	AV	75
Wednesday 12 PM - 3:30 PM	AV	76	AV	76
Wednesday 4PM - 7:30PM	AV	77	AV	77
Wednesday 8PM -11:30 PM	AV	78	AV	78
Thursday 12AM - 3:30 AM	AV	79	AV	79
Thursday 4AM - 7:30AM	AV	80	AV	80
Thursday 8AM -11:30 AM	AV	81	AV	81
Thursday 12 PM - 3:30 PM	AV	82	AV	82
Thursday 4PM - 7:30PM	AV	83	AV	83
Thursday 8PM -11:30 PM	AV	84	AV	84
Friday 12AM - 3:30 AM	AV	85	AV	85
Friday 4AM - 7:30AM	AV	86	AV	86
Friday 8AM -11:30 AM	AV	87	AV	87
Friday 12 PM - 3:30 PM	AV	88	AV	88
Friday 4PM - 7:30PM	AV	89	AV	89
Friday 8PM -11:30 PM	AV	90	AV	90
Saturday 12AM - 3:30 AM	AV	91	AV	91
Saturday 4AM - 7:30AM	AV	92	AV	92
Saturday 8AM -11:30 AM	AV	93	AV	93
Saturday 12 PM - 3:30 PM	AV	94	AV	94
Saturday 4PM - 7:30PM	AV	95	AV	95
Saturday 8PM -11:30 PM	AV	96	AV	96
High TS 1	BV	1	BV	1
Low TS 1	BV	2	BV	2

Point Name	BACnet Object Type	BACnet Object ID	N2 Data Type	N2 Point Address
TS 1 Failure	BV	3	BV	3
High TS 2	BV	4	BV	4
Low TS 2	BV	5	BV	5
TS 2 Failure	BV	6	BV	6
Control TS Failure	BV	7	BV	7
Low Load Current	BV	8	BV	8
High Ground Fault	BV	9	BV	9
Ground Fault Trip	BV	10	BV	10
Contactor Cycle Count	BV	11	BV	11
Switch Failure	BV	12	BV	12
EEROM Data Failure	BV	13	BV	13
Serial EEROM Not Responding	BV	14	BV	14
Mdm Chp ID Inval/Modm Baud Inval	BV	15	BV	15
Wall-clock invalid	BV	16	BV	16
TS1 High Temp. Cutoff	BV	17	BV	17
TS2 High Temp. Cutoff	BV	18	BV	18
Alarm Mask 00	BV	19	BV	19
Alarm Mask 01	BV	20	BV	20
Alarm Mask 02	BV	21	BV	21
Alarm Mask 03	BV	22	BV	22
Alarm Mask 04	BV	23	BV	23
Alarm Mask 05	BV	24	BV	24
Alarm Mask 06	BV	25	BV	25
Alarm Mask 07	BV	26	BV	26
Alarm Mask 08	BV	27	BV	27
Alarm Mask 09	BV	28	BV	28
Alarm Mask 10	BV	29	BV	29
Alarm Mask 11	BV	30	BV	30
Alarm Mask 12	BV	31	BV	31
Alarm Mask 13	BV	32	BV	32
Alarm Mask 14	BV	33	BV	33
Alarm Mask 15	BV	34	BV	34
Alarm Mask 16	BV	35	BV	35
Alarm Mask 17	BV	36	BV	36
Alarm Mask 18	BV	37	BV	37
Alarm Mask 19	BV	38	BV	38
Alarm Mask 20	BV	39	BV	39
Alarm Mask 22	BV	40	BV	40
Alarm Mask 23	BV	41	BV	41
Alarm Mask 24	BV	42	BV	42
TS1 Hi Temp Cutoff	BV	43	BV	43
TS2 Hi Temp Cutoff	BV	44	BV	44
Controller Was Reset	BV	45	BV	45
Local Console Modified Database	BV	46	BV	46
Remote Device modified Database	BV	47	BV	47
Database Potentially Modified	BV	48	BV	48
Console Units In Imperial	BV	49	BV	49
TS Fail Mode	BV	50	BV	50
Alarm Output Normally Open	BV	51	BV	51
Auto-Cycle Enabled	BV	52	BV	52
Auto-Cycle Interval In Minutes	BV	53	BV	53

Point Name	BACnet Object Type	BACnet Object ID	N2 Data Type	N2 Point Address
Override Source	BV	54	BV	54
Reset All Max/Min Temperatures	BV	55	BV	55
Reset Power Accumulator	BV	56	BV	56
Reset Highest Instan Ld Current	BV	57	BV	57
Reset Hi Instan Gnd Flt Current	BV	58	BV	58
Reset Contactor Cycle Count	BV	59	BV	59
Reset Number ofHours In Use	BV	60	BV	60
Force User Defaults	BV	61	BV	61
Lock User Console	BV	62	BV	62
Invert EXT Input	BV	63	BV	63
Raw External Input	BI	1	BI	1
Raw External Output	BI	2	BI	2
Raw Alarm Output	BI	3	BI	3
Raw Switch Output	BI	4	BI	4
Local Console Database Unlocked	BI	5	BI	5

Appendix B. ACS-30 NAM (Protonode-RER-1.5K) Modbus RTU Mappings to BACnet MS/TP, BACnet/IP, Metasys N2

Point Name	BACnet Object Type	BACnet Object ID	N2 Data Type	N2 Point Address
Offline Config	binary_value	1	BV	1
Network sensor device scan	binary_value	2	BV	2
Acknowledge Alarm	binary_value	3	BV	3
spare	binary_value	4	BV	4
Modbus Units	binary_value	5	BV	5
Device01 Status Change Flag	binary_value	6	BV	6
Device02 Status Change Flag	binary_value	7	BV	7
Device03 Status Change Flag	binary_value	8	BV	8
Device04 Status Change Flag	binary_value	9	BV	9
Device05 Status Change Flag	binary_value	10	BV	10
Device06 Status Change Flag	binary_value	11	BV	11
Device07 Status Change Flag	binary_value	12	BV	12
Device08 Status Change Flag	binary_value	13	BV	13
Device09 Status Change Flag	binary_value	14	BV	14
Device10 Status Change Flag	binary_value	15	BV	15
Device11 Status Change Flag	binary_value	16	BV	16
Device12 Status Change Flag	binary_value	17	BV	17
Device13 Status Change Flag	binary_value	18	BV	18
Device14 Status Change Flag	binary_value	19	BV	19
Device15 Status Change Flag	binary_value	20	BV	20
Device16 Status Change Flag	binary_value	21	BV	21
Device17 Status Change Flag	binary_value	22	BV	22
Device18 Status Change Flag	binary_value	23	BV	23
Device19 Status Change Flag	binary_value	24	BV	24
Device20 Status Change Flag	binary_value	25	BV	25
Device21 Status Change Flag	binary_value	26	BV	26
Device22 Status Change Flag	binary_value	27	BV	27
Device23 Status Change Flag	binary_value	28	BV	28
Device24 Status Change Flag	binary_value	29	BV	29
Device25 Status Change Flag	binary_value	30	BV	30