BACnet IP to MS/TP Integration Panel

AiriusBAC-IP-MSTP

The BACnet integration panel includes a 120VAC to 24VAC power supply, 5-port network switch, and BACnet IP to MS/TP router.

Enclosure Details:

Dimensions: 12" x 12" x 6" **Enclosure Rating:** UL Type 1, 3R, 4, 12 and IP66 **Lock:** Slotted **Includes:** Sub-panel and Wall mount brackets

120VAC to 24VAC Power Supply Details:

Transformer: Two 100 VA Split-Bobbin Over Current Protection: Circuit Breaker Frequency: 50/60 Hz 24 Vac ON/OFF: On / Off Switch & Breaker Main Breaker ON/OFF: Switch / Breaker (10 Amp) (Kills power to entire unit: Outlets, Aux. Output, & Transformer)* Total Combined Output 9A Temperature: 40° C Approvals: Class 2 (UL Approved UL5085-3), UL916, UL508, C-UL, CE, RoHS. Dimensions: 4.500″ x 8.625″ x 4.500″

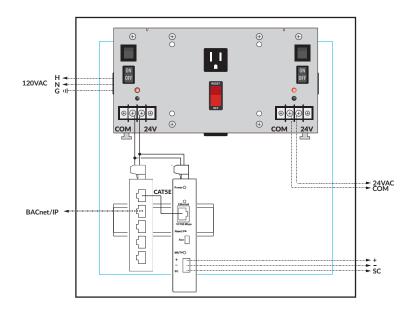
Five-port 10BASE-T/100BASE-TX switch Details:

Shielded RJ-45 connectors Auto-negotiation of speed and duplex Auto-MDIX supports cable inversion DIN-rail mounting Rugged metal enclosure Diagnostic LEDs Enhanced EMC compliance **Approvals:** UL 508 listed, c-UL listed, CE mark **Input Power:** 24 VAC/VDC powered

BASrouter Details:

Power Requirements: 24 VDC ±10% 2 W or 24 VAC ±10% 4 VA 47-63 Hz **Operating Temperature:** -40°C to +75°C **Storage Temperature:** -40°C to +85°C Relative Humidity: 10-95%, non-condensing Protection: IP30 Ethernet Comm: IEEE 802.3 10/100 Mbps data rate 10BASE-T, 100BASE-TX physical layer 100 m (max) CAT5 cable length MS/TP Comm.: ANSI/ASHRAE 135 (ISO 16484-5) 9600, 19200, 38400, 76800 bps data rate EIA-485 physical layer 1200 m (max) cable length **LEDs:** Power Green = power OK Ethernet Green = 100 Mbps Yellow = 10 Mbps Flash = activity MS/TP Flashing Green = receive activity Approvals: CE Mark: CFR 47, Part 15 Class A: RoHS UL 508, C22.2 No. 142-M1987

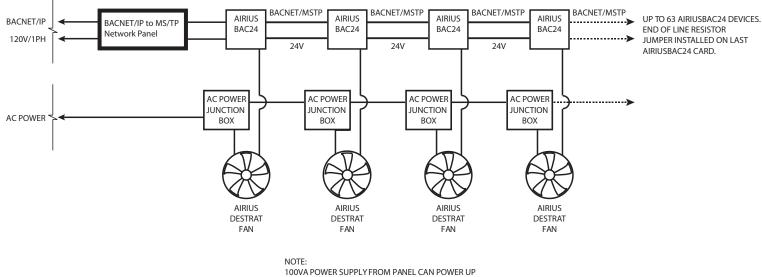




Information subject to change at anytime. BACnet® is a trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

BACnet/MSTP FAN CONTROL

Wiring Diagram



TO 26 AIRIUSBAC24 DEVICES. ADDITIONAL FIELD TRANSFORMERS NEEDED FOR ADDITIONAL DEVICES

For networks using more than 26 fans, additional field power supplies are needed:

PSC100AB10 Enclosed Single 100 VA Power Supply, 120 to 24 Vac Can power up to 26 additional AiriusBAC24 Devices.

