Communication

Versatronik® 531 & 531D Solar

Communication Gateway for solar controls
LON

Document Applicable to:
Versatronik 531 Solar/LON P/N 704064
Versatronik 531D Solar/LON P/N 704067

Applicable Controls
Resol Deltasol M
Resol Deltasol BS Plus
Resol Deltasol BS1/2/3/4
Resol Deltasol BX/BXL
Resol Deltasol E/ES/BX/MX/SKSC3
Viessmann Vitosolic 200
Viessmann SCU 124
Viessmann SCU 224
Viessmann SCU 345

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 394042 Versatronik 531 Solar/LON 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.

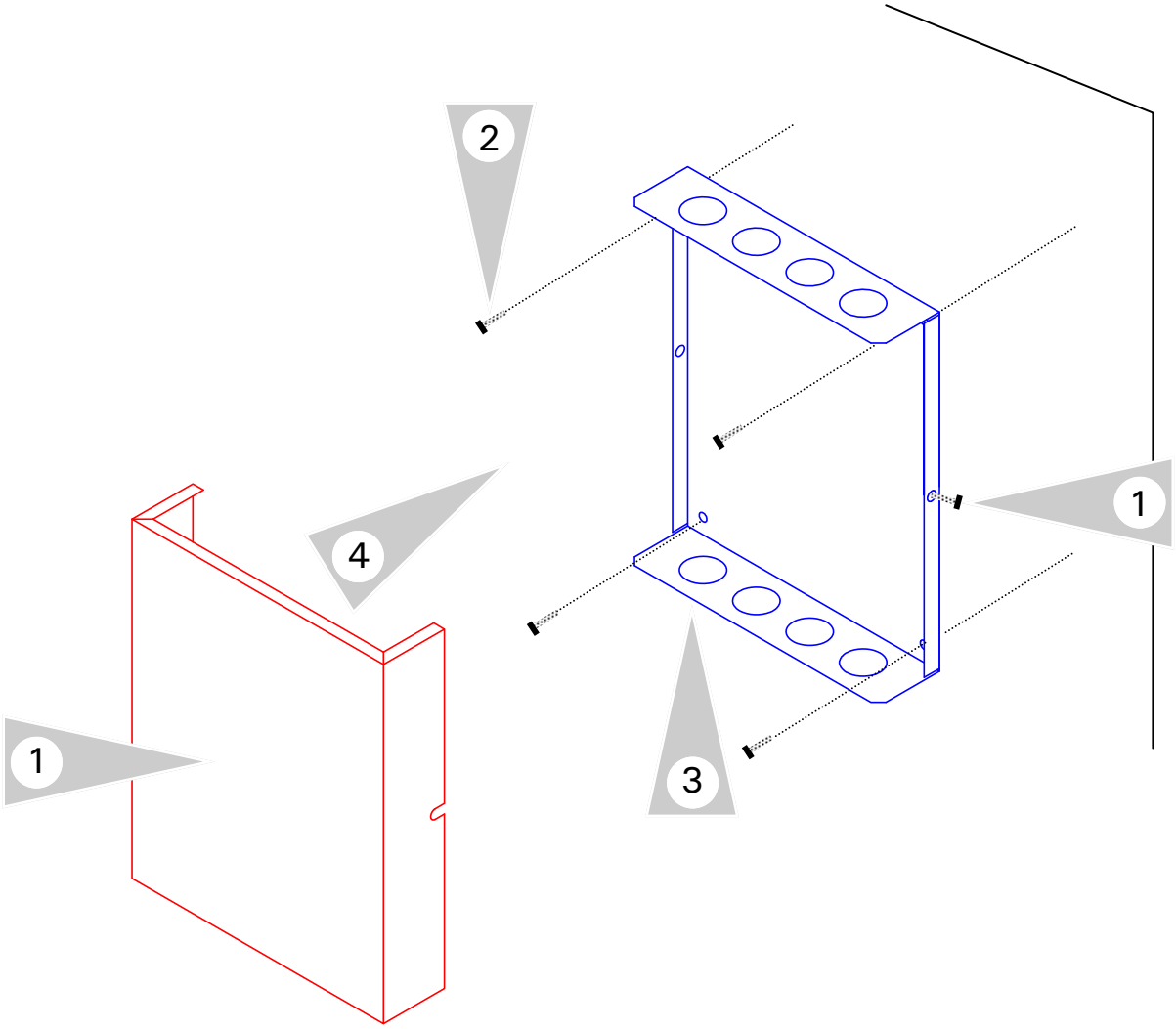
Purpose of Device and Operation

The Versatronik 531 Solar gateway provides a communication translation between applicable controls and DDC systems which are capable of LON communications.

