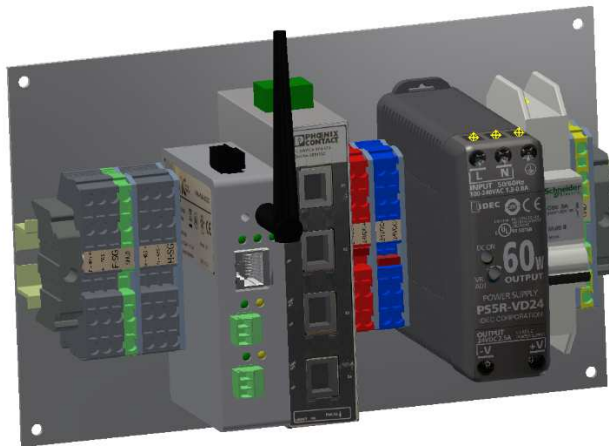


## TS Series

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### TS... Protocol Converter

For use with LMV3..., LMV5..., RWF..., and TS... Series Controls



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### Description

A TS... series protocol converter provides a flexible communication interface to the building management system (BMS) for streamlined data collection and monitoring.

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## Features

- Converts native Modbus/RTU to BACnet/IP, BACnet MS/TP, Ethernet/IP Metasys N2, Modbus TCP/IP, or LonWorks
- Allows simultaneous connection of up to 64 devices via serial connections, and up to 12 devices via Ethernet Modbus TCP/IP connections
- Easily configured using web browser
- 61 data points per LMV3...
- 153 data points per LMV5...
- 13 data points per RWF10
- 57 data points per RWF40
- 73 data points per RWF55
- 364 data points per TS Series Touchscreen Kit
- 23 data points per TS Series Lead/Lag Master
- 85 data points per TS Series Lead/Lag Master (from each boiler)
- 52 data points per TS Series Deaerator/Surge Tank Master

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## Application

TS... protocol converter kits are suited for applications with BMS protocol other than Modbus TCP/IP or RTU. All SCC products that communicate using Modbus/RTU are compatible.

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## Components

All TS... protocol converter kits include the following components:

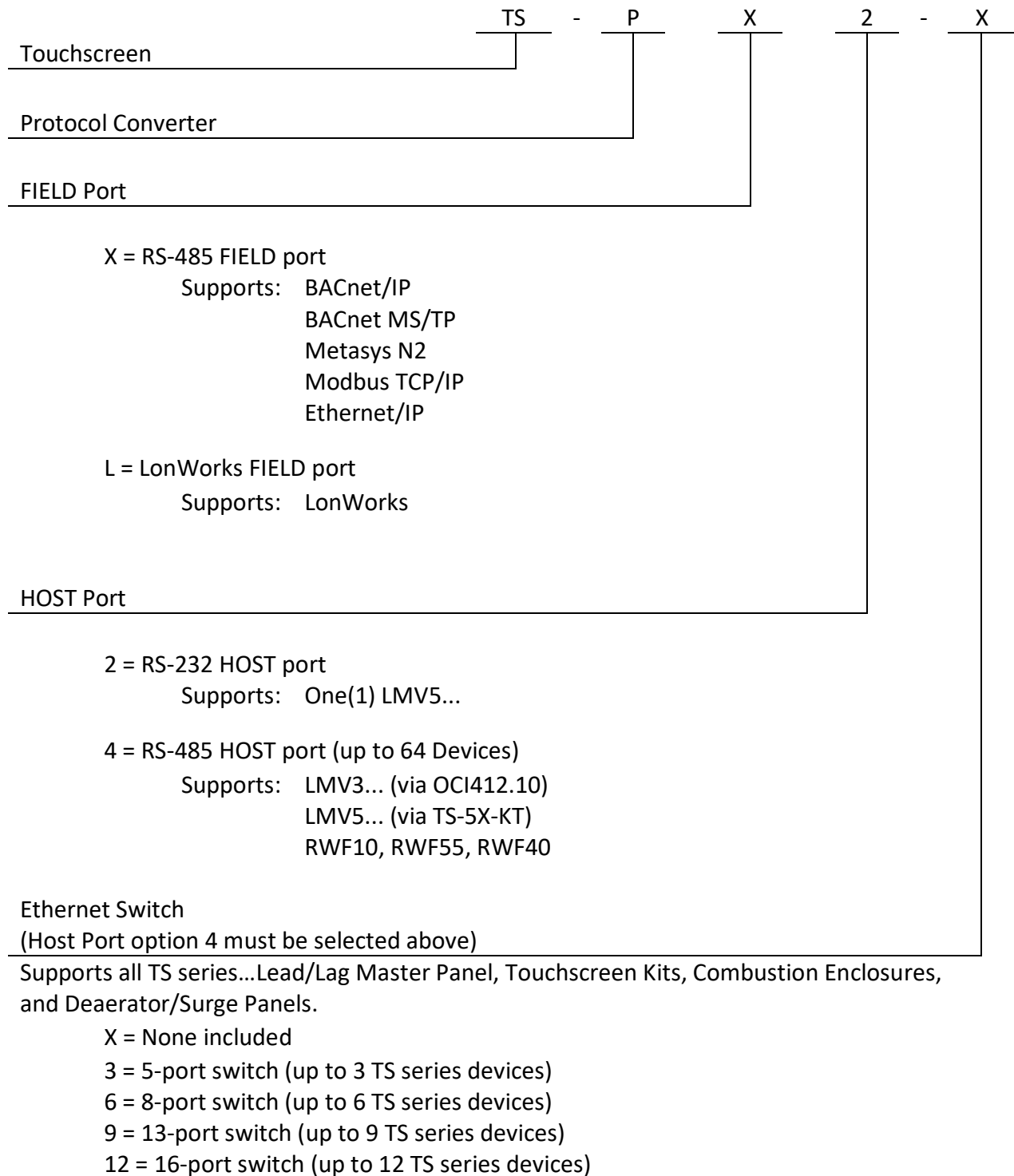
- Protocol converter module
- Plate kit including power supply and branch circuit protection
- Interconnect terminals for field wiring
- Field port for various protocols

The following options are available:

- Host port for Modbus RTU RS232
- Host port for Modbus RTU RS485
- Ethernet switch to support up to 12 TS... series TCP/IP devices via Ethernet to BMS

## Product Part Numbers

See Table 1 with available kits for protocol converter part number identification:



## Product Part Numbers (continued)

Table 1: TS... Protocol Converter Part Numbers

Part Number	FIELD Port		HOST Port		Ethernet Switch				
	RS-485	LonWorks	RS-232	RS-485	None	5-port	8-port	13-port	16-port
TS-PX2-X	x		x		x				
TS-PX4-X	x			x	x				
TS-PX4-3	x			x		x			
TS-PX4-6	x			x			x		
TS-PX4-9	x			x				x	
TS-PX4-12	x			x					x
TS-PL2-X		x	x		x				
TS-PL4-X		x		x	x				
TS-PL4-3		x		x		x			
TS-PL4-6		x		x			x		
TS-PL4-9		x		x				x	
TS-PL4-12		x		x					x

## Specifications

Physical characteristics	Operating voltage	110-120 VAC
	Operating frequency	50-60 Hz
	Processor power	24 VDC
	Power consumption	24 VA
Operating environment	Operating temperature	32 to 131 °F [0 to 55 °C]
	Humidity	Max. 85% with no condensation

## Part Descriptions

A	Modbus RS232 and RS485 Terminals
B	ProtoAir Protocol Converter
C	LonWorks Protocol Converter
D	5-Port Ethernet Switch
E	8-Port Ethernet Switch

F	24 VDC Terminals
G	24 VDC Power Supply
H	3 Amp Circuit Breaker
J	Neutral and Ground Terminals

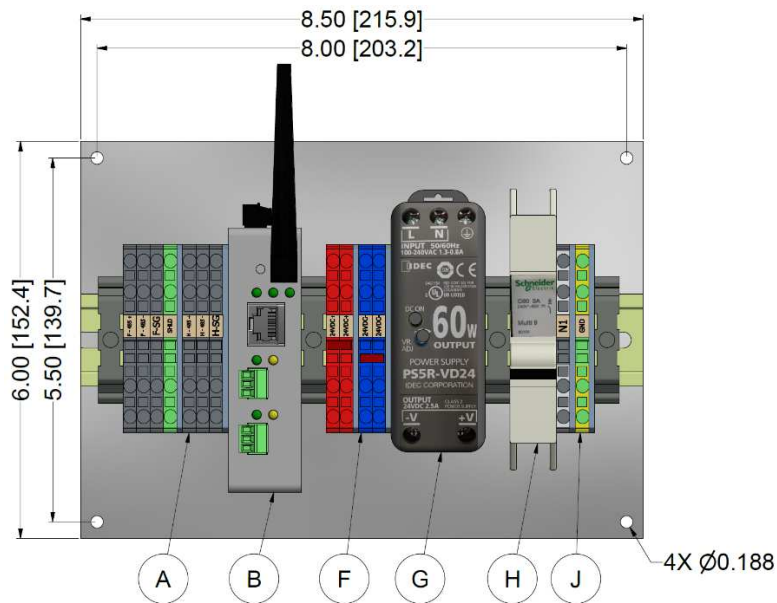
## Dimensions

### TS-PX2-X

LMV5 Modbus RTU to: BACnet/IP, BACnet MS/TP, Ethernet/IP, Metasys N2, or Modbus TCP/IP

### TS-PX4-X

LMV3, LMV5, RWF10, RWF40, and/or RWF55 to: BACnet/IP, BACnet MS/TP, Ethernet/IP, Metasys N2, or Modbus TCP/IP



