Communication

Versatronik® 525 & 525D OT

Communication Gateway
BACnet IP

Document Applicable to:
Wall Mount
Versatronik 525 OT/BACIP P/N 704051
DIN Rail Mount
Versatronik 525 OT/BACIP P/N 704073

Applicable Controls
Vitodens 100, WB1A
Vitodens 100, WB1B

Technical, Installation and Configuration Information

Cautionary Statement

The information presented in this document is only to be used by those familiar with its application and use.

C US LR 102874

IMPORTANT

Read and save these instructions for future reference

About these instructions

Take note of all symbols and notations intended to draw attention to potential hazards or important product information. These include “WARNING”, “CAUTION” and “IMPORTANT”. See below.

WARNING

Indicates an imminently hazardous situation which, if not avoided, could result in death, serious injury or substantial product/property damage.

→ *Warnings draw your attention to the presence of potential hazards or important product information.*

CAUTION

Indicates an imminently hazardous situation which, if not avoided, may result in minor injury or product/property damage.

→ *Cautions draw your attention to the presence of potential hazards or important product information*

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

IMPORTANT

→ *Helpful hints for installation, operation or maintenance which pertains to the product.*

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KWE P/N 394039 Versatronik 525 and 525D OT/BACIP Gateway V1.0 09/2013 Technical information subject to change without notice

Important Regulatory and Installation Requirements

Codes
The installation of this unit must be in accordance with local codes.

→ *Please carefully read this manual prior to attempting installation. Any warranty is null and void if these instructions are not followed.*

All electrical wiring is to be done in accordance with the latest edition of CSA C22,1 Part 1 and/ or local codes. In the U.S. use the National Electrical Code ANSI/NFPA 70.

→ *The completeness and functionality of field supplied electrical controls and components must be verified by those installing the device*

The installing contractor must comply with the Standard of Controls and Safety Devices for Automatically fired Boilers, ANSI/ ASME CSD-1 where required by the authority having jurisdiction.

WARNING

More than one live circuit. See wiring diagram in this manual. Turn off power supply to control and damper/blower before servicing. Contact with live electrical components can result in serious injury or death

Working on the equipment
The installation, adjustment, service and maintenance of this unit must be done by a licensed professional heating contractor or persons who are qualified and experienced in the installation, service, and maintenance of similar products. There are no user serviceable parts on this control.

Power supply
Install power supply in accordance with the regulation of the authorities having jurisdiction or in absence of such requirements, in accordance with National Codes.

Purpose of Device and Operation

The Versatronik 525 OT gateway provides a communication translation between OT enabled boilers, room thermostat controls, BACnet enabled BMS systems.

The Versatronik gateway may be either part of a control panel or stand-alone control device.

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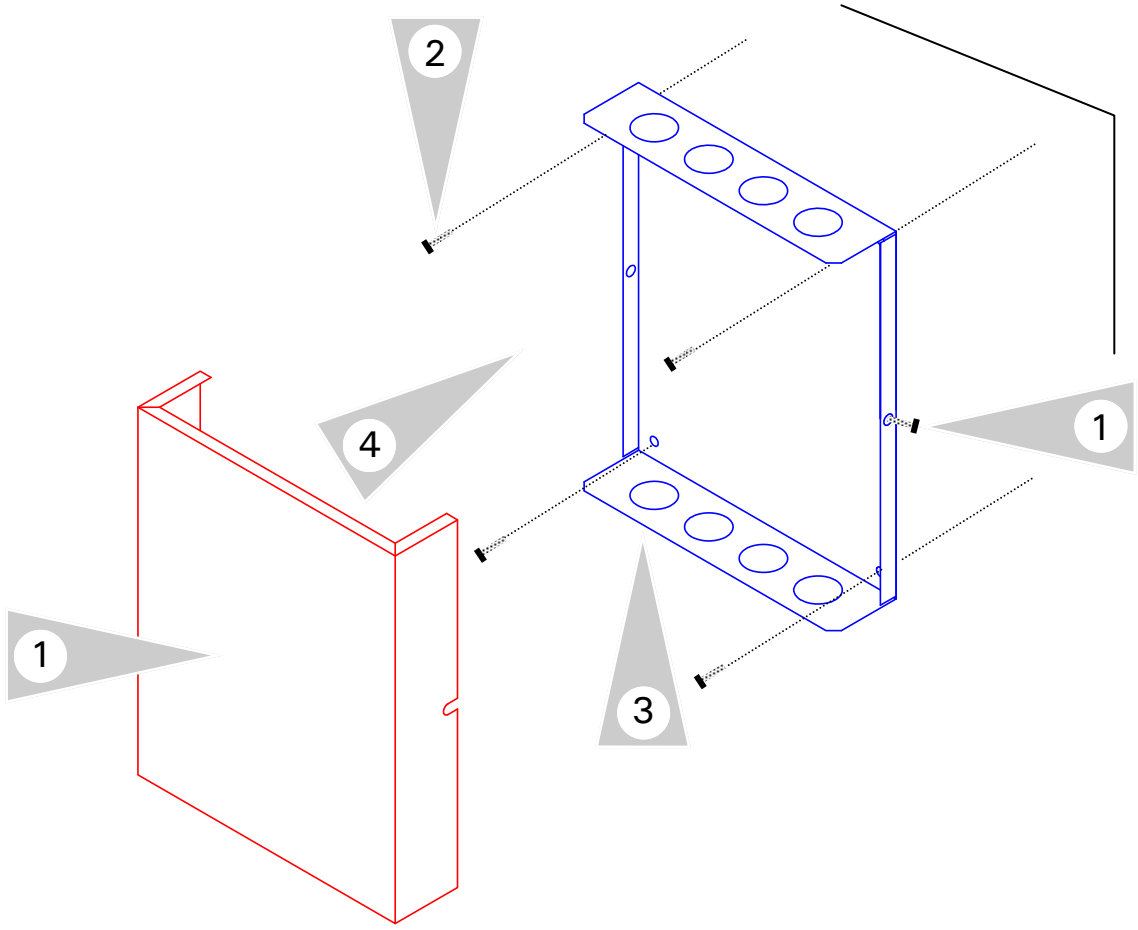
Installation