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

Installation

Mounting Versatronik Gateway—120VAC Unit



Mounting Steps

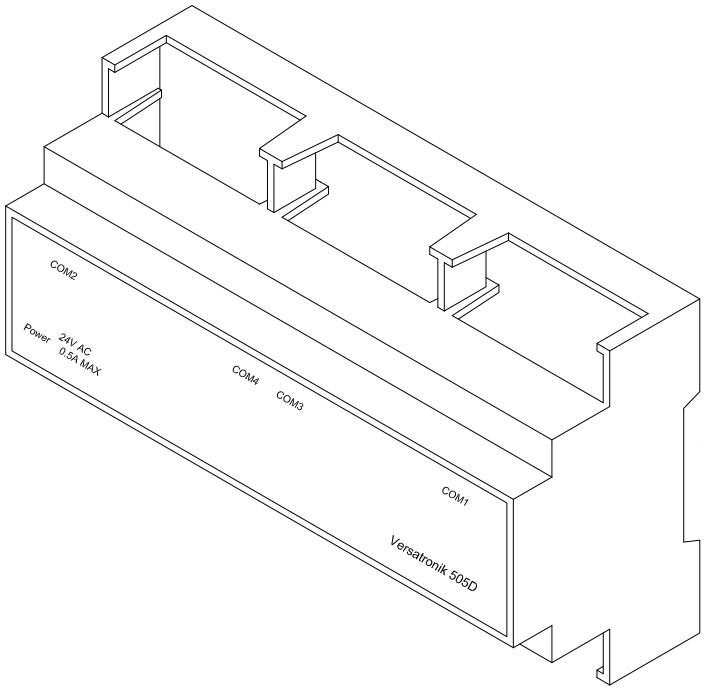
1. Mount Versatronik 531 Gateway in a convenient location near the solar control. Remove cover by loosening the two screws on either side of base to release the cover.
2. Fasten base to wall using field-supplied screws/fasteners.
3. Remove knockout and installed wire strain relief or box connector. Removal 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.

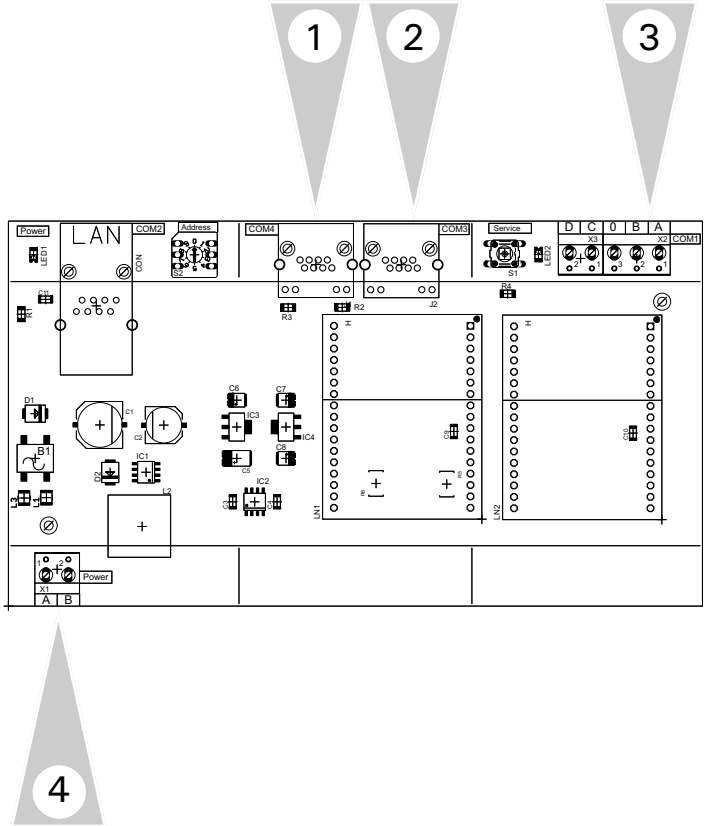
Installation

Mounting Versatronik Gateway—24VAC DIN Rail Unit



Mounting Steps

1. Mount Versatronik 531D Gateway onto DIN rail within an enclosure in a convenient location near the solar control.
2. Make all the necessary connections including the 24VAC power connection.



Connection Overview

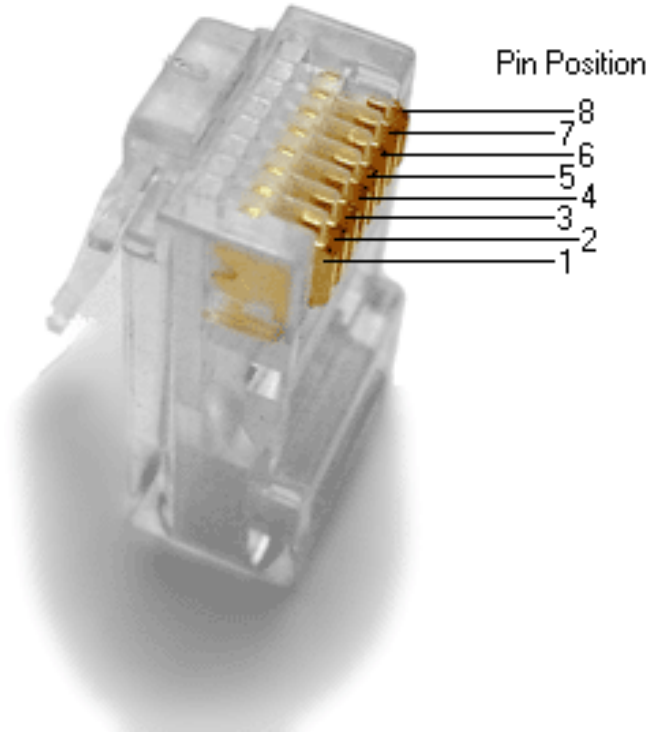
1. Solar Control Connection RJ45
2. Paralleled BUS connection
3. LON connection terminals A and B
4. 24VAC Power Connection