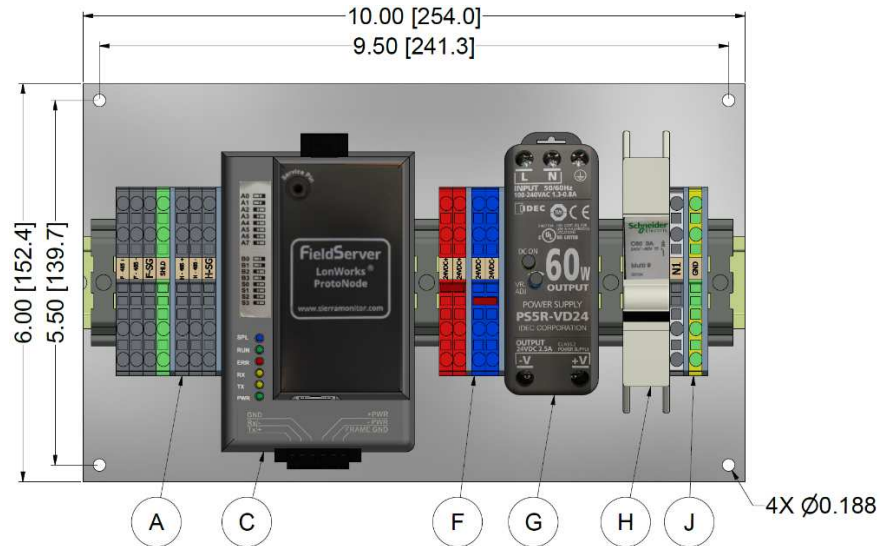
## Dimensions (continued)

### TS-PL2-X

LMV5 Modbus RTU to: LonWorks

### TS-PL4-X

LMV3, LMV5, RWF10, RWF40, and/or RWF55 to: LonWorks



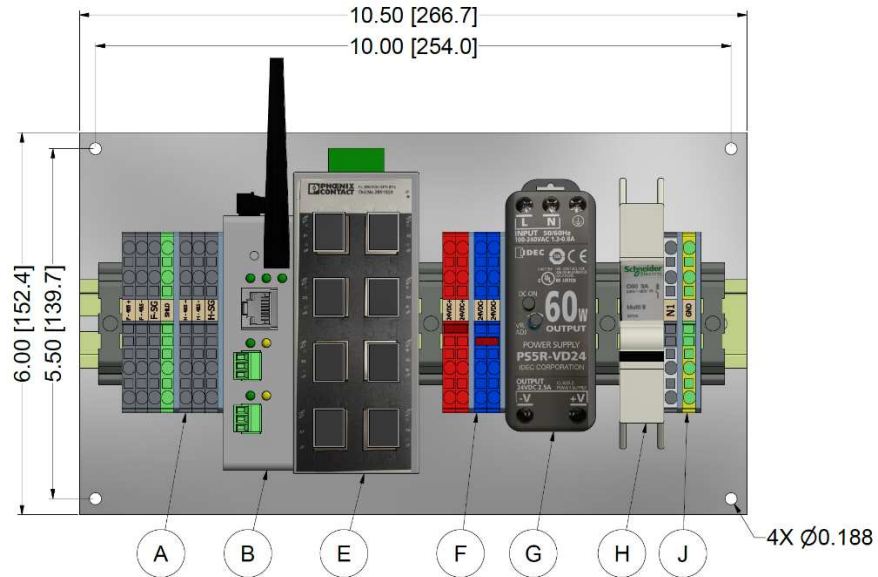




## Dimensions (continued)

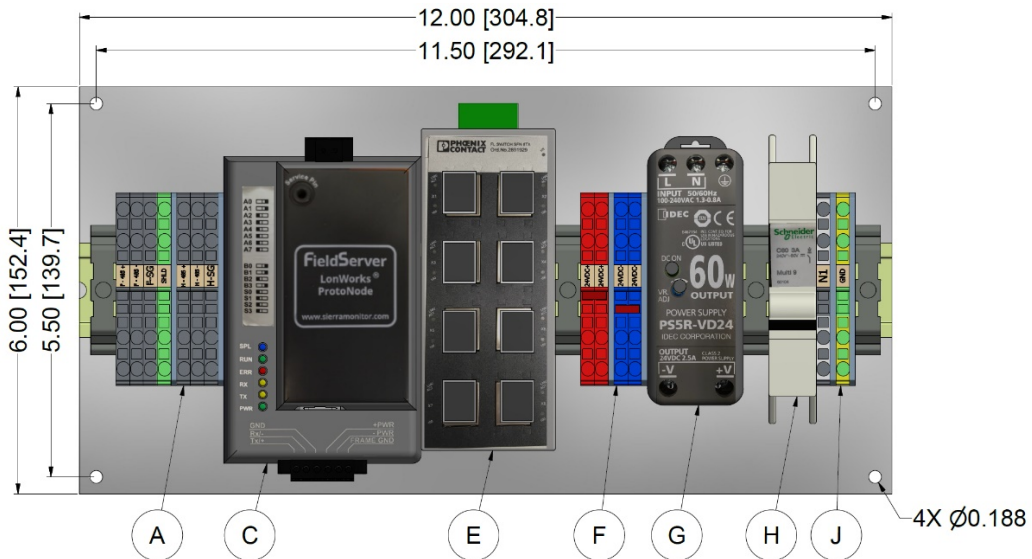
### TS-PX4-6

Up to 6 TS... Series Modbus TCP/IP to: BACnet/IP, BACnet MS/TP, Ethernet/IP, or Metasys N2



### TS-PL4-6

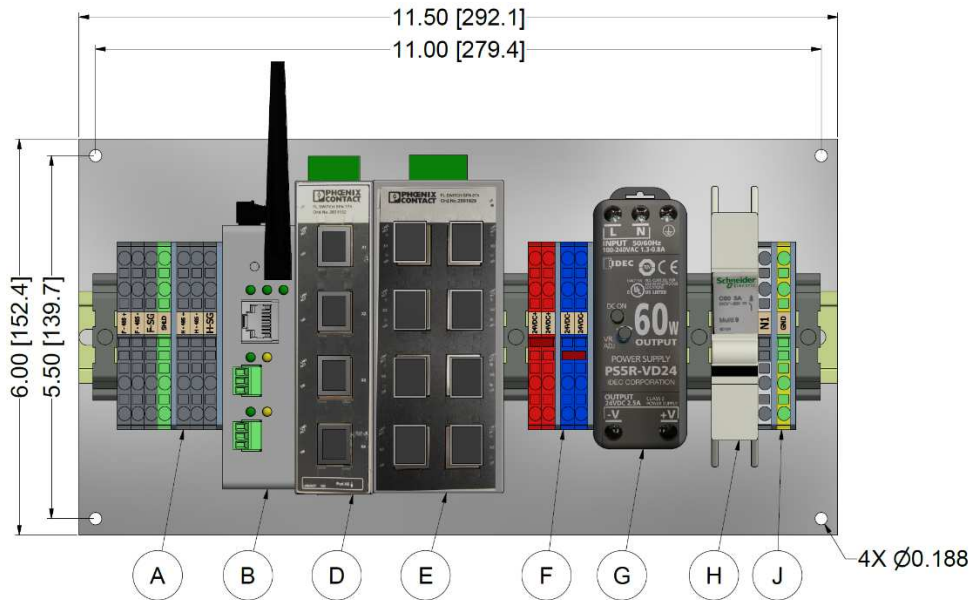
Up to 6 TS... Series Modbus TCP/IP to: LonWorks



## Dimensions (continued)

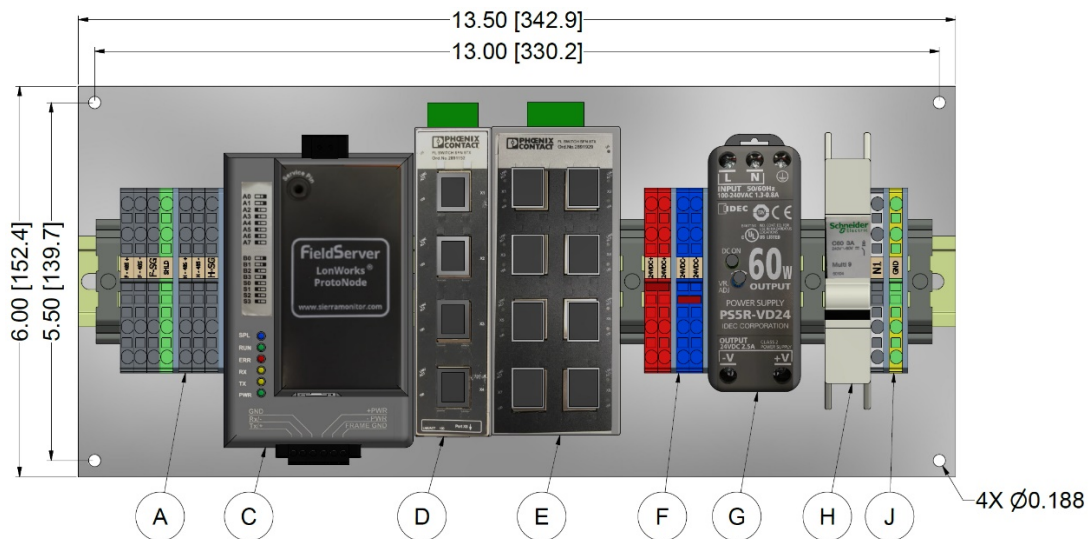
### TS-PX4-9

Up to 9 TS... Series Modbus TCP/IP to: BACnet/IP, BACnet MS/TP, Ethernet/IP, or Metasys N2