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INDUSTRIAL CONTROL PANEL ENCLOSURES

MILD STEEL ENCLOSURES SINGLE & DOUBLE DOOR



Double Door models are not UL Type 4

c(UL)us C €



6

GLAND PLATE(S)

INCLUDED

MILD STEEL WALLMOUNT **FUS/FUD SERIES**

- Slotted Lock
- Latches opened/closed with screwdriver
- Single door models open to operator's left







MILD STEEL WALLMOUNT WITH GLAND PLATE **FAS/FAD SERIES**

- Double-bit lock for extra security (key included)
- Removable steel gland plate(s) included
- Single doors models open to operator's right











SEPARATELY

FMX

INDUSTRIAL CONTROL PANEL ENCLOSURES





UL TYPE 1, 3R, 4*, 12 & IP66 PROTECTION



- SOLIDS -UL TYPE 1, 3R, 4* & 12
- Incidental Contact
- Falling Dirt
- Circulating Dust
- Settling Airborne Dust
- Windblown Dust



- LIQUIDS -UL TYPE 3R, 4* & 12
- Light Splash
- Hosedown & Splash
- Rain, Snow & Sleet



MULTIPLE ENVIRONMENT RATINGS TO SUIT

MANY DIFFERENT APPLICATIONS

CHEMICALS -UL TYPE 12

 Non-pressurized, Non-corrosive Oil & Coolant Seepage

*Double Door models are not UL Type 4

PRODUCT FEATURES



CONCEALED DRIP SHIELD

Drains water away from enclosure entry when door is open



REINFORCED DOORS

Stiffeners provides extra durability and strength to enclosure door



POURED-IN-PLACE GASKET Guarantees Type 4*

and IP66 protection



TEXTURED POWDER COAT

Two coats of paint for superior corrosion resistance

*Double Door models are not UL Type 4



SLOTTED MOUNTING PANEL

Ordered separately as white powder coat or galvanized steel



REVERSIBLE HINGED DOOR

Reversible front door opens 130° and can be easily removed for modification



FUS/FUD SERIES Equipped with slotted lock

FAS/FAD SERIES Equipped with double-bit lock



DRAIN HOLE PLUG

Easily removable plug to drain moisture from enclosure (Typical Type 3R application)