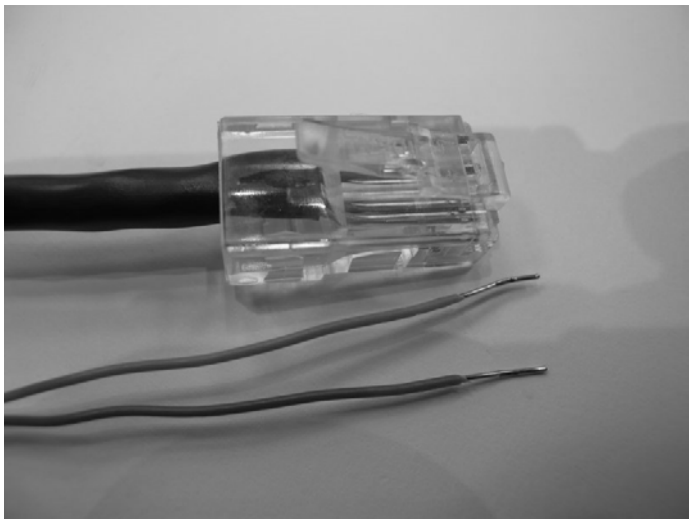
WARNING

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

RJ45 Communication Cable Supplied



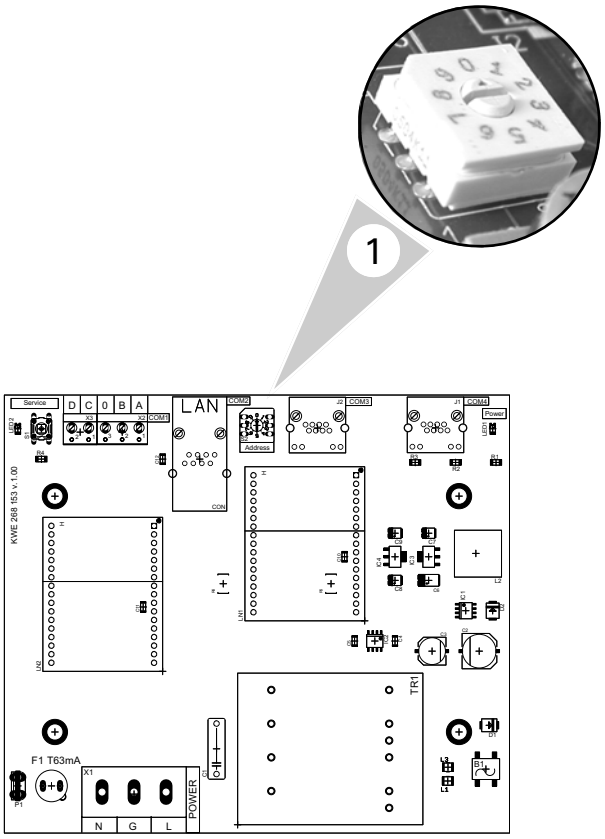


Connection Overview

1. Cut UTP cable to 2m length.
2. Strip insulation and crimp plug on one end.
3. Strip other end, cut all wires but wire 1 and 2.
4. Strip wire 1 and 2.
5. Wires 1 and 2 used to make connections to the solar control.