### TS-PL4-9

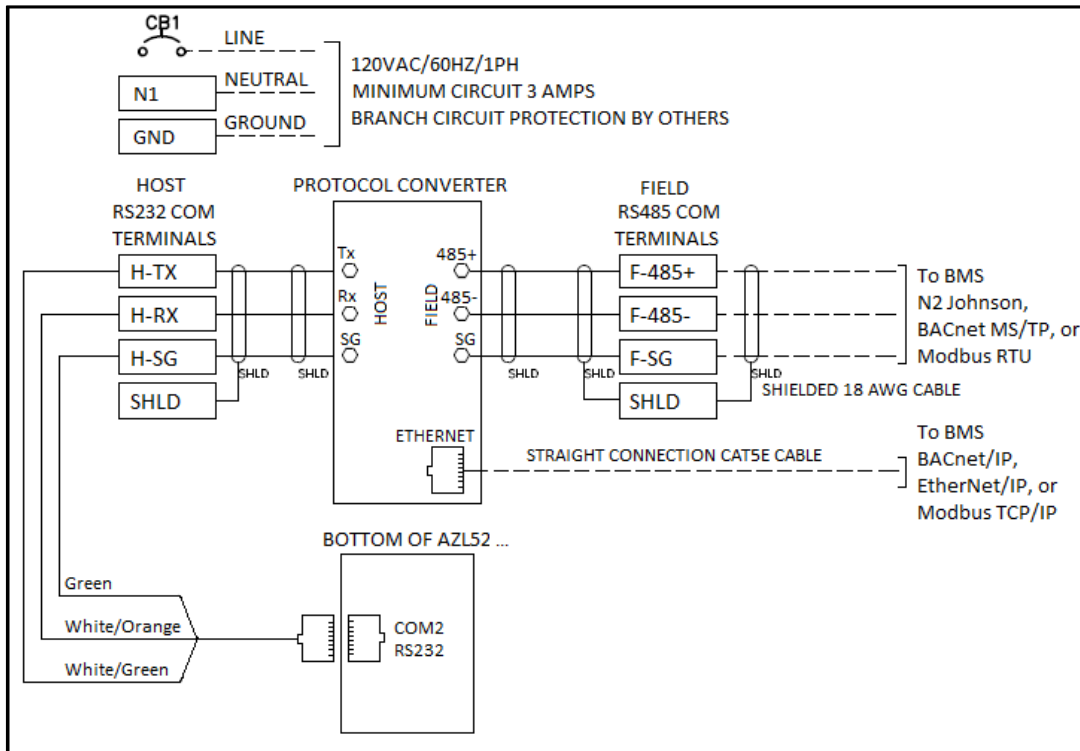
Up to 9 TS... Series Modbus TCP/IP to: LonWorks



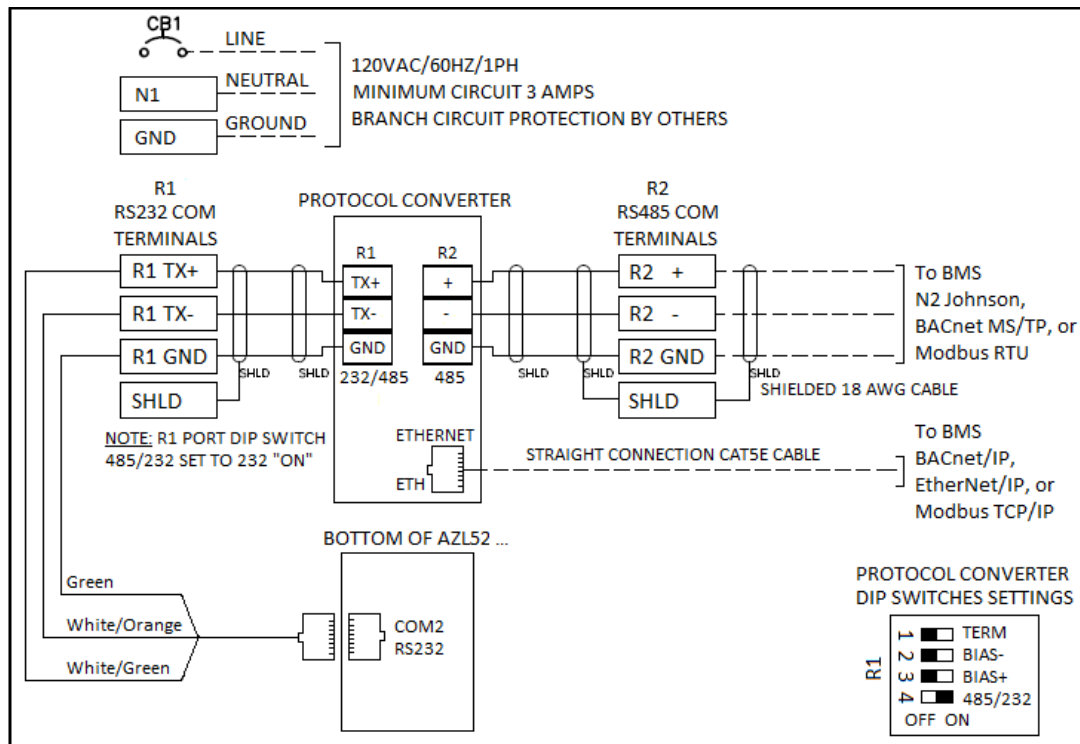


## Connections

### ProtoNode TS-PX2-X (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)

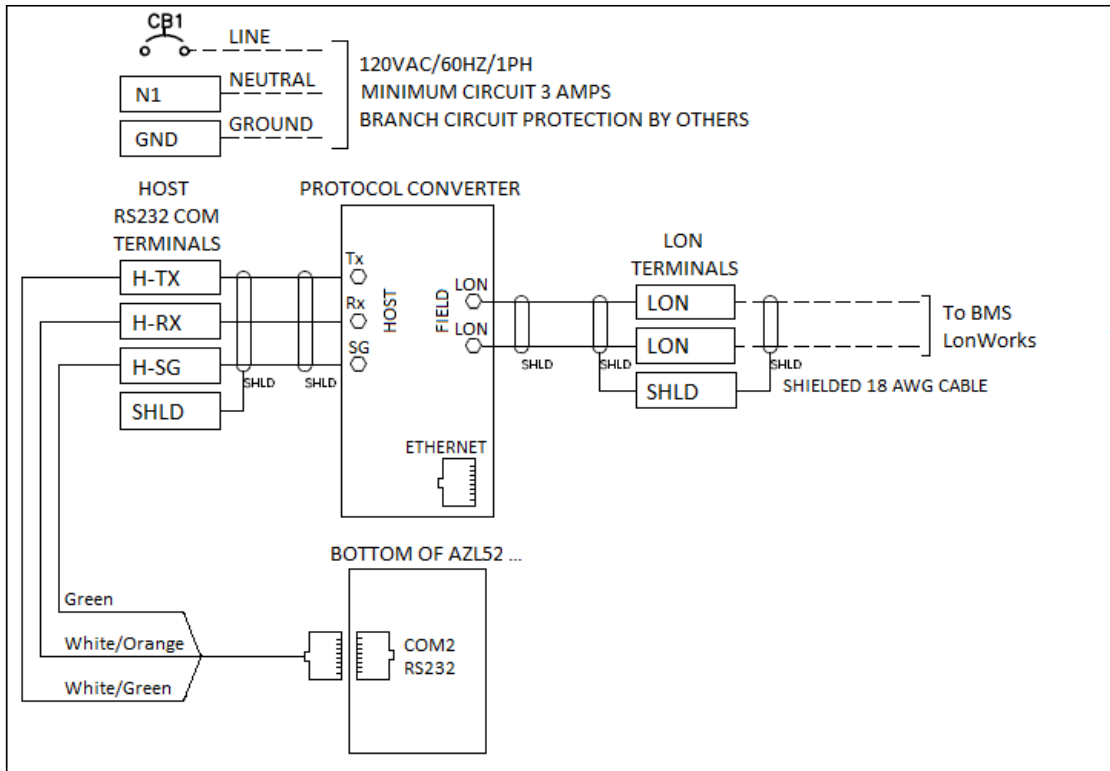


### ProtoAir TS-PX2-X (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



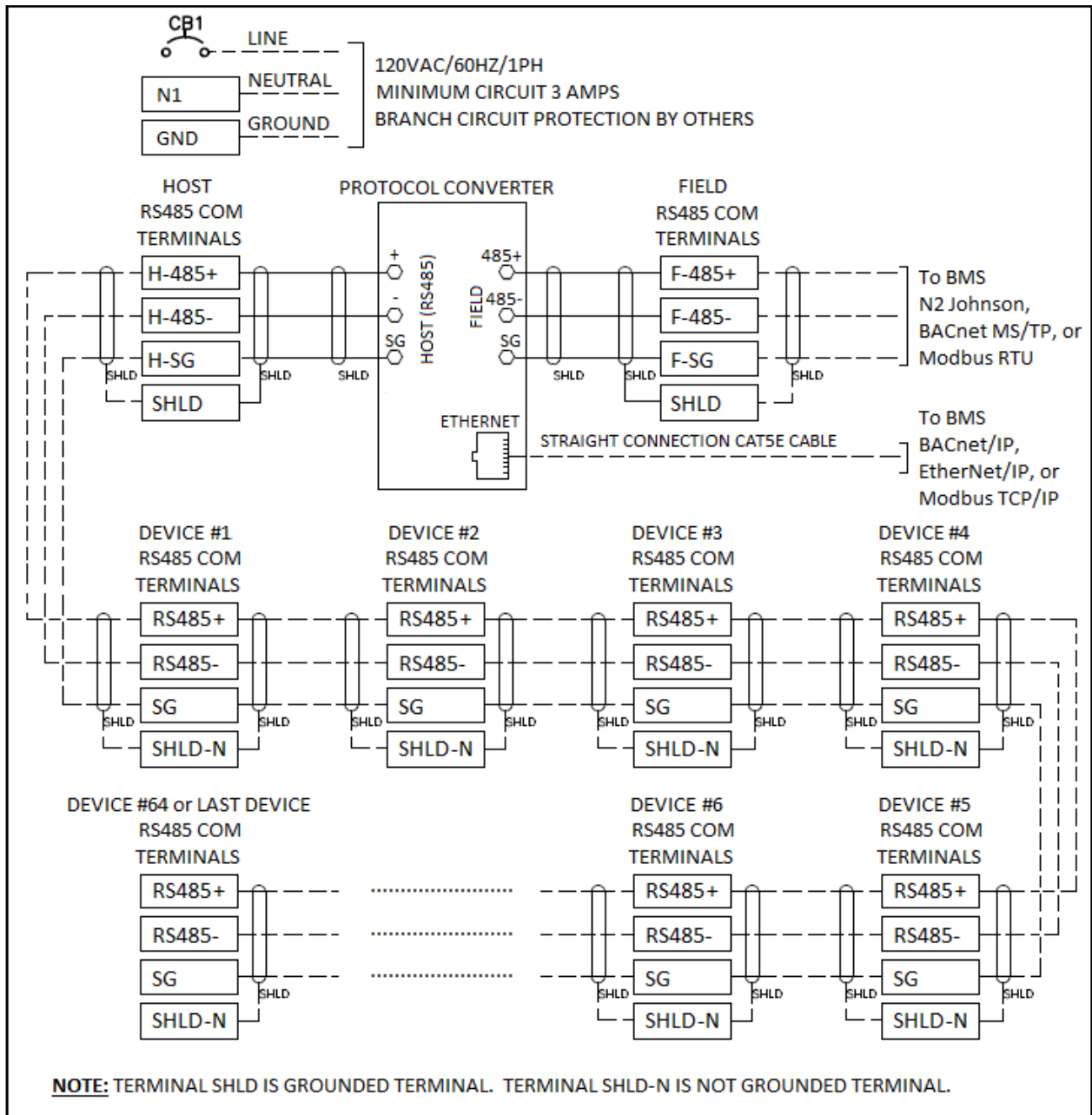
## Connections (continued)