1

SINGLE DOOR ENCLOSURES



SUBPANEL SOLD
 SEPARATELY









| FUS Series | FAS Series (Gland Plate | Nominal Dimensions | Enclo | sure Dime | nsions | Subpa | nels |
|--------------|----------------------------|-----------------------|--------|-----------|--------|------------|------------|
| (Solid Wall) | Included) | (HxWxD) | н | w | D | White | Galvanized |
| FUS0202015 | FAS0202015 | 8"x8"x6" | 7.87" | 7.87" | 5.9" | FMP02020WH | FMP02020 |
| FUS0252015 | FAS0252015 | 10"x8"x6" | 9.84" | 7.87" | 5.9" | FMP02520WH | FMP02520 |
| FUS0252515 | FAS0252515 | 10"x10"x6" | 9.84" | 9.84" | 5.9" | FMP02525WH | FMP02525 |
| FUS0302515 | FAS0302515 | 12"x10"x6" | 11.81" | 9.84" | 5.9" | FMP03025WH | FMP03025 |
| FUS0302520 | FAS0302520 | 12"x10"x8" | 11.81" | 9.84" | 7.87" | FMP03025WH | FMP03025 |
| FUS0303015 | FAS0303015 | 12"x12"x6" | 11.81" | 11.81" | 5.9" | FMP03030WH | FMP03030 |
| FUS0303020 | FAS0303020 | 12"x12"x8" | 11.81" | 11.81" | 7.87" | FMP03030WH | FMP03030 |
| FUS0352515 | FAS0352515 | 14"x10"x6" | 13.77" | 9.84" | 5.9" | FMP03525WH | FMP03525 |
| FUS0403015 | FAS0403015 | 16"x12"x6" | 15.75" | 11.81" | 5.9" | FMP04030WH | FMP04030 |
| FUS0403020 | FAS0403020 | 16"x12"x8" | 15.75" | 11.81" | 7.87" | FMP04030WH | FMP04030 |
| FUS0404020 | FAS0404020 | 16"x16"x8" | 15.75" | 15.75" | 7.87" | FMP04040WH | FMP04040 |
| FUS0405020 | FAS0405020 | 16"x20"x8" | 15.75" | 19.69" | 7.87" | FMP04050WH | FMP04050 |
| FUS0406020 | FAS0406020 | 16"x24"x8" | 15.75" | 23.62" | 7.87" | FMP04060WH | FMP04060 |
| FUS0503020 | FAS0503020 | 20"x12"x8" | 19.69" | 11.81" | 7.87" | FMP05030WH | FMP05030 |
| FUS0504015 | FAS0504015 | 20"x16"x6" | 19.69" | 15.75" | 5.9" | FMP05040WH | FMP05040 |
| FUS0504020 | FAS0504020 | 20"x16"x8" | 19.69" | 15.75" | 7.87" | FMP05040WH | FMP05040 |
| FUS0504025 | FAS0504025 | 20"x16"x10" | 19.69" | 15.75" | 9.84" | FMP05040WH | FMP05040 |
| FUS0504030 | FAS0504030 | 20"x16"x12" | 19.69" | 15.75" | 11.81" | FMP05040WH | FMP05040 |
| FUS0505020 | FAS0505020 | 20"x20"x8" | 19.69" | 19.69" | 7.87" | FMP05050WH | FMP05050 |
| FUS0505030 | FAS0505030 | 20"x20"x12" | 19.69" | 19.69" | 11.81" | FMP05050WH | FMP05050 |
| FUS0604015 | FAS0604015 | 24"x16"x6" | 23.62" | 15.75" | 5.9" | FMP06040WH | FMP06040 |
| FUS0604020 | FAS0604020 | 24"x16"x8" | 23.62" | 15.75" | 7.87" | FMP06040WH | FMP06040 |
| FUS0604025 | FAS0604025 | 24"x16"x10" | 23.62" | 15.75" | 9.84" | FMP06040WH | FMP06040 |
| FUS0604030 | FAS0604030 | 24"x16"x12" | 23.62" | 15.75" | 11.81" | FMP06040WH | FMP06040 |
| FUS0605015 | FAS0605015 | 24"x20"x6" | 23.62" | 19.69" | 5.9" | FMP06050WH | FMP06050 |
| FUS0605020 | FAS0605020 | 24"x20"x8" | 23.62" | 19.69" | 7.87" | FMP06050WH | FMP06050 |
| FUS0605025 | FAS0605025 | 24"x20"x10" | 23.62" | 19.69" | 9.84" | FMP06050WH | FMP06050 |
| FUS0605030 | FAS0605030 | 24"x20"x12" | 23.62" | 19.69" | 11.81" | FMP06050WH | FMP06050 |
| FUS0606020 | FAS0606020 | 24"x24"x8" | 23.62" | 23.62" | 7.87" | FMP06060WH | FMP06060 |
| FUS0606030 | FAS0606030 | 24"x24"x12" | 23.62" | 23.62" | 11.81" | FMP06060WH | FMP06060 |
| FUS0606040 | FAS0606040 | 24"x24"x16" | 23.62" | 23.62" | 15.75" | FMP06060WH | FMP06060 |