Versatronik 531 Dial Setting Overview

Rotary Dial Setting



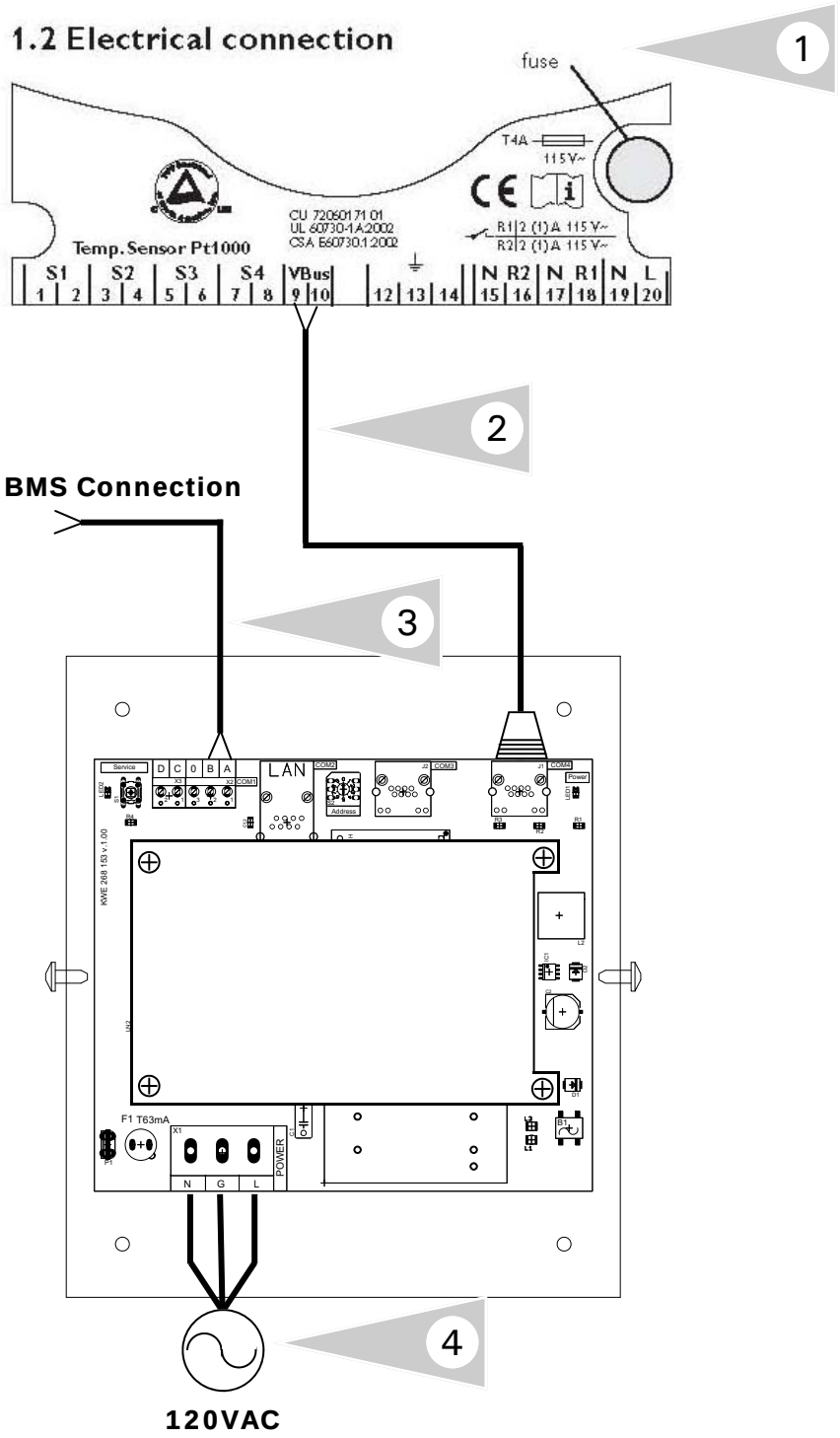
Setting Overview

1. The rotary dial setting on the Versatronik Gateways provides addressing information for systems that may utilize a number of Versatronik Gateways.

   Applications with the Versatronik 531 Solar with RESOL controls, it is not required to make adjustments to the rotary dial setting. It should be left in the factory default position setting of 0.

Connection Overview—120VAC Unit

LON Communication connections to BMS:
Example: Resol Deltasol BS Plus



Connection Overview

1 Control sensor portion of control.

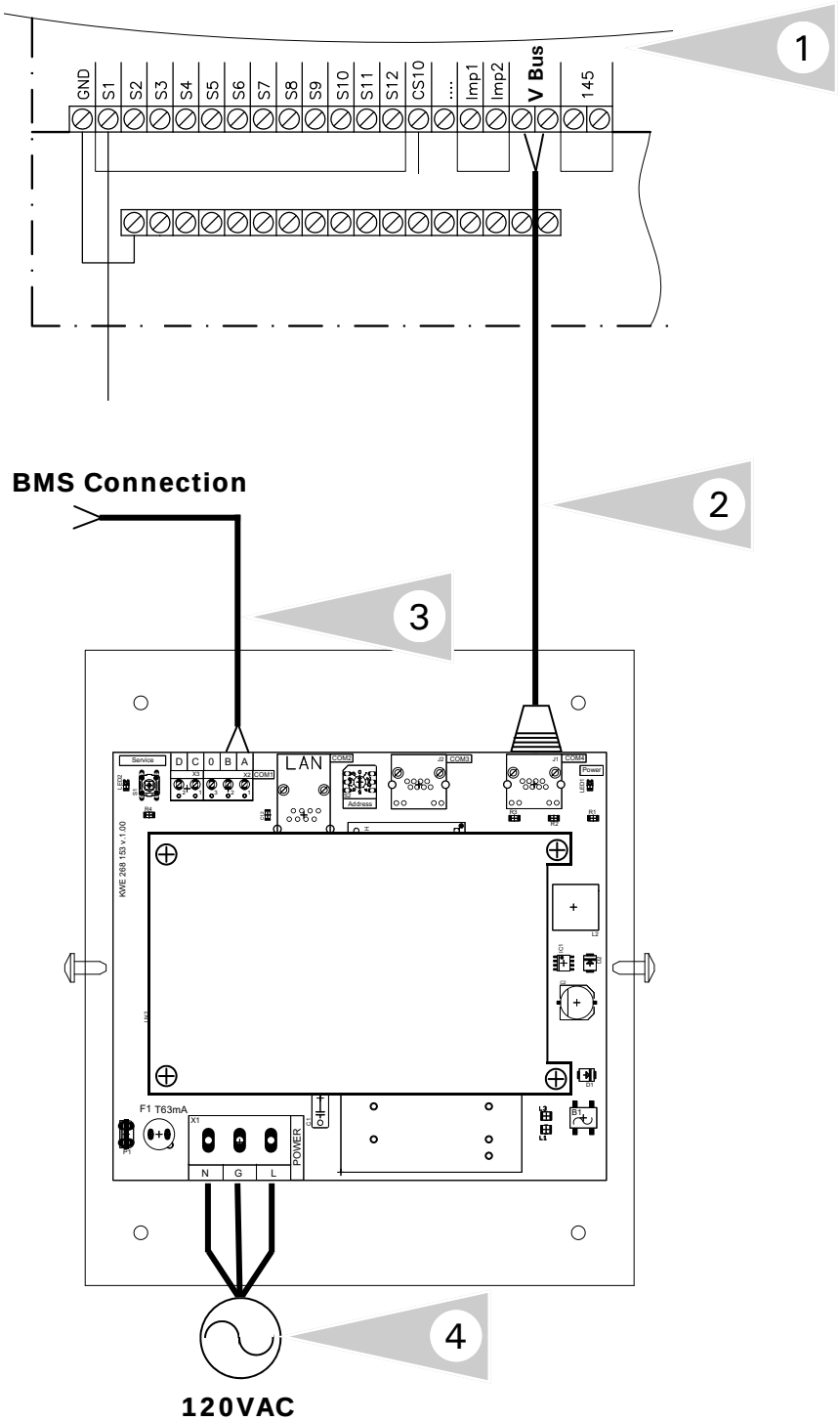
2 A CAT-5 cable is supplied with the Versatronik Solar Gateway. The RJ45 is plugged into the gateway and terminates into the control.