### TS-PL2-X (LonWorks)



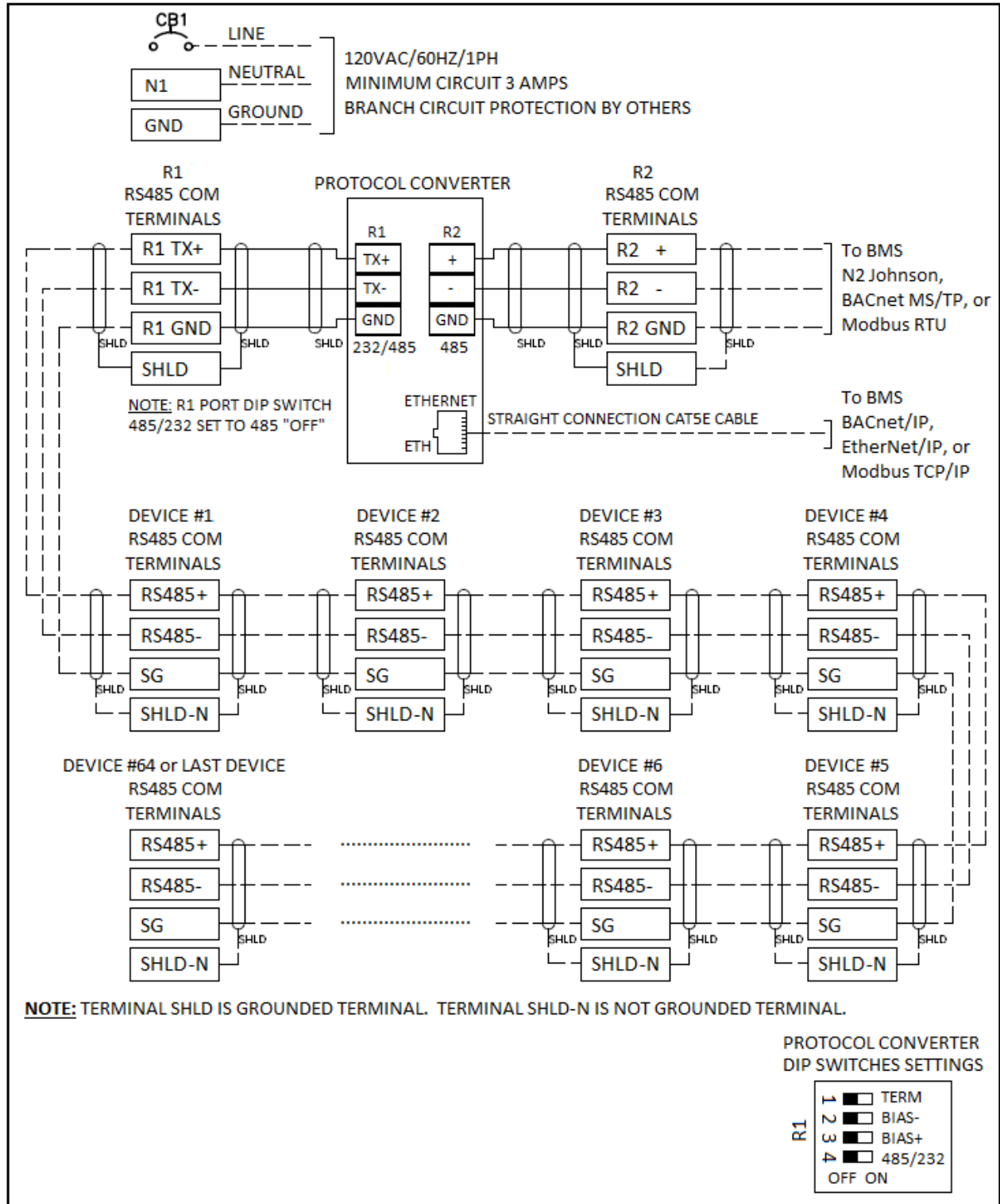
## Connections (continued)

ProtoNode TS-PX4-X (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



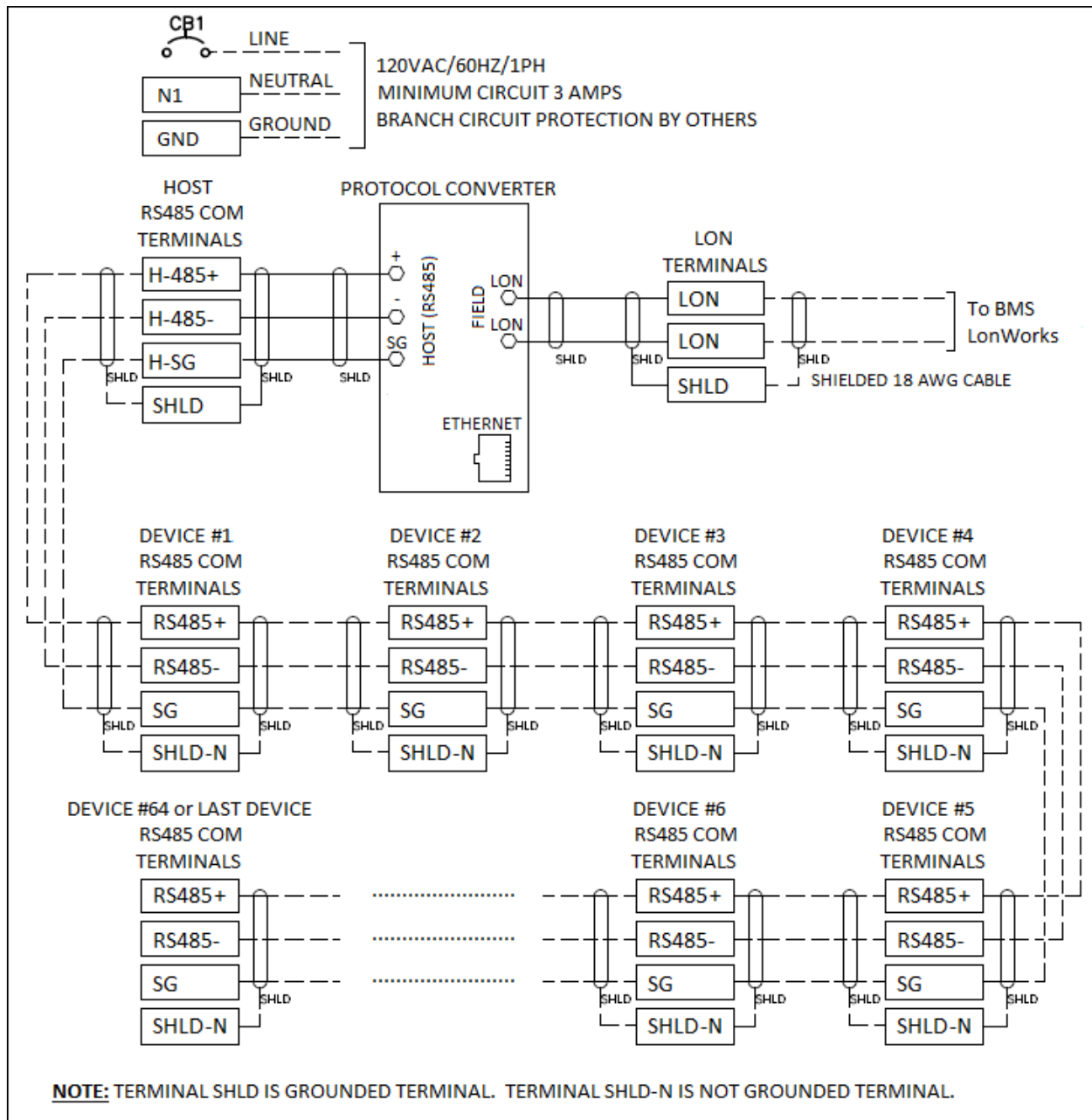
## Connections (continued)