| FUS Series | FAS Series (Gland Plate | Nominal Dimensions | Enclo | sure Dime | nsions | Subpa | nels |
|--------------|----------------------------|-----------------------|--------|-----------|--------|------------|------------|
| (Solid Wall) | Included) | (HxWxD) | н | w | D | White | Galvanized |
| FUS0608030 | FAS0608030 | 24"x31"x12" | 23.62" | 31.5" | 11.81" | FMP06080WH | FMP06080 |
| FUS0705020 | FAS0705020 | 28"x20"x8" | 27.55" | 19.69" | 7.87" | FMP07050WH | FMP07050 |
| FUS0705025 | FAS0705025 | 28"x20"x10" | 27.55" | 19.69" | 9.84" | FMP07050WH | FMP07050 |
| FUS0804030 | FAS0804030 | 31"x16"x12" | 31.5" | 15.75" | 11.81" | FMP08040WH | FMP08040 |
| FUS0806020 | FAS0806020 | 31"x24"x8" | 31.5" | 23.62" | 7.87" | FMP08060WH | FMP08060 |
| FUS0806025 | FAS0806025 | 31"x24"x10" | 31.5" | 23.62" | 9.84" | FMP08060WH | FMP08060 |
| FUS0806030 | FAS0806030 | 31"x24"x12" | 31.5" | 23.62" | 11.81" | FMP08060WH | FMP08060 |
| FUS0806040 | FAS0806040 | 31"x24"x16" | 31.5" | 23.62" | 15.75" | FMP08060WH | FMP08060 |
| FUS0808020 | FAS0808020 | 31"x31"x8" | 31.5" | 31.5" | 7.87" | FMP08080WH | FMP08080 |
| FUS0808030 | FAS0808030 | 31"x31"x12" | 31.5" | 31.5" | 11.81" | FMP08080WH | FMP08080 |
| FUS0808040 | FAS0808040 | 31"x31"x16" | 31.5" | 31.5" | 15.75" | FMP08080WH | FMP08080 |
| FUS0906020 | - | 35"x24"x8" | 35.43" | 23.62" | 7.87" | FMP09060WH | - |
| FUS0906025 | - | 35"x24"x10" | 35.43" | 23.62" | 9.84" | FMP09060WH | - |
| FUS0906030 | - | 35"x24"x12" | 35.43" | 23.62" | 11.81" | FMP09060WH | - |
| FUS0908020 | FAS0908020 | 35"x32"x8" | 35.43" | 31.5" | 7.87" | FMP09080WH | - |
| FUS0908030 | FAS0908030 | 35"x32"x12" | 35.43" | 31.5" | 11.81" | FMP09080WH | - |
| FUS0908040 | - | 35"x32"x16" | 35.43" | 31.5" | 15.75" | FMP09080WH | - |
| FUS0909020 | - | 35"x35"x8" | 35.43" | 35.43" | 7.87" | FMP09090WH | - |
| FUS0909030 | - | 35"x35"x12" | 35.43" | 35.43" | 11.81" | FMP09090WH | - |
| FUS0909040 | - | 35"x35"x16" | 35.43" | 35.43" | 15.75" | FMP09090WH | - |
| FUS1006025 | FAS1006025 | 39"x24"x10" | 39.37" | 23.62" | 9.84" | FMP10060WH | FMP10060 |
| FUS1006030 | FAS1006030 | 39"x24"x12" | 39.37" | 23.62" | 11.81" | FMP10060WH | FMP10060 |
| FUS1008025 | FAS1008025 | 39"x32"x10" | 39.37" | 31.5" | 9.84" | FMP10080WH | FMP10080 |
| FUS1008030 | FAS1008030 | 39"x32"x12" | 39.37" | 31.5" | 11.81" | FMP10080WH | FMP10080 |
| FUS1008040 | FAS1008040 | 39"x32"x16" | 39.37" | 31.5" | 15.75" | FMP10080WH | FMP10080 |
| FUS1009030 | - | 39"x36"x12" | 39.37" | 35.43" | 11.81" | FMP10090WH | - |
| FUS1206030 | FAS1206030 | 47"x24"x12" | 47.24" | 23.62" | 11.81" | FMP12060WH | FMP12060 |
| FUS1208030 | FAS1208030 | 47"x32"x12" | 47.24" | 31.5" | 11.81" | FMP12080WH | FMP12080 |
| FUS1208040 | FAS1208040 | 47"x32"x16" | 47.24" | 31.5" | 15.75" | FMP12080WH | FMP12080 |
| FUS1209030 | - | 47"x36"x12" | 47.24" | 35.43" | 11.81" | FMP12090WH | - |