3 BMS connection.

4 Standard plug-in power connection supply for the gateway. It requires 120VAC for its operation.

Connection Overview—120VAC Unit

LON Communication Connections to BMS:
Example: Resol Deltasol M



Connection Overview

1 Control sensor portion of control.

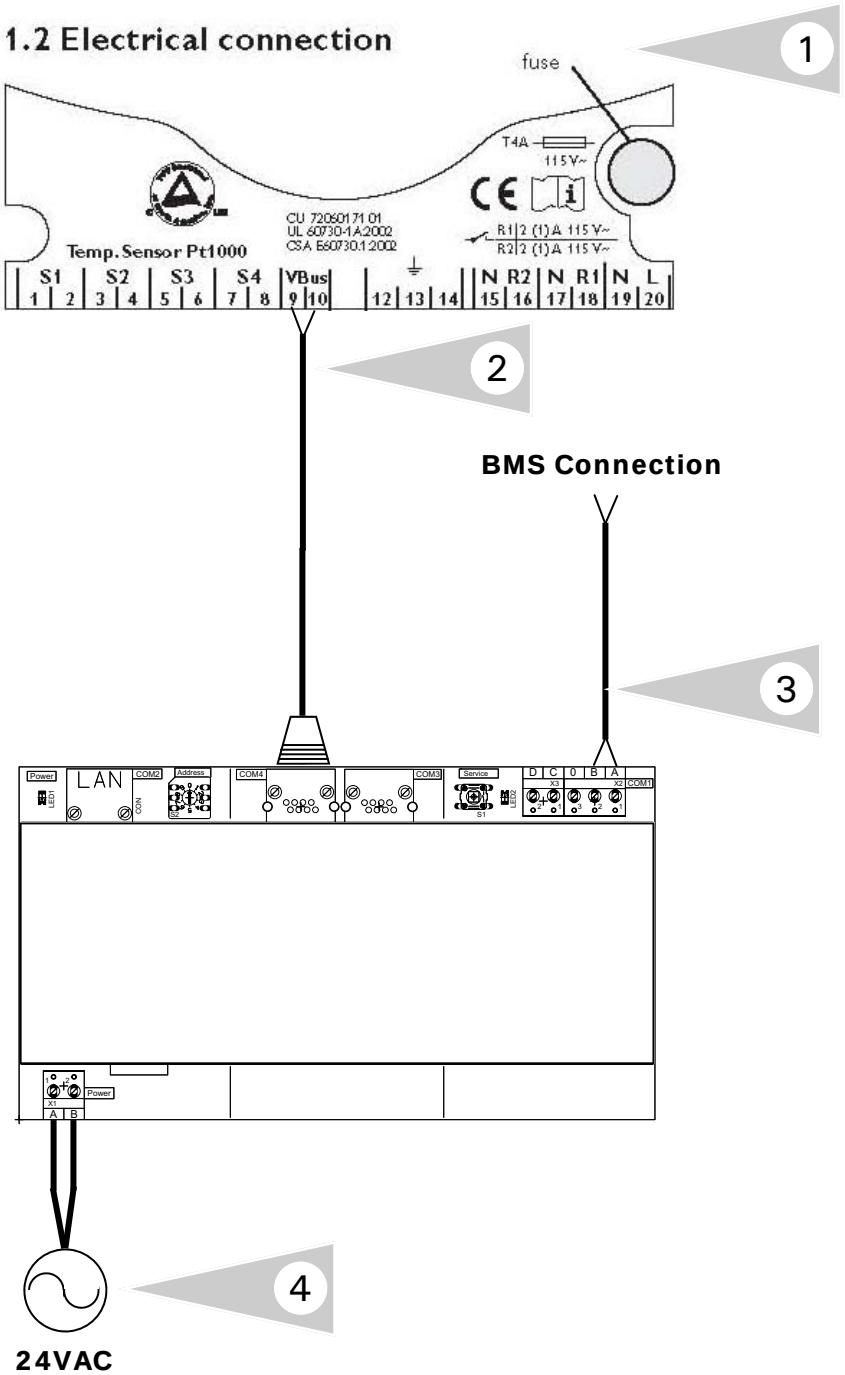
2 A CAT-5 cable is supplied with the Versatronik Solar Gateway. The RJ45 is plugged into the gateway and terminates into the control.