ProtoAir TS-PX4-X (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



## Connections (continued)

### TS-PL4-X (LonWorks)

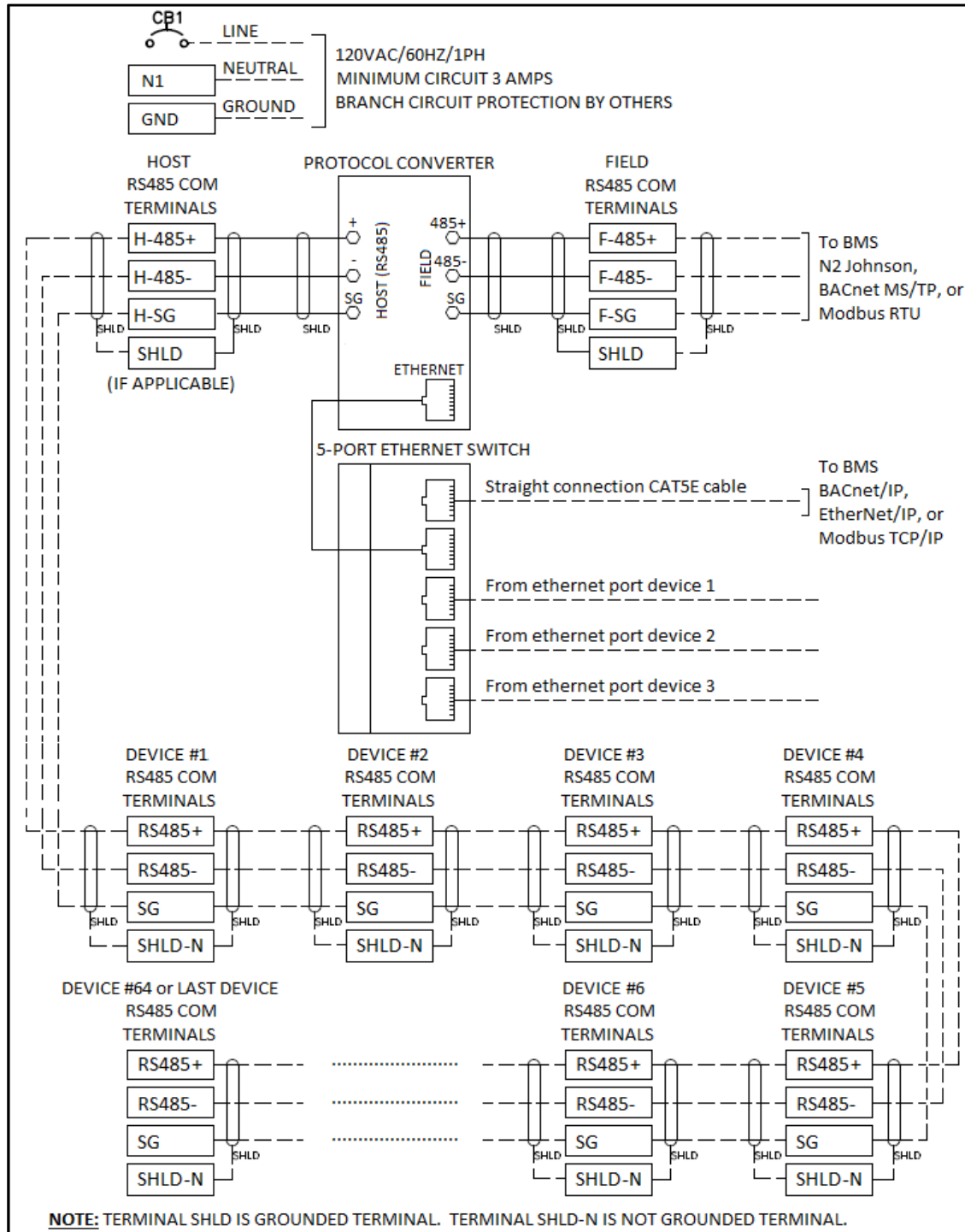




## Connections (continued)

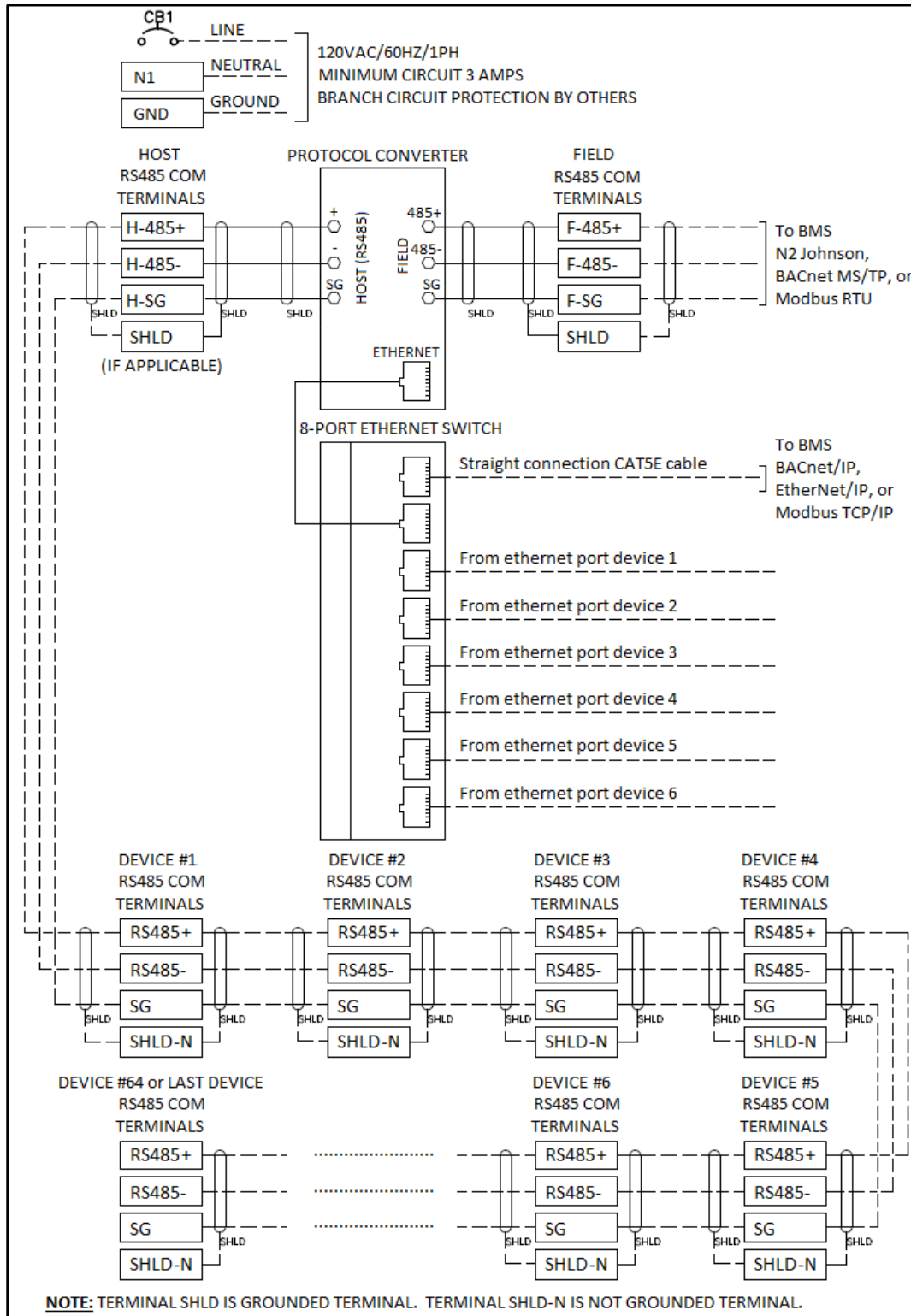
(Host: Ethernet and Serial)

**ProtoNode TS-PX4-3-5 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)**



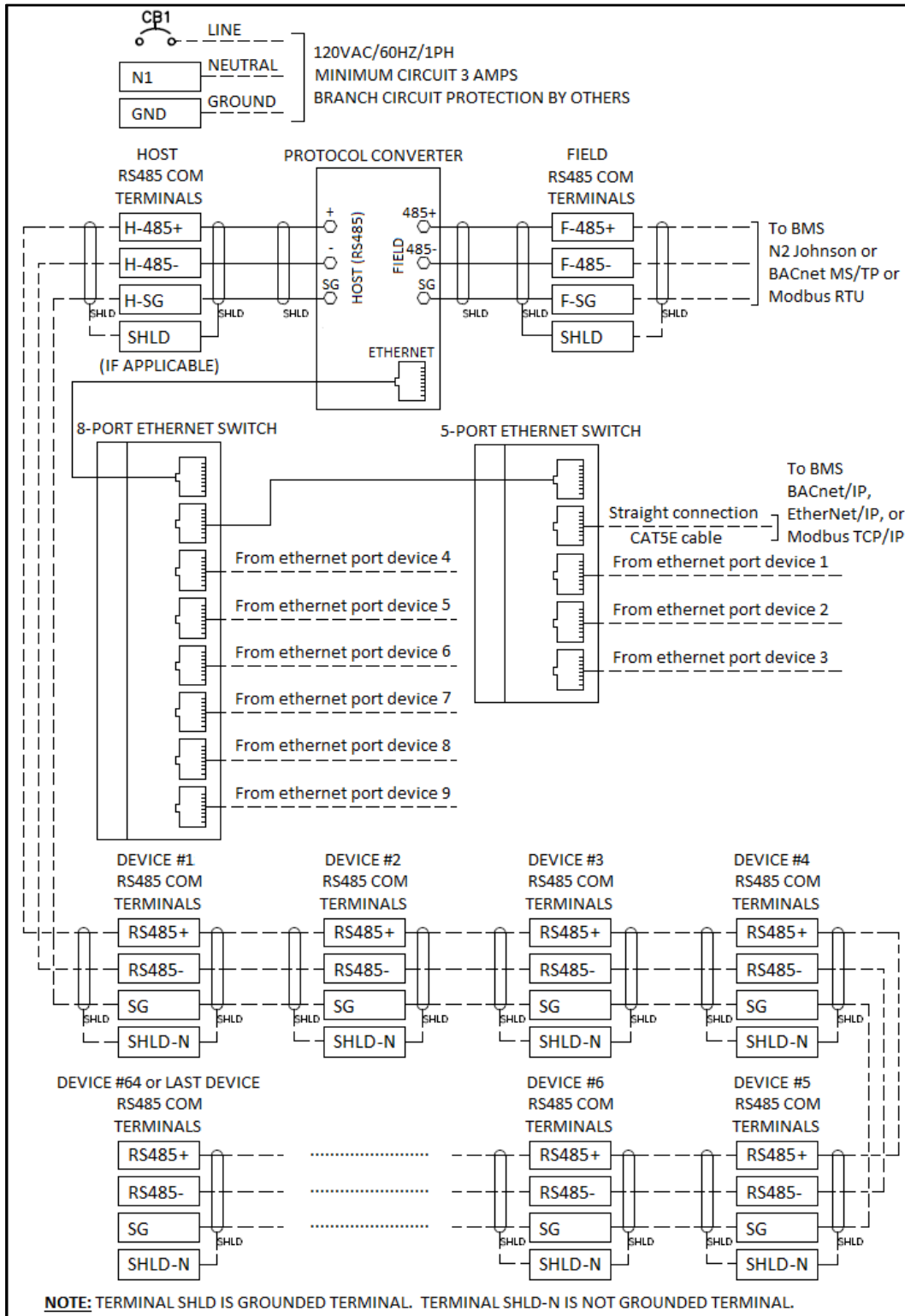
## Connections (continued)