Mounting Versatronik Gateway—120VAC Unit



Mounting Steps

1. Mount Versatronik 525 Gateway in a convenient location near the connected boiler control. Remove cover by loosening the two screws on either side of base to release the cover.
2. Fasten base to wall using field-supplied screws/fasteners.
3. Remove knockout and installed wire strain relief or box connector. Removal of remaining knockouts is required to make further connections.
4. Once all of the 120VAC and low voltage connections are complete and verified, reinstall the cover from Step 1.

WARNING

When extending wire there is the possibility of exposure to electromagnetic interference. Avoid running wires beside or near high voltage 120/240 VAC conductors. If proximity to high voltage conductors cannot be avoided, use stranded, twisted pair of shield design wire. Ensure that only one end of the shielding is grounded.

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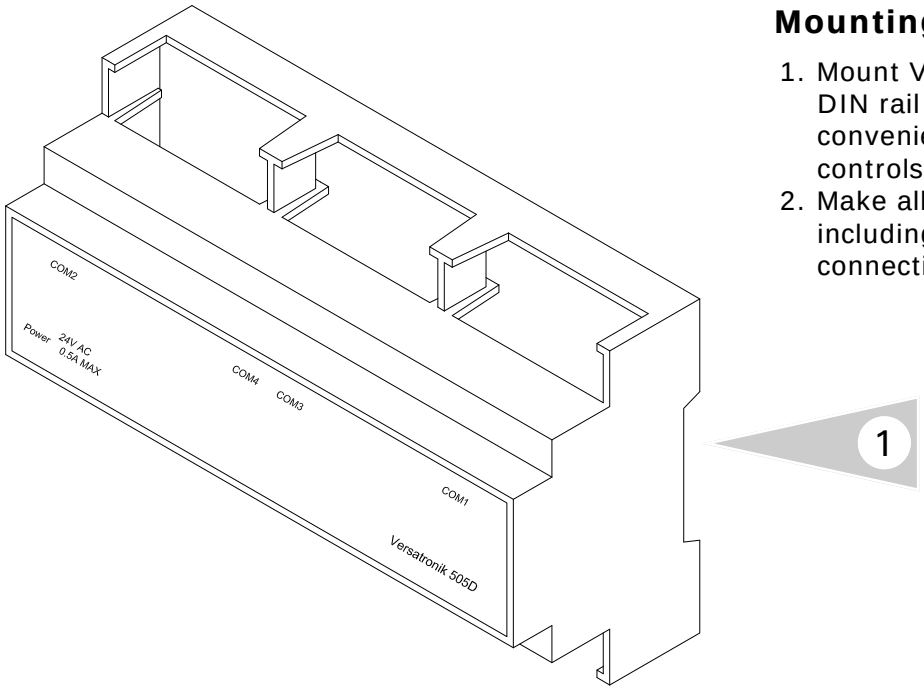
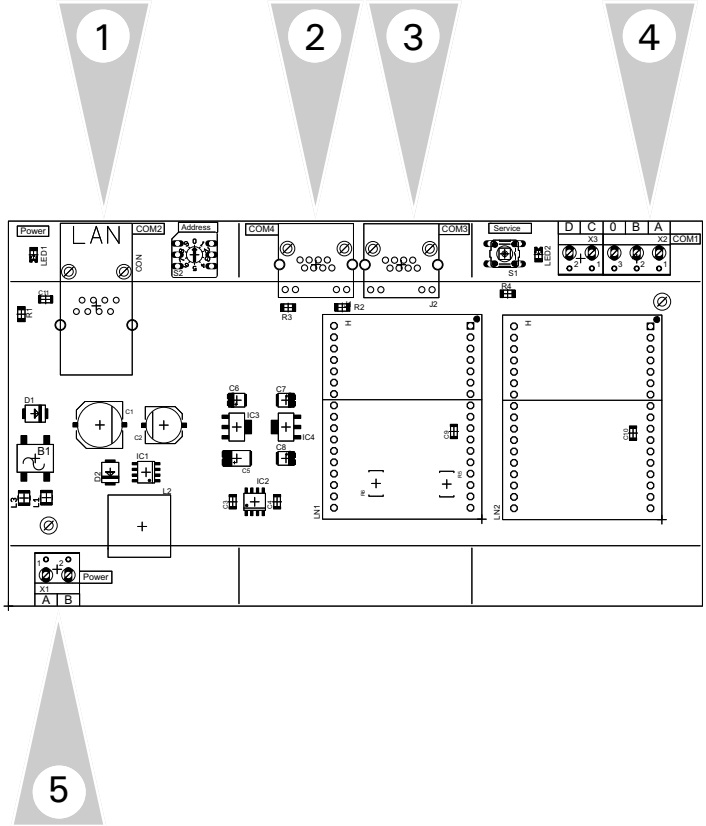
Installation