3 BMS connection.

4 Standard plug-in power connection supply for the gateway. It requires 120VAC for its operation.

Connection Overview—24VAC DIN Rail Unit

LON Communication Connections to BMS:
Example: Resol Deltasol BS Plus



Connection Overview

1 Control sensor portion of control.

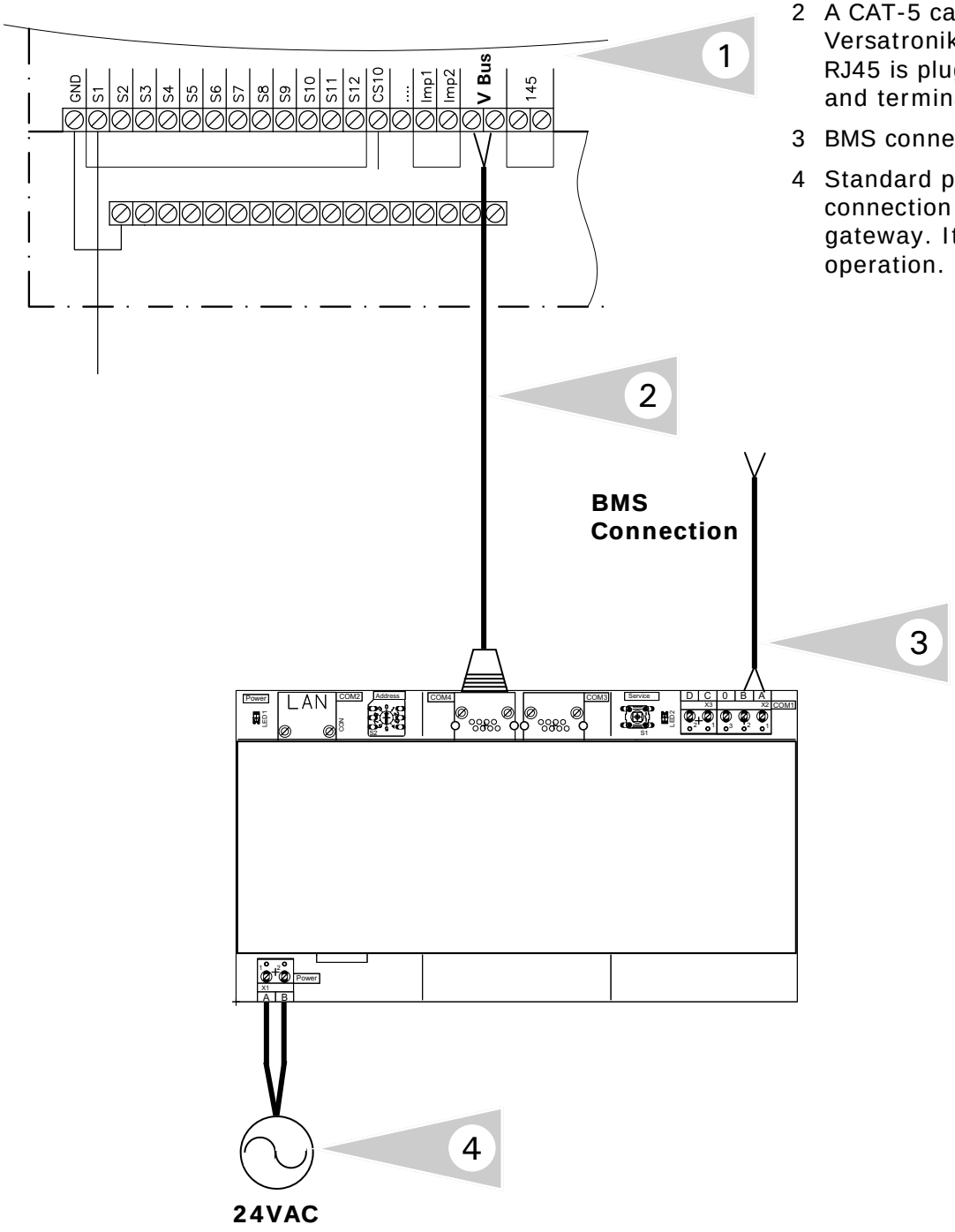
2 A CAT-5 cable is supplied with the Versatronik Solar Gateway. The RJ45 is plugged into the gateway and terminates into the control.

3 BMS connection.

4 Standard plug-in power connection supply for the gateway. It requires 24VAC for its operation.

Connection Overview—24VAC DIN Rail Unit

LON Communication Connections to BMS:
Example: Resol Deltasol M



Connection Overview

1. Control sensor portion of control.
2. A CAT-5 cable is supplied with the Versatronik Solar Gateway. The RJ45 is plugged into the gateway and terminates into the control.
3. BMS connection.
4. Standard plug-in power connection supply for the gateway. It requires 24VAC for its operation.

Configuration of Gateway—LONworks

LONworks Objects

Configuration notes on following page

Object	Description	SNVT Type	Deltasol-M, Vitosolic 200	SCU224, SCU124, Deltasol BS Plus	Deltasol 1/2/3/4	Deltasol-E	Deltasol-ES	Deltasol-BX Deltasol-BXL / SCU345	Deltasol-BX Plus	Deltasol-MX	Deltasol-SKSC3
nviUnit	Units on Control[1]	SNVT_count	X	X	X	X	X	X	X	X	
nvoTSensor1	Temperature Sensor 1	SNVT_temp_p	X	X	X	X	X	X	X	X	X
nvoTSensor2	Temperature Sensor 2	SNVT_temp_p	X	X	X	X	X	X	X	X	X
nvoTSensor3	Temperature Sensor 3	SNVT_temp_p	X	X	X	X	X	X	X	X	X
nvoTSensor4	Temperature Sensor 4	SNVT_temp_p	X	X	X	X	X	X	X	X	X
nvoTSensor5	Temperature Sensor 5	SNVT_temp_p	X	-		X	X	X	X	X	X
nvoTSensor6	Temperature Sensor 6	SNVT_temp_p	X	-		X	X		X	X	X
nvoTSensor7	Temperature Sensor 7	SNVT_temp_p	X	-		X	X		X	X	X
nvoTSensor8	Temperature Sensor 8	SNVT_temp_p	X	-		X	X		X	X	X
nvoTSensor9	Temperature Sensor 9	SNVT_temp_p	X	-		X			X	X	
nvoTSensor10	Temperature Sensor 10	SNVT_temp_p	X	-		X			X	X	
nvoTSensor11	Temperature Sensor 11	SNVT_temp_p	X	-					X	X	
nvoTSensor12	Temperature Sensor 12	SNVT_temp_p	X	-					X	X	
nvoIrradiation	Irradiation	SNVT_count	X	-		X	X			X	X
nvoPulse1	Pulse Counter 1	SNVT_count	X	-		X					
nvoPulse2	Pulse Counter 2	SNVT_count	X	-							
nvoErrorSenOpen	Error mask sens open[2]	SNVT_state	X	-							X
nvoErrorSenClose	Error mask sens short[2]	SNVT_state	X	-							X
nvoSensorMask	Sensor mask[2]	SNVT_state	X	-		X					
nvoSpeedR1	Speed Relay 1	SNVT_speed	X	X	X	X	X	X	X	X	X
nvoSpeedR2	Speed Relay 2	SNVT_speed	X	X	X	X	X	X	X	X	X
nvoSpeedR3	Speed Relay 3	SNVT_speed	X	-		X	X	X	X	X	X
nvoSpeedR4	Speed Relay 4	SNVT_speed	X	-		X		X	X	X	X
nvoSpeedR5	Speed Relay 5	SNVT_speed	X	-		X			X	X	
nvoSpeedR6	Speed Relay 6	SNVT_speed	X	-		X				X	
nvoSpeedR7	Speed Relay 7	SNVT_speed	X	-		X				X	
nvoSpeedR8	Speed Relay 8	SNVT_speed	X	-						X	
nvoSpeedR9	Speed Relay 9	SNVT_speed	X	-						X	
nvoSpeedR10	Speed Relay 10	SNVT_speed	X	-						X	
nvoSpeedR11	Speed Relay 11	SNVT_speed	-	-				X[6]		X	1
nvoSpeedR12	Speed Relay 12	SNVT_speed	-	-				X[6]		X	
nvoRelayMask	Relay mask[2]	SNVT_state	X	X			X				
nvoErrorMask	Error mask[2]	SNVT_state	X	X	X	X		X	X	X	X[5]
nvoWarningMask	Warning mask[2]	SNVT_state	X	-							
nvoOptionMask	Option Mask/ Schema[3]	SNVT_state	-	X		X	X				
nvoHQ_Wh	Heat Quantity in Wh[4]	SNVT_count	-	X	X		X	X			X
nvoHQ_KWh	Heat Quantity in KWh[4]	SNVT_count	-	X	X		X	X			X
nvoHQ_MWh	Heat Quantity in MWh[4]	SNVT_count	-	X	X		X	X			X
nvoR1RunTime	Operating Hours Relay 1	SNVT_time_hour	-	X		X	X	X			
nvoR2RunTime	Operating Hours Relay 2	SNVT_time_hour	-	X		X	X	X			