ProtoNode TS-PX4-6-8 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



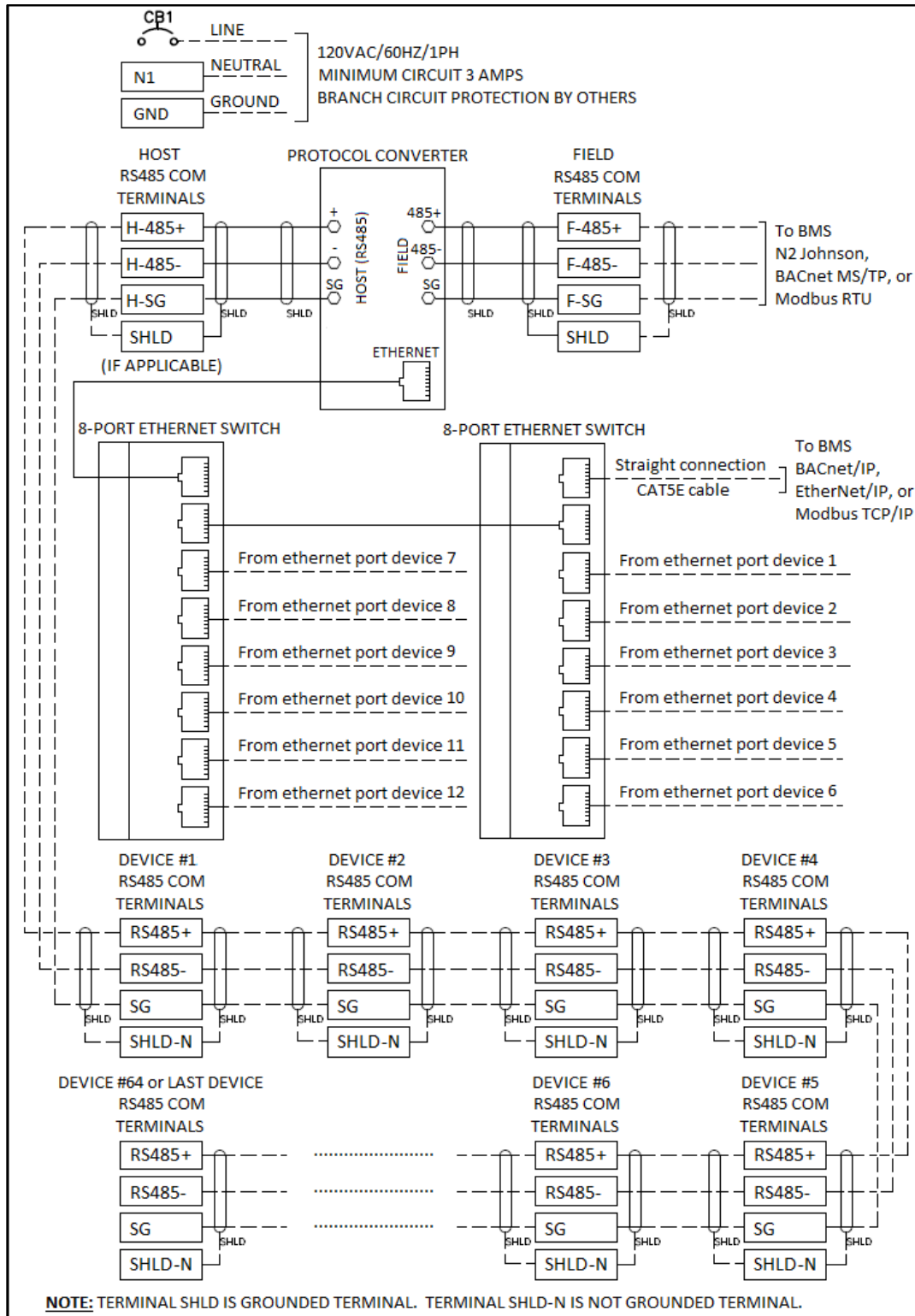
## Connections (continued)

ProtoNode TS-PX4-9-13 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



## Connections (continued)

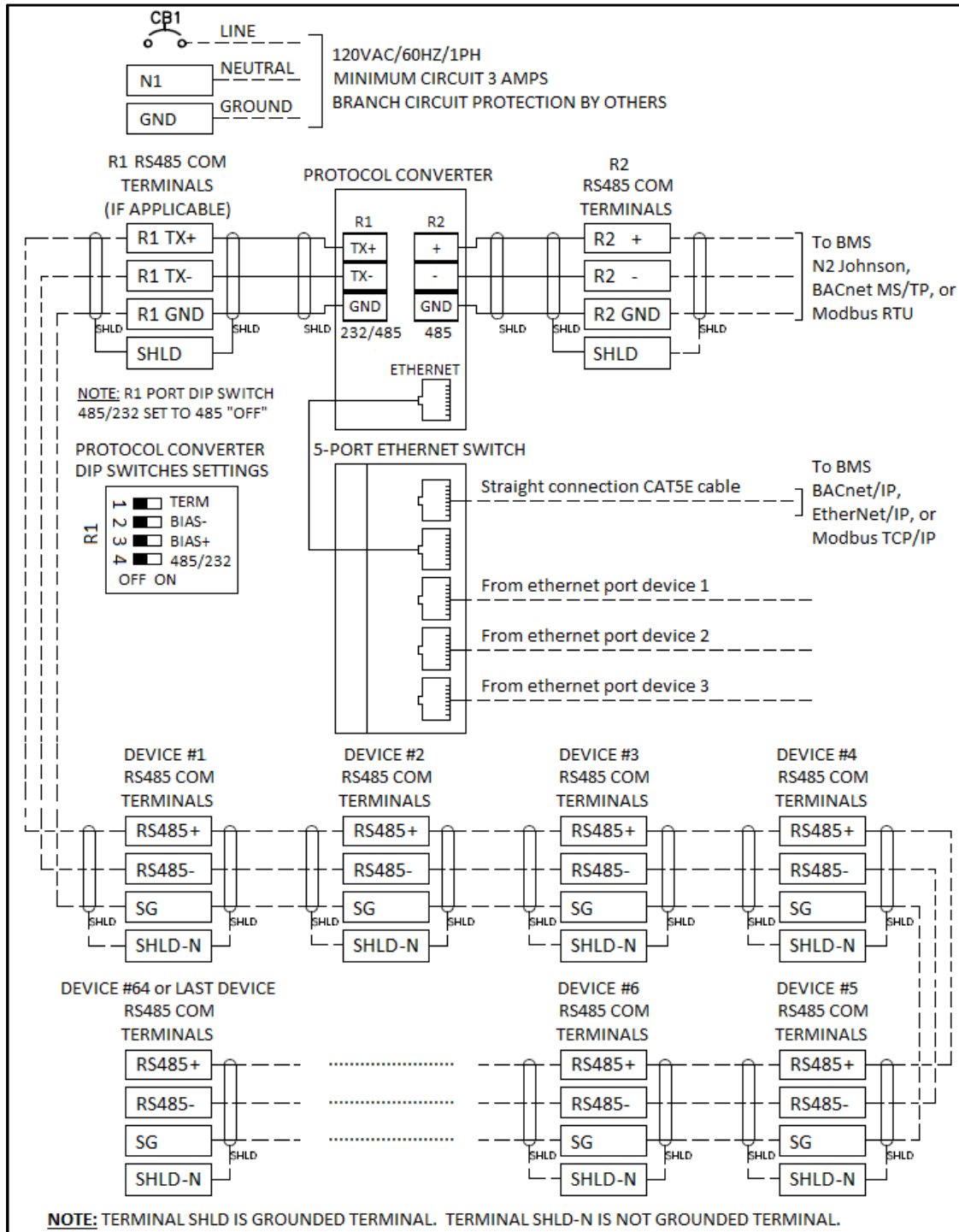
ProtoNode TS-PX4-12-16 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