Mounting Versatronik Gateway—24VAC DIN Rail Unit



Mounting Steps

1. Mount Versatronik 525D Gateway onto DIN rail within an enclosure in a convenient location near the boiler controls.
2. Make all the necessary connections including the field supplied 24VAC power connection.



Connection Overview

1. BACnet IP RJ45 connection (model specific)
2. LON RJ45 connection (model specific)
3. Parallel LON BUS connection
4. OT connections terminals A and B to boiler
5. 24VAC Power Connection

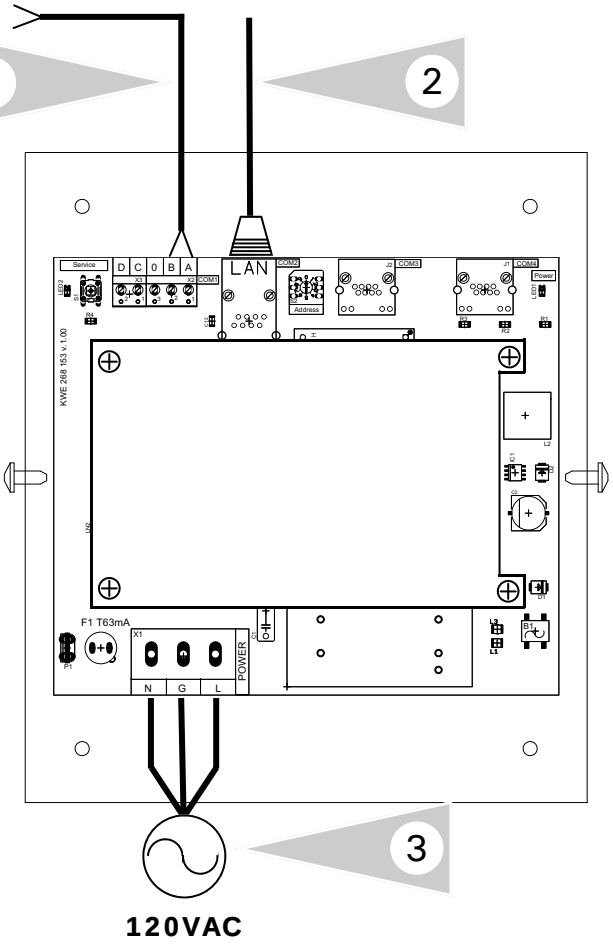
WARNING

When extending wire there is the possibility of exposure to electromagnetic interference. Avoid running wires beside or near high voltage 120/240 VAC conductors. If proximity to high voltage conductors cannot be avoided, use stranded, twisted pair of shield design wire. Ensure that only one end of the shielding is grounded.