Configuration of Gateway

LONworks Objects Configuration Notes

[1] Set according to setting (UNIT) on device; 0 for Celsius, 1 for Fahrenheit

[2] Binary:

- Bit 0: Sensor 1 (least significant bit)
- Bit 1: Sensor 2

Etc.

[3] Convert to binary:

- Bit 0: Collector cooling, collector 1 (OCX)
- Bit 1: Minimum limitation, collector 1 (OCN)
- Bit 2: Antifreeze, collector 1 (OCF)
- Bit 3: Tube collector special function (OTC)
- Bit 4: Re-cooling function (OREC)
- Bit 5: Heat quantity measurement (OHQM)

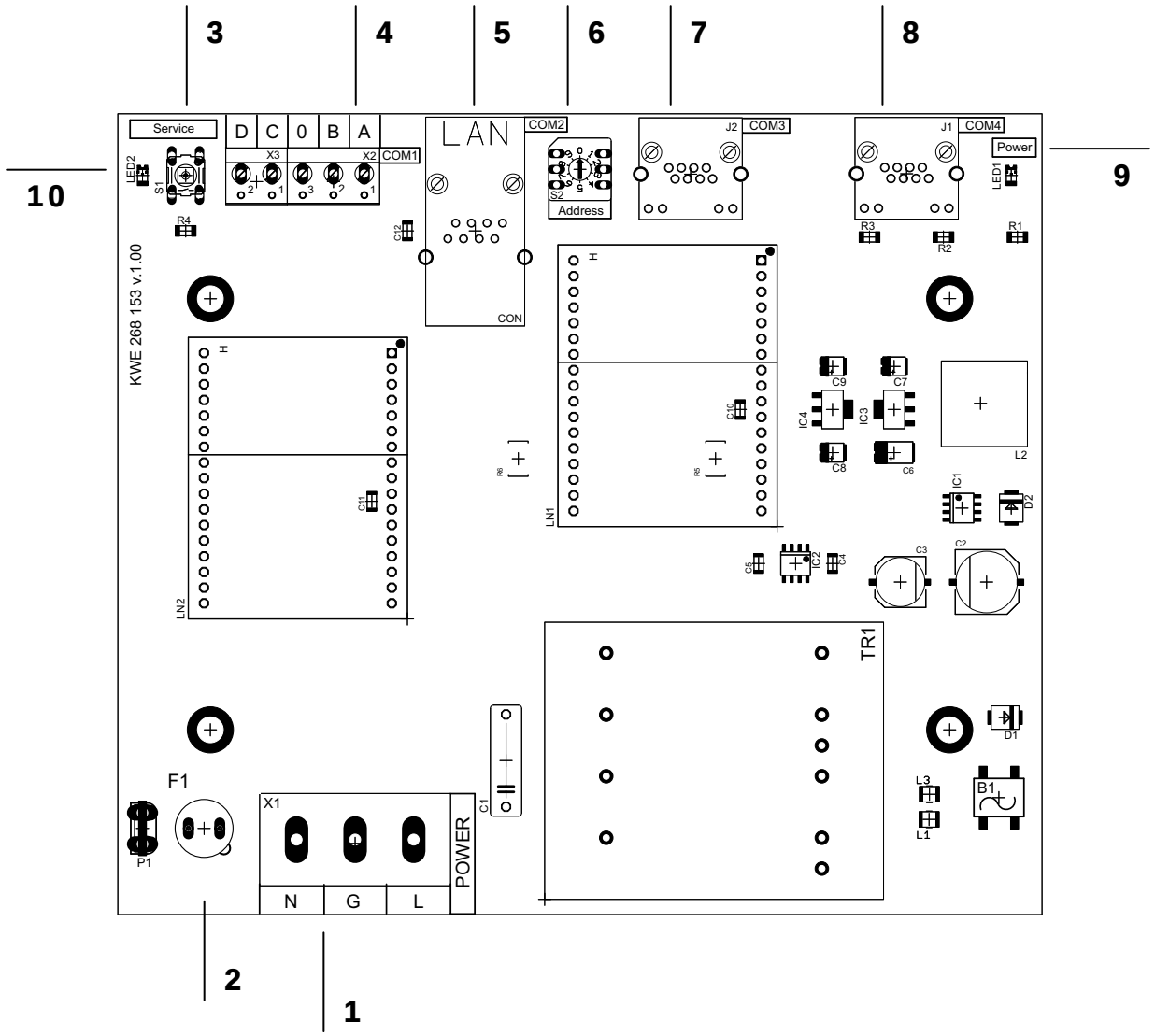
[4] Values roll over when reaching the next base-1000 magnitude (i.e. 999 Wh becomes 0 Wh + 1 KWh.)