## Connections (continued)

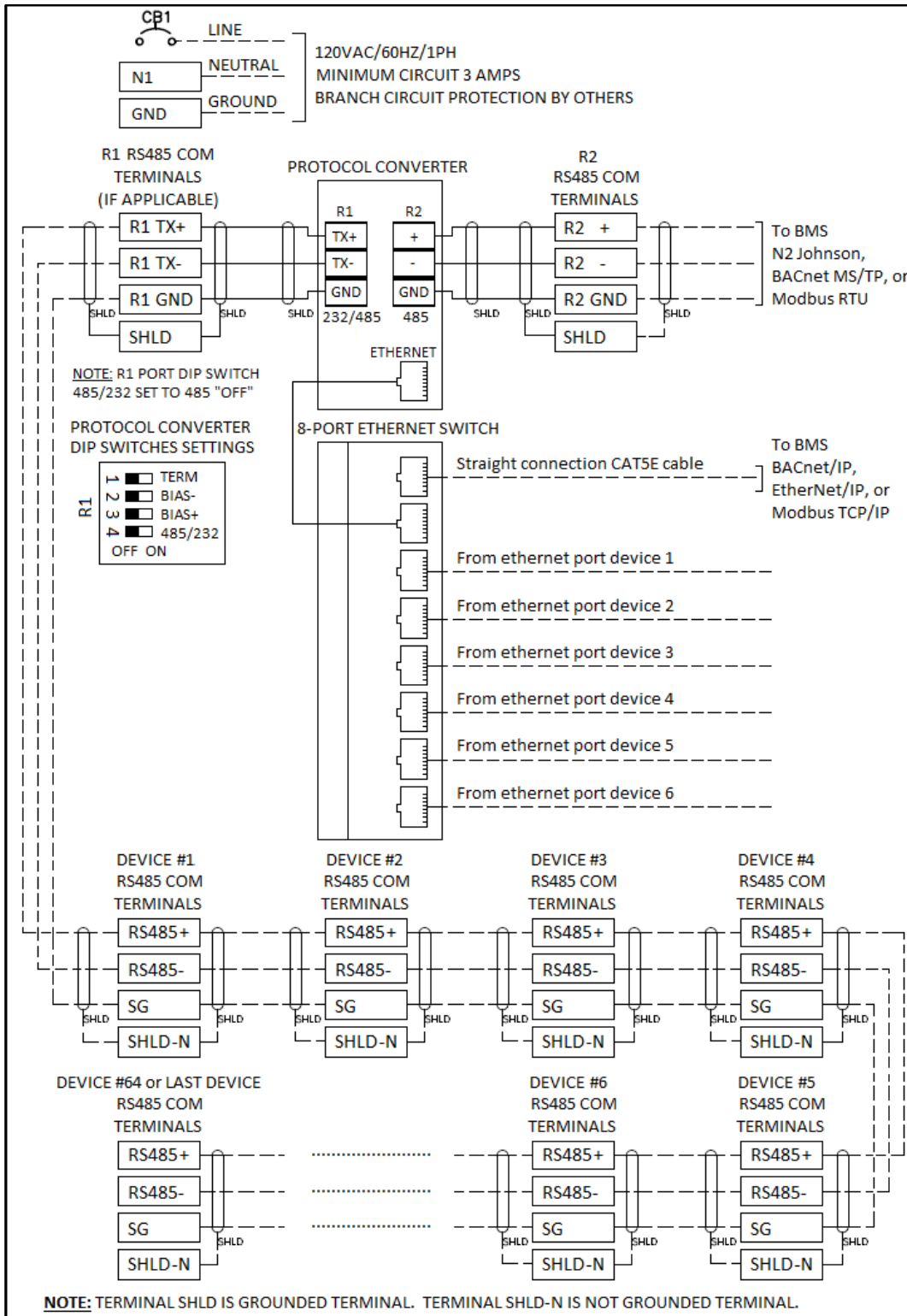
(Host: Ethernet and Serial)

**ProtoAir TS-PX4-3-5 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)**



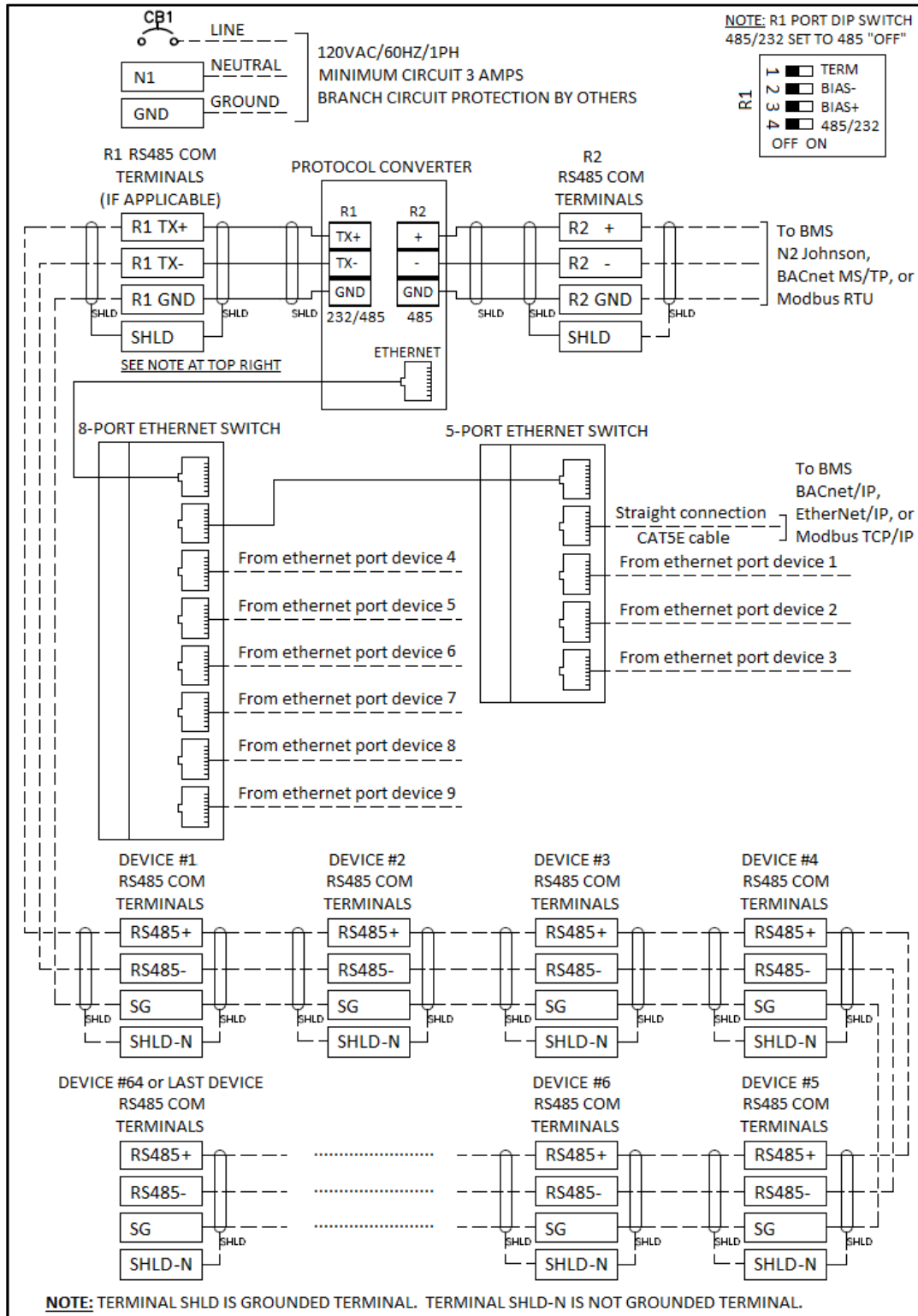
## Connections (continued)

ProtoAir TS-PX4-6-8 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



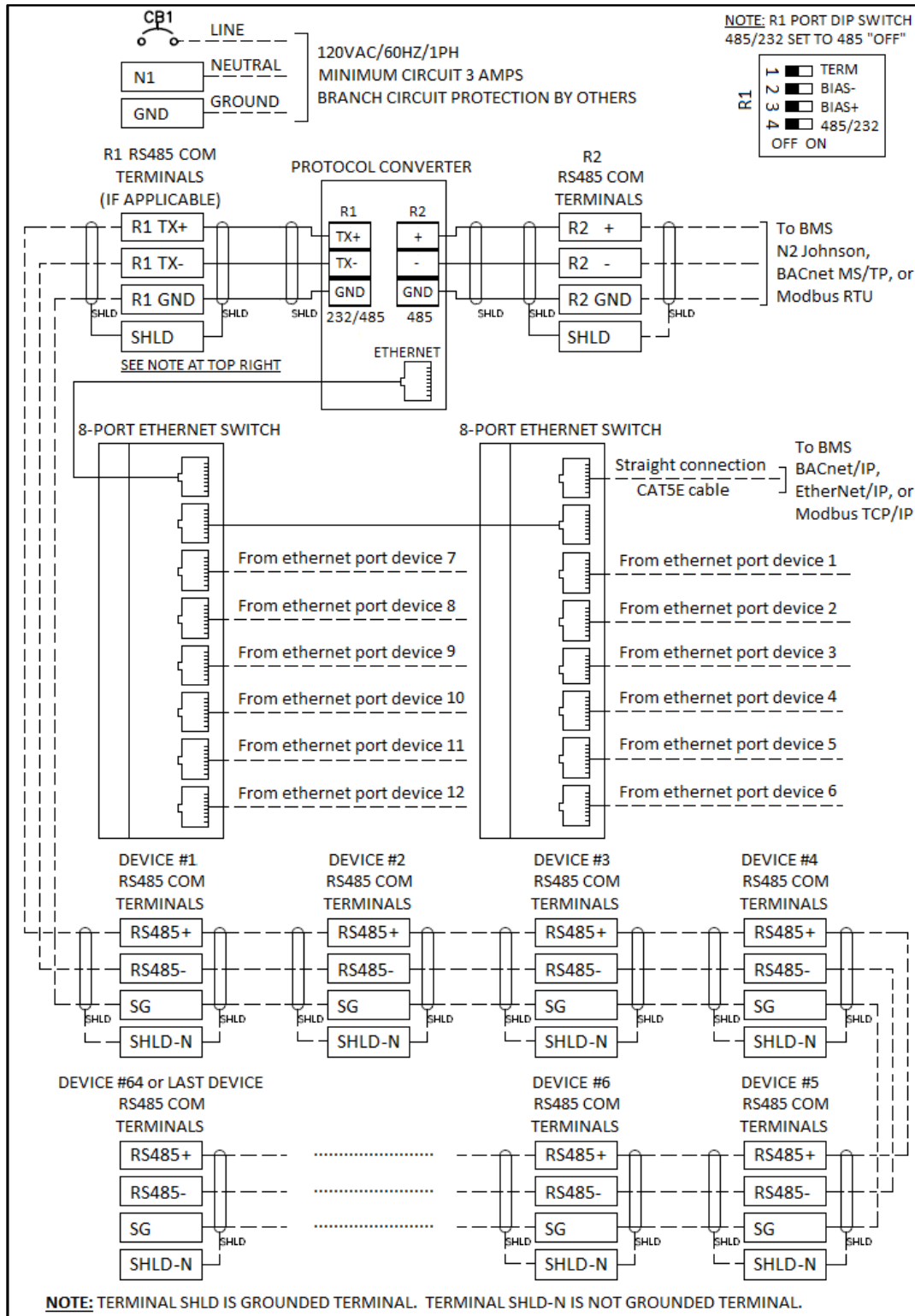
## Connections (continued)