Connection Overview—120VAC

OT 2-wire Connection

BACnetIP RJ45 Connection



Connection Overview

1 OpenTherm 2 wire connection to OT enabled boiler. Refer to boiler manual for proper connection location.

2 BACnetIP RJ45 connection.

3 Plug-in power cord for 120VAC Versatronik 525 gateways.

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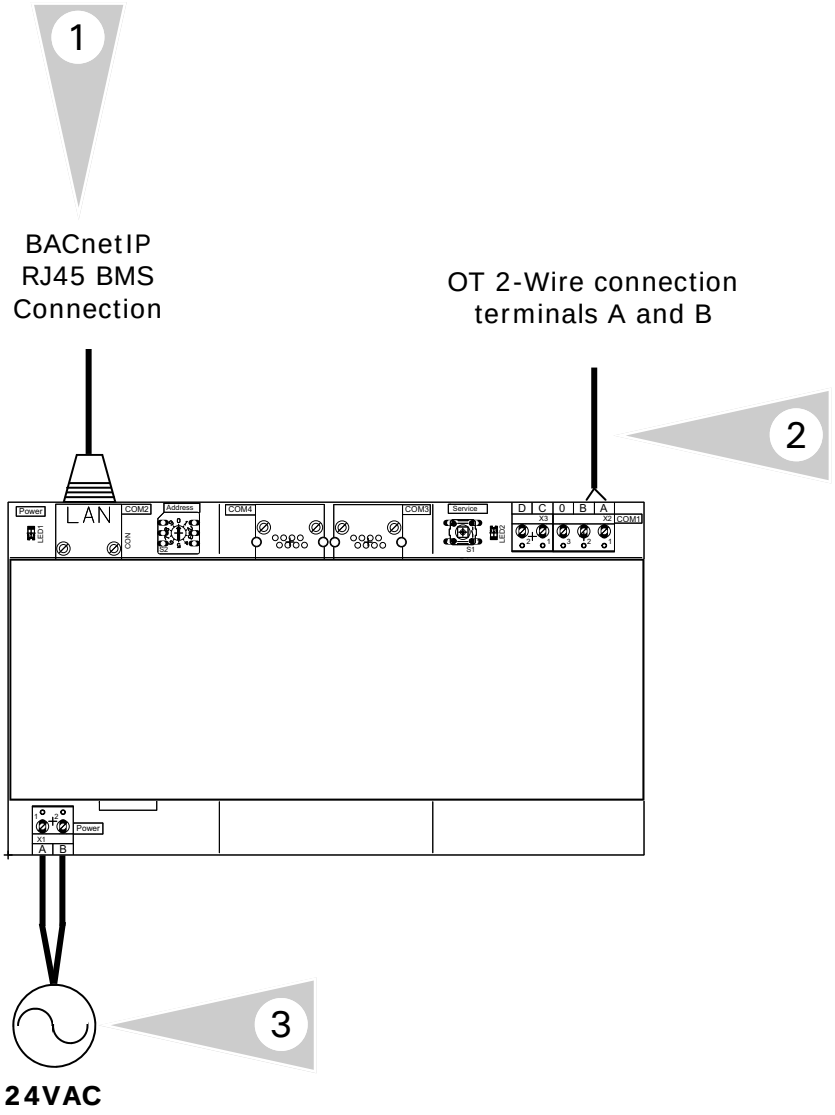
Connection Overview—24VAC



Connection Overview

1 BACnetIP RJ45 connection.

2 Field wiring for OpenTherm connection to terminals A and B.

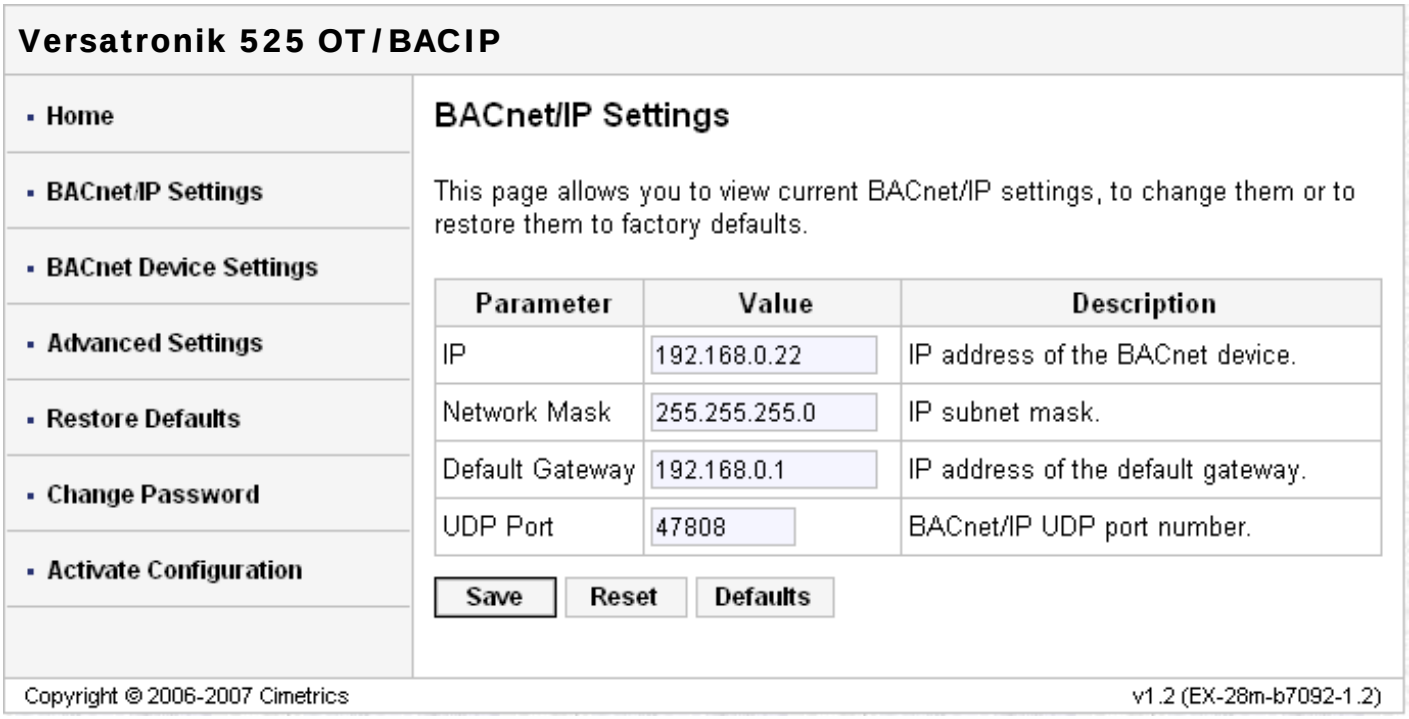
3 Field supplied 24VAC power supply for gateway.