[5] Binary:

- Bit 0: Broken sensor
- Bit 1: Short circuit sensor
- Bit 2: DT high
- Bit 3: Warning circulation at night

[6] Speed Pulse Width Modulation (PWM) 1,2

Technical Information



PCB Identifiers

1	120VAC Power Supply Connections
2	Fuse
3	Service Button
4	LON Connections to BMS
5	RJ45 Connection to BMS BACnet
6	Addressing selector for multiple modules
7	COM3 for multiple BUS connections
8	COM4 RJ45 Connection to control
9	Power LED indicator
10	Service LED

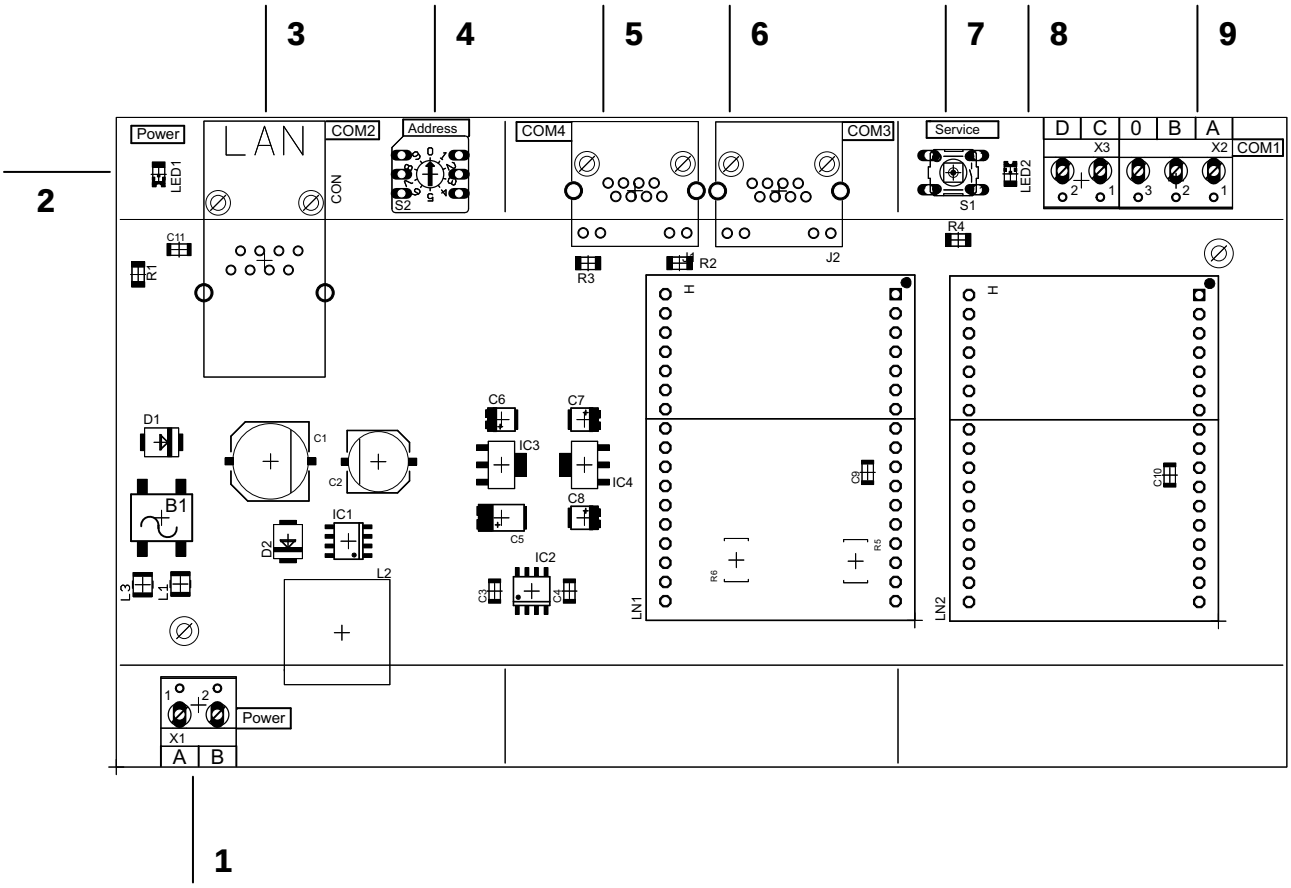
Specifications

Voltage Requirements	120VAC
Fuse Rating	160mA 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	Addressing dial for multiple units
5	COM4 RJ45 Connection to control
6	COM3 for multiple BUS connections
7	Service button
8	Service LED
9	LON Connections to BMS

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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