UNIVERSAL ENCLOSURE FEATURES

- RAL 7035 structured powder coated finish
- Additional sizes available
- UL Type 1, 3R, 4, 12 / IP66

CONSTRUCTION

- Body & doors: 1.5mm mild steel
- Folded and seam welded
- Four 10mm diameter holes for wall mounting
- 130° door opening
- Concealed removable hinges with captive pins
- Extruded one piece polyurethane gasket

INCLUDES

- Enclosure with door(s)
- Grounding hardware
- Hole plugs
- FAS includes gland plate(s) and key

OPTIONAL ACCESSORIES

- Subpanels available in white powder coated steel or galvanized steel
- Inner door panels
- 19" rack mounting profiles
- Door latch options
- Replacement doors
- Subpanel depth adjust kit
- Plinths

ENCLOSURE ACCESSORIES

| FMX DOOR LA | тсн о | PTIONS | | |
|------------------|----------|-----------------------------|-------------------|------------------------|
| AWM-NSD AWM-NDB3 | AWM-NDB5 | AWM-NT8 | | |
| P = | 5 | 5 | 0 | ۶ |
| AWM-DB3KEY AWM- | DTH | AWM-DWH | AWM-SLCL | AWM-SLCLKEY |
| Part Number | Descrip | otion | | |
| AWM-NDB3-1 | 3mm D | ouble Bit Loc | k Insert, for Sir | ngle Point Lock |
| AWM-NDB3-3 | 3mm Do | ouble Bit Lock | Insert, for Thre | e Point Latch System |
| AWM-NDB5-1 | 5mm D | ouble Bit Loc | k Insert, for Sir | ngle Point Lock |
| AWM-NDB5-3 | 5mm Do | ouble Bit Lock | Insert, for Thre | e Point Latch System |
| AWM-NT8-1 | 8mm Tr | iangle Lock lı | nsert, for Singl | e Point Lock |
| AWM-NT8-3 | 8mm Tr | iangle Lock Ir | nsert, for Three | Point Latch System |
| AWM-NSD-1 | Screwd | river Lock Ins | ert, for Single | Point Lock |
| AWM-NSD-3 | Screwd | river Lock Ins | ert, for Three I | Point Latch System |
| AWM-DB3KEY | 3mm D | ouble Bit Loc | k Key | |
| AWM-DB5KEY | 5mm D | ouble Bit Loc | k Key | |
| AWM-T8KEY | 8mm Tr | iangle Bit Loo | ck Key | |
| AWM-DTH | T-handle | e with Lock fo | r Enclosures w | ith Single Point Lock |
| AWM-DDTH | T-handle | e with Lock fo | r Enclosures w | ith Three Point Latch |
| AWM-DWH | 0 | andle with Lo Point Lock | ck for Enclosu | res with |
| AWM-DWHL | Padlock | king Wing Har | dle Provision fo | or Single Point Locks |
| AWM-SLCL | Cut Loc | k Mechanism | for Enclosures v | vith Single Point Lock |
| AWM-SLCKEY | Cut Loo | k Replaceme | ent Key | |
| AWM-QTM | Quarter | Turn Locking | Mechanism | |
| AWM-RDM | Door Lo | ock Mechanis | m for Double [| Door Enclosures |

FMX PLINTHS

- Integrated corner supports for side members
- To form 100mm high plinths:

2 front and 2 side members required per enclosure

- To form 200mm high plinths:
 - 4 front and 2 side members required per enclosure
- RAL5020 powder coating

| Part Number | Height | Depth |
|---------------|------------|--------------|
| Side Members | | |
| AWM-PSM1030 | 4" (100mm) | 12" (300mm) |
| AWM-PSM1035 | 4" (100mm) | 14" (350mm) |
| AWM-PSM1040 | 4" (100mm) | 16" (400mm) |
| AWM-PSM2030 | 8" (200mm) | 12" (300mm) |
| AWM-PSM2035 | 8" (200mm) | 14" (350mm) |
| AWM-PSM2040 | 8" (200mm) | 16" (400mm) |
| Front Members | | |
| AWM-PFM1060 | 4" (100mm) | 24" (600mm) |
| AWM-PFM1080 | 4" (100mm) | 31" (800mm) |
| AWM-PFM1010 | 4" (100mm) | 39" (1000mm) |
| AWM-PFM1012 | 4" (100mm) | 47" (1200mm) |

19" RACK MOUNTING PROFILES

- Hardware included
- 2mm galvanized steel



| Part Number | Compatible Enclosure Dimensions* |
|---------------|-------------------------------------|
| AWM-19RMP0400 | 16" (400mm) high |
| AWM-19RMP0600 | 24" (600mm) high |
| AWM-19RMP0800 | 31" (800mm) high |
| AWM-19RMP1000 | 39" (1000mm) high |
| AWM-19RMP1200 | 47" (1200mm) high |

*Only fits 24" (600mm) wide enclosures

SUBPANEL DEPTH ADJUST KIT

- Allows for depth adjustment of subpanel
- Depth selection up to 400mm

| Part Number Enclosure Depth |
|-----------------------------|
| AWM-DAK150 6" (150mm) |
| AWM-DAK200 8" (200mm) |
| AWM-DAK250 10" (250mm) |
| AWM-DAK300 12" (300mm) |
| AWM-DAK350 14" (350mm) |
| AWM-DAK400 16" (400mm) |

FMX MISCELLANEOUS ACCESSORIES

| Part Number | Description |
|-------------|-----------------------------|
| AWM-DH180-2 | 180° Door Hinges, 2pcs |
| AUE-DPA4 | A4 Document Pocket, Plastic |
| AWM-WMB | Wall Mount Brackets, 4pcs |
| AWM-PMB | Pole Mount Brackets, 2pcs |
| AWM-DRSTP | Door Stop |
| AWM-DRSW | Door Switch |







AWM-DH180-2

AWM-WMB



AWM-DRSTP

AWM-DRSW

www.factorymation.com/enclosures

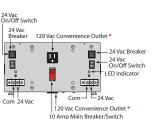


(800) 888-5538

AC POWER SUPPLY

PSH100A100A Series

Enclosed Dual 100 VA Power Supplies, 120 to 24 Vac



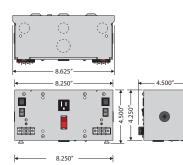
Over Current Protection: Circuit Breaker

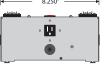
Frequency: 50/60 Hz

Main Breaker ON/OFF: Switch / Breaker (10 Amp)

* Move internal jumper to "HOT" position if you wish outlets to always be hot otherwise outlets will be switched by main breaker.

SPECIFICATIONS









| PSH100A100A 9 | SERIES S | ELECTIO | N GUIDE | |
|------------------|--------------------|--------------------|--------------------------------|----------------------------|
| Model # | 120 Vac Outlets | Aux Output Wire | Main Breaker on Input Power | Secondary Configuration |
| PSH100A100A | | | | External Terminal Strip |
| PSH100A100AW | • | | | Internal Wires |
| PSH100A100AB10* | • | • | 10 Amp Switch / Breaker | External Terminal Strip |
| PSH100A100AWB10* | • | • | 10 Amp Switch / Breaker | Internal Wires |

All Other Models Notes:

• Output derating may exceed 20% due to elevated ambient temperature or heat buildup in device over time.