Configuration of Gateway

Configuring BACnet / IP Settings
Connect your computer DIRECTLY to the BACnet interface of the gateway device. With no other devices attached (an isolated network). Either set your computer's network connection to automatic IP Address (DHCP), or set your computer's IP address to 192.168.88.90 (subnet mask 255.255.255.0)

Restart the Gateway by cycling the power off and then on again.

Open a browser window and insert the following URL: http://192.168.88.89/admin
The default user name / password is "**admin**" and "**admin**" (without the quotes). This can be renamed in the Change Password screen. At this point you will see the Configuration pages.

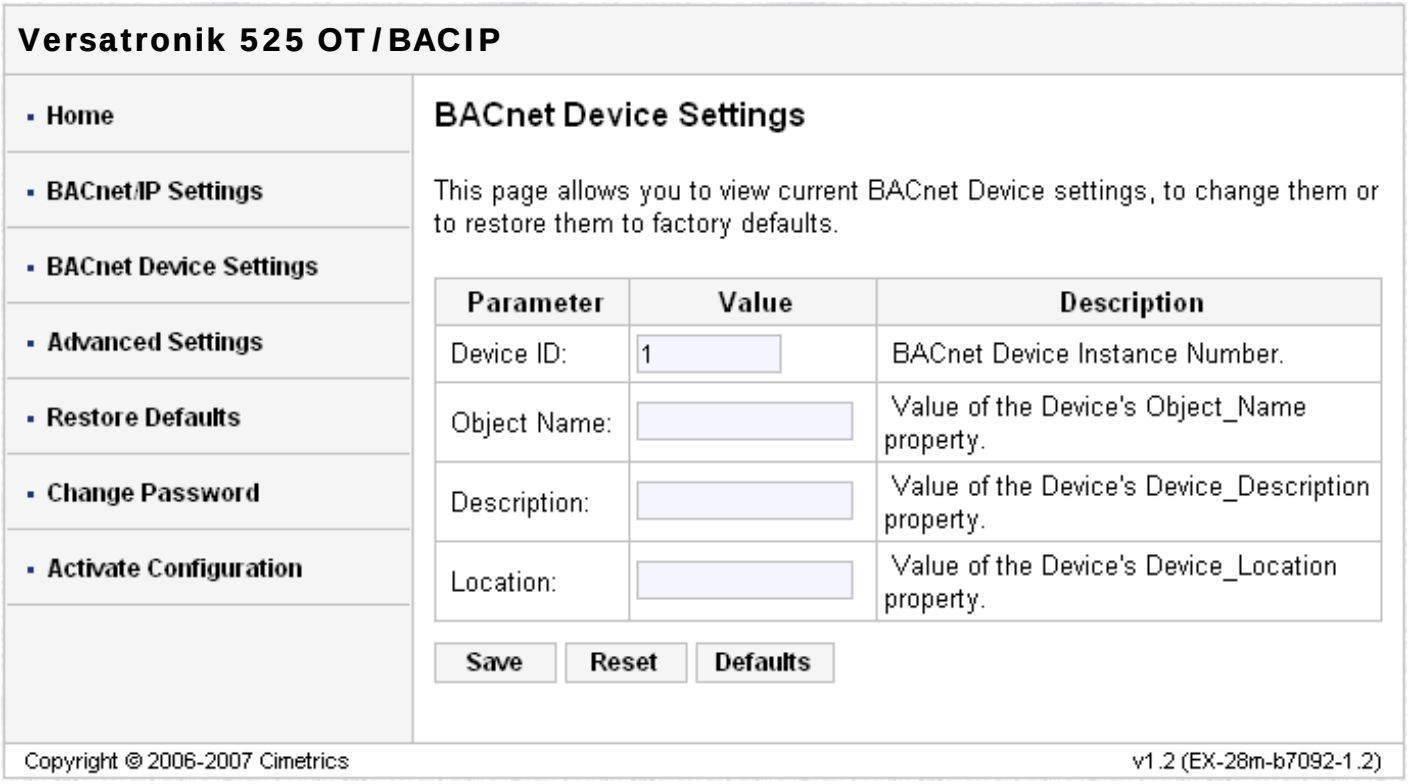


IMPORTANT: Make sure that you remember any changes made here.