ProtoAir TS-PX4-9-13 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)



## Connections (continued)

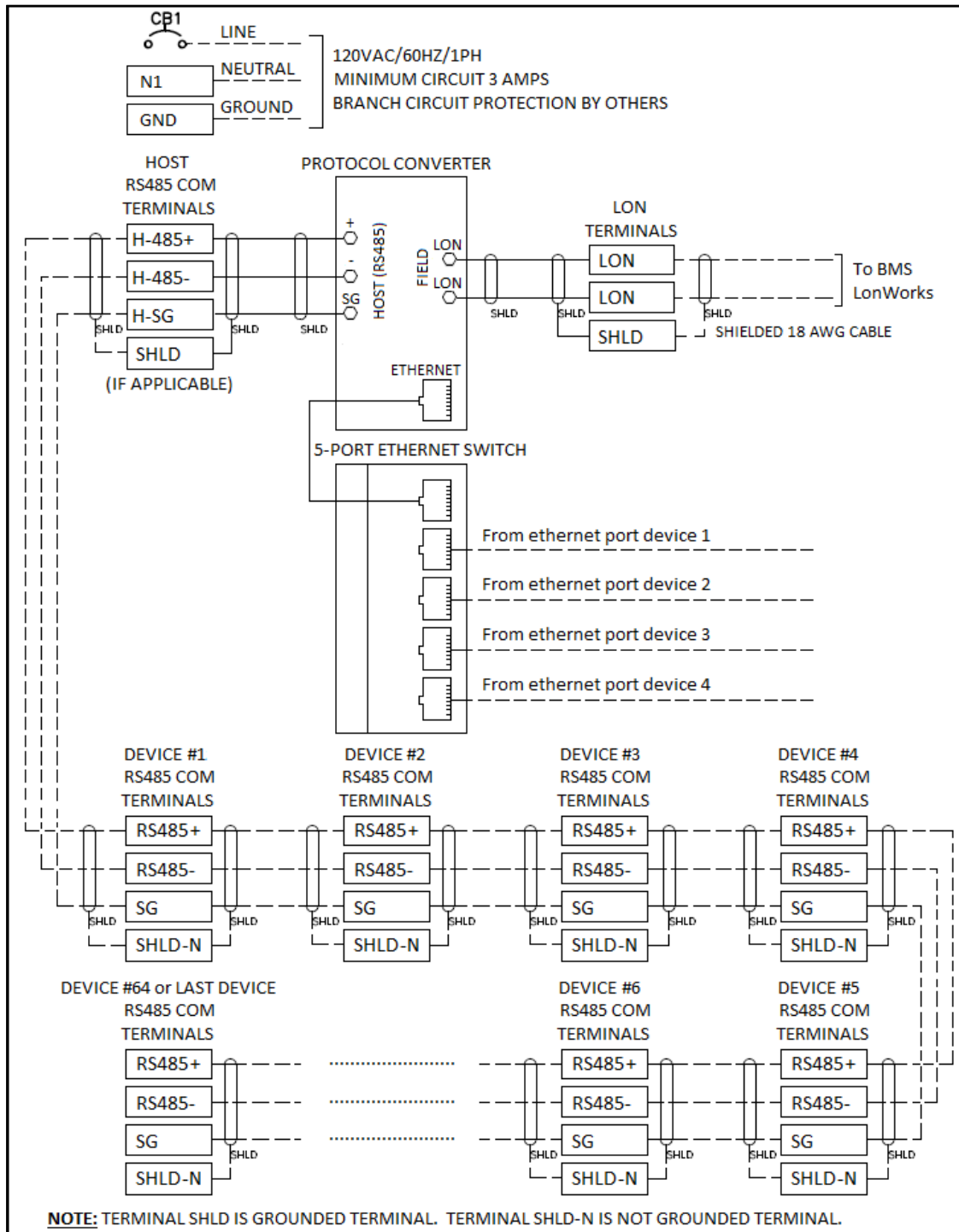
ProtoAir TS-PX4-12-16 Port Ethernet Switch (BACnet/IP, BACnet MS/TP, Ethernet/IP, N2 Johnson, or Modbus RTU)





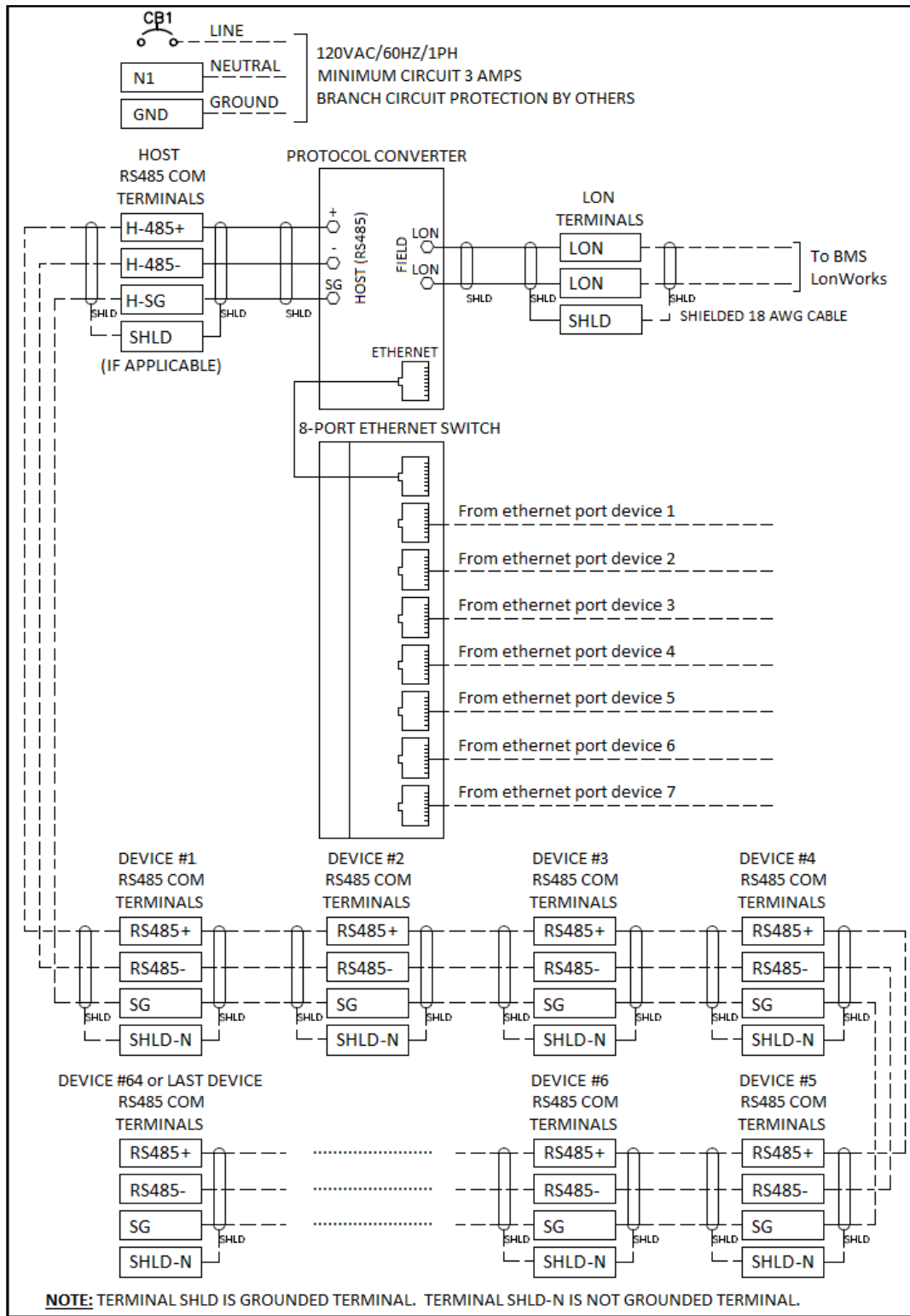
## Connections (continued)

### TS-PL4-3-5 Port Ethernet Switch (LonWorks)



## Connections (continued)

### TS-PL4-6-8 Port Ethernet Switch (LonWorks)



## Connections (continued)

### TS-PL4-9-13 Port Ethernet Switch (LonWorks)