• Design is in accordance with ASCE 7-05 Chapter 13: ^

www.oshpd.ca.gov/FDD/Pre-Approval/ OSP-0201-10.pdf

Output, & Transformer)* Total Combined Output 9A Temperature: 40° ⊂ Approvals: Class 2 (UL Approved UL5085-3), UL916, UL508, C-UL, CE, RoHS, Special ^ Seismic Certification of Equipment Output Wires: "B10" Models Only and Components: OSP-0201-10

(Kills power to entire unit: Outlets, Aux.

Dimensions: 4.500" x 8.625" x 4.500"

Transformer: Two 100 VA Split-Bobbin

24 Vac ON/OFF: On / Off Switch & Breaker

Input Power Wires Primary Wires BLK: 120 Vac BLK: 120 Vac WHT: Neutral WHT: Common GRN: Ground Outlet Wires BLK: 120 Vac WHT: Neutral GRN: Ground

Input Wires: "B10" Models Only

Auxiliary Output BLU: 120 Vac

Transformer Output WHT/YEL: 24 Vac

"W" Models Only

WHT/BLU: Common

Data Sheet – BASrouter



BASrouter — BACnet[®] Multi-Network Router (3.0 Version)

The BASrouter is a compact BACnet multi-network router which provides versatile stand-alone routing between BACnet/IP, BACnet Ethernet (ISO 8802-3), and BACnet MS/TP networks. The BACnet router is web page configurable and it is powered by 24 VAC/VDC. The BASrouter has a number of troubleshooting/ diagnostic capabilities. The BACnet MS/TP *"Status"*

Versatile Routing Between ...

- BACnet/IP and BACnet MS/TP
- BACnet Ethernet and BACnet MS/TP
- BACnet/IP and BACnet Ethernet
- BACnet/IP and BACnet Ethernet and BACnet MS/TP
- Two BACnet/IP Networks (between two UDP ports)

IP Network Support

- Web server for commissioning and troubleshooting
- DHCP option to automatically acquire IP address
- BACnet/IP Broadcast Management Device (BBMD)
- Foreign Device Registration (FDR)

Flexible Communications

- 10/100 Mbps Ethernet with auto-negotiation and Auto-MDIX
- Optically isolated MS/TP port
- MS/TP baud rates range from 9.6–76.8 kbps

Convenient Installation

- 24 VAC/VDC (± 10%), 47–63Hz input voltage
- Din-rail mounted
- Outdoor temperature operation -40°C to +75°C

webpage contains a graphical table of all of the MS/TP devices on the network and their status. Also provided are network statistics, in addition to a BACnet/IP "Routing" webpage with a discoverable routing table which is useful when setting up or troubleshooting a BACnet network.

Network diagnostics

- Webpage with graphical network map of all 128 MS/TP master devices and their status
- MS/TP error count
- BACnet network traffic statistics
- Discover and View current BACnet
 routing table





BACnet is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of listed products to the requirements of ASHRAE Standard 135 is the responsibility of BACnet International (BI). BTL is a registered trademark of BACnet International.

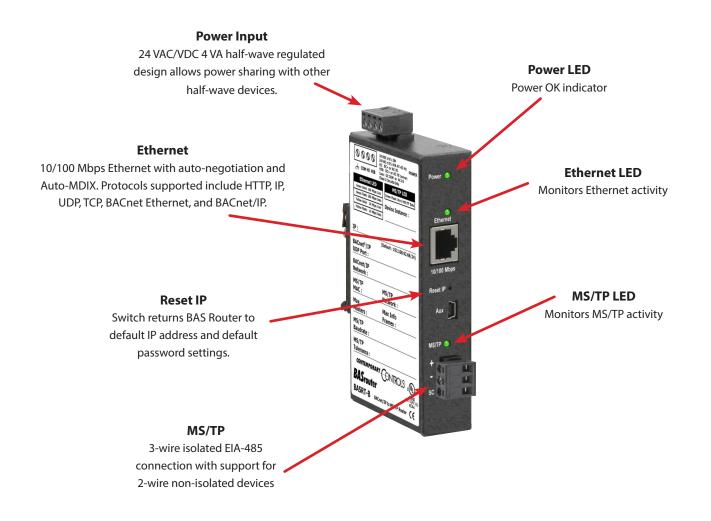
BASrouter — BACnet[®] Multi-Network Router

The BAS Router is housed in a metal case that mounts on 35-mm DIN-rail and is powered from a 24 VAC/VDC (\pm 10%) source. There is one MS/TP port and one 10/100 Mbps Ethernet port.