Configuration of Gateway Continued

BACnet Device Settings
You can now reconfigure these settings according to your network requirements. Make sure that you press SAVE on every screen where you make changes. The new setting will not take effect until the Activate Configuration screen has been confirmed. These configuration pages can now be accessed through both the 192.168.88.89 Address, as well as the one you have selected.

The BACnet Device Settings screen looks like this:



NOTE: The **Device ID** must be unique on the entire BACnet internetwork.

The Restore Defaults and Change Password screens are very simplistic. When you select Activate Configuration, it will ask you if you want to SAVE your settings. This will then store your new settings and reboot automatically.

You can now join the Gateway to the rest of your network, provided you have not specified a duplicate IP Address. Any Computer on the network should now be able to access these configuration screens.

BACnet control mode (Manual)
(*Refer to table on following page)
This feature is enabled when AO-1 is set to 1 (BACnet control), the gateway will ignore the thermostat (if connected) and communicate directly with the boiler. The Control Set-point will now determine the boiler target temperature.

Temperature Units
(*Refer to table on following page)
You have the ability to control whether temperatures are displayed in Celsius or Fahrenheit by setting AO-2 (Analog Output 2). This will also determine whether the Control Set-point (AO-3) is provided in ^{0}C or ^{0}F.

Analogue Input Overview—BACnet Objects

BACnet Object	Description	Units	Source
Analog Input 1	Boiler Set-point	^{0}C / ^{0}F	T / M
Analog Input 2	Boiler water temperature	^{0}C / ^{0}F	B
Analog Input 3	Maximum Modulation level	%	T
Analog Input 4	Current Modulation level (boiler modulation)	%	B
Analog Input 5	Room Temperature	^{0}C / ^{0}F	T
Analog Input 6	Room Set-point temperature	^{0}C / ^{0}F	T
Analog Input 7	Outside Temperature	^{0}C / ^{0}F	T
Analog Input 8	Return Water Temperature	^{0}C / ^{0}F	B
Analog Input 9	Flue Gas Temperature	^{0}C / ^{0}F	B
Analog Input 10	Boiler Heat Exchanger Temperature	^{0}C / ^{0}F	B
Analog Input 11	Boiler Fan Speed	Hertz	B
Analog Input 12	Water Pressure	Bar / PSI	B
Analog Input 13[3]	OEM Fault Code	0-255	B
Analog Input 14[3]	OEM Diagnostic Code	0 - 65535	B
Analog Input 15	DHW Set-point upper bound	^{0}C / ^{0}F	B
Analog Input 16	DHW Set-point lower bound	^{0}C / ^{0}F	B
Binary Input 1	Boiler Fault (no fault / fault)	0/1	B
Binary Input 2	Flame Status (no flame / flame)	0/1	B
Binary Input 3	Fault - Service Required (not req'd / req'd)	0/1	B
Binary Input 4	Fault - Lockout Reset	0/1	B
Binary Input 5	Fault - Low Water Pressure	0/1	B
Binary Input 6	Fault - Gas / Flame	0/1	B
Binary Input 7	Fault - Air Pressure	0/1	B
Binary Input 8	Fault - Water Over-Temperature	0/1	B
Binary Input 9	DHW Set-point control allowed by boiler	0/1	B
Analog Output 1	Control source (Setpoint from Thermostat or Manual) *See previous page	0/1	
Analog Output 2	Temperature Units (^{0}C / ^{0}F) *See previous page	0/1	
Analog Output 3[1]	Control Set-point (only if control source is Manual)	^{0}C / ^{0}F or %	
Analog Output 4	Control Method (Setpoint / Modulation Controlled)	0/1	
Analog Output 5[2]	DHW Set-point	^{0}C / ^{0}F	
Analog Output 6[4]	Boiler Enable (Boiler enable directly controls OpenTherm ID0 CH Enable)	0/1	

T=Thermostat B=boiler M=Manual (BACnet)
Temperature units displayed / Set-point units, is determined by Analog Output 2

Note: Availability of these Variables depends on the boiler and/ or thermostat used. Unavailable variables will be displayed as -99 in most cases.

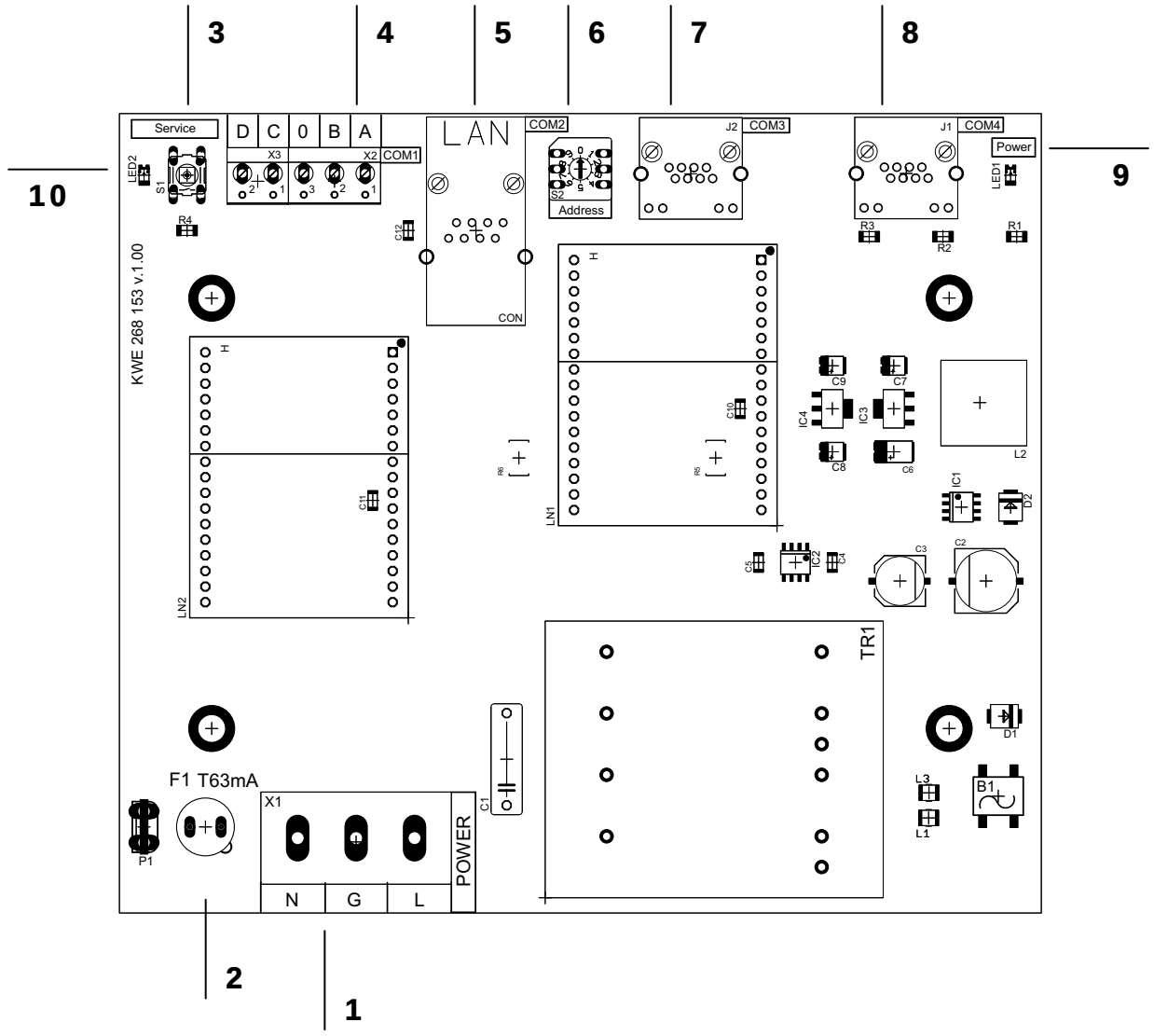
[1] All boilers will allow for Set-point control, i.e., you provide the boiler set point temperature. Not all boilers support modulation control (ID14). Under modulation control, boiler temperature set point will be set to ID57 (Max CH Water Set-point). If not provided, it will be set to 90C. Modulation is then controlled by providing the boiler with a maximum modulation level (ID14).

[2] Not all boilers support DHW set-point (ID6, 48, 56). Gateway will automatically adjust DHW set-point to fall between the upper and lower DHW se-point bounds provided by the boiler (ID48).

[3] Reference your boiler documentation for the meaning of these codes. They will likely be in Hexidecimal format, eg. 10=0A, 15=0F, 16=10, 17=11, 255=FF

[4] Boiler Enable directly controls OpenTherm ID0 bit 0 (CH Enable). The behavior of this bit may vary depending on the control manufacturer. Generally speaking, when this bit is disabled, the boiler pump will not run and boiler will not fire.

Technical Information—120VAC



PCB Identifiers

1	120VAC Power Supply Connections
2	Fuse
3	Service Button
4	OT Connections to boiler (terminals A and B)
5	RJ45 Connection to BMS BACnet
6	Rotary Dial not used
7	Parallel connection for LON Communication
8	RJ45 Connection to LON/Modbus via adapter
9	Power LED indicator
10	OT Indicator LED

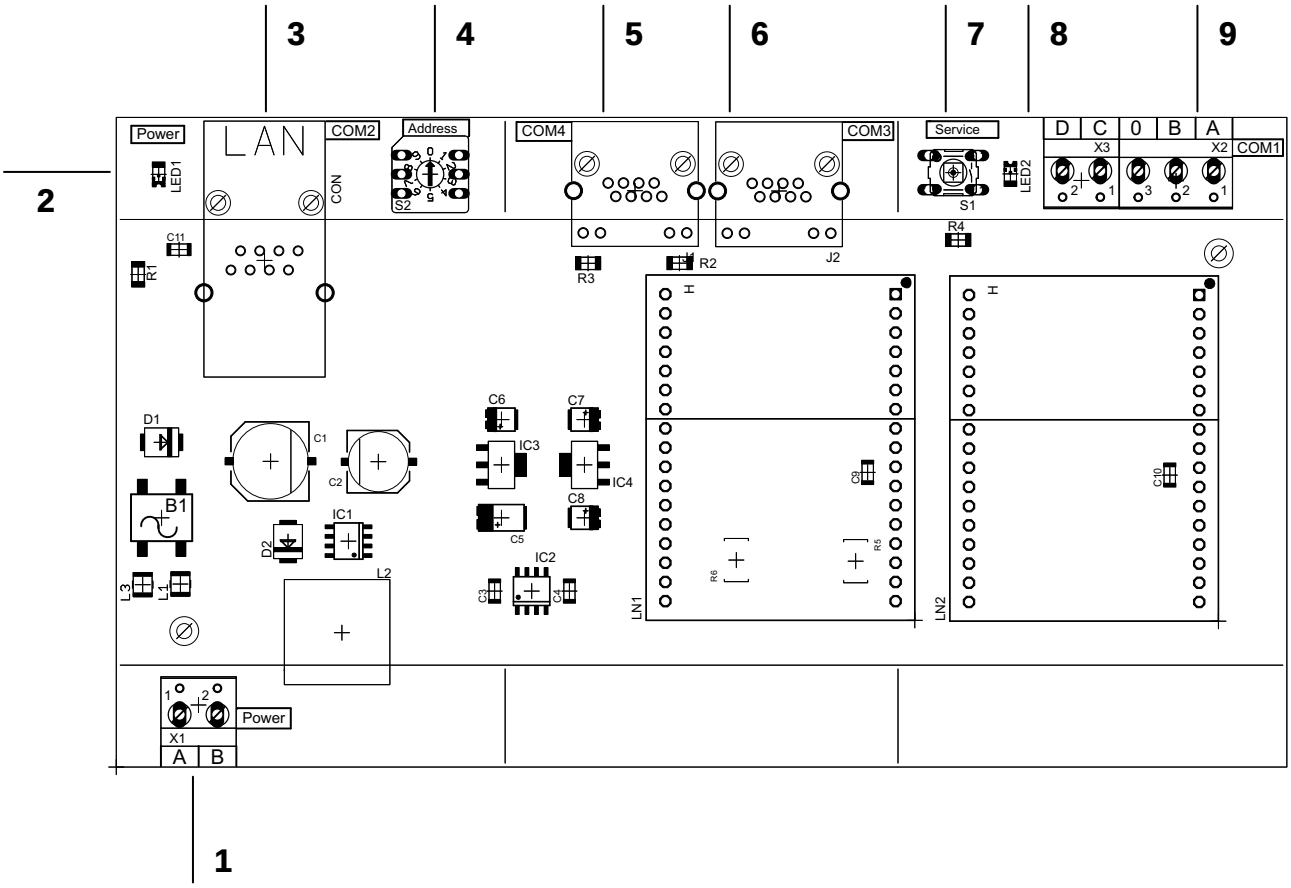
Specifications

Voltage Requirements	120VAC
Fuse Rating	63mA Time Delay
Power	4VA
Communication Connections	Supplied cable between devices

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

Technical Information



PCB Identifiers

1	24VAC Power Supply Connections
2	Power LED indicator
3	BACnet RJ45 BMS Connection
4	N/A
5	RJ45 LON/Modbus via RJ45 adapter to BMS
6	Parallel LON connection
7	Service button
8	OT Indicator LED
9	OT connection to boiler (terminals A and B)

Specifications

Voltage Requirements	24VAC
Fuse Rating	N/A
Power	4VA
Communication Connections	Supplied cable between devices

CAUTION

Static sensitive components may be damaged by improper handling or work within the control. Ensure all possible measures are taken to eliminate build-up of static electricity.

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