The MS/TP port offers an optically-isolated transceiver. It has a removable 3-pin terminal block for the EIA-485 connection. The Ethernet port offers a shielded RJ-45 connector. Autonegotiation and Auto-MDIX allow this port to automatically match connections to the attached equipment. Therefore, either straight-through or crossover CAT5/6 cable can be used for hook-up.

A resident web server allows for commissioning, and troubleshooting using a standard web browser. A reset switch is provided on the router to return the unit to the factory default IP address of 192.168.92.68 (/24). Three LEDs are provided: The power LED glows green when proper power is provided. A bicolour Ethernet LED glows green for 100 Mbps, and yellow for 10 Mbps, and indicates activity by flashing. MS/TP LED flashes green when valid MS/TP traffic is received. When flashing continuously and without long interruptions, the MS/TP receive LED is a good indicator that the MS/TP network is operational.

Internal MS/TP bias and termination jumpers allow flexible bias and termination options. They can be removed for mid-span installations.



Web Page Configuration

| | DLS | Configuration | Advanced | Routing | Security | Status | BDT | FDT |
|----------------------|--------------------|---------------|-----------------|---------|----------|--------|-----|-----|
| BASRTB Co | nfiguration | | | | | | | |
| Device Name | BASRT-B | | | | | | | |
| Device Instance | 13027 | | | | | | | |
| Device Location | | | Advar | nced | | | | |
| Ethernet Network | 0 | | | | | | | |
| BACnet/IP UDP Port 1 | BAC0 | | | | | | | |
| BACnet/IP Network 1 | 1 | | | | | | | |
| IP Assigned By | FIXED - | | Status | 5 | | | | |
| IP Address | 10.0.13.27 | | | | | | | |
| IP Subnet | 20 | | | | | | | |
| IP Gateway | 10.0.0.1 | | Routir Table | ng | | | | |
| MS/TP MAC | 0 | | | | | | | |
| MS/TP Network | 1326 | | | | | | | |
| Max Masters | 127 | | | | | | | |
| Max Info Frames | 100 | | | | | | | |
| MS/TP Baudrate | 38400 - | | Secur | ity | | | | |
| MS/TP Tolerance | ○ Strict ● Lenient | | | | | | | |
| Save Changes | | | | | | | | |
| MAC Address | 00-50-DB-00-E1-5E | I | | | | | | |
| Firmware Revision | 3.0.1 | | | | | | | |

Status Screen

The Status screen is always operational as long as the BASrouter is powered. It consists of *MS/TP Device Status* table, Network Errors count, and Statistics on BACnet networks to which the BASrouter is connected. The Status page will automatically refresh every 5 seconds with the updated status on networks and devices — so you can observe the network state changes and gain insight into the condition of the BACnet network (as seen by the BASrouter). These statistics are retained over time, unless the BASrouter is powered off or rebooted from the main web page using the "Save Changes" button, then all Status page parameters are reset. The "Reset Statistics" button on Status page will reset Network Errors count, and Statistics, but retain the MSTP Device Status table history. For more information on the Status page refer to the BASrouter User Manual.

| | | | _ | | | | | | | | | | | | | | |
|---|---|--|-----------------------|--|---|------------------------------------|--------------------------------|------------|--|-------------------------------------|-------------------------|-----|------------------------------------|--------------|---------------------------------|---|--|
| BA | SF | RTE | 3 S | tati | JS | | | | | | | | | | | | |
| мѕт | ЪD | evic | e S | tatu | s | | | | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | |
| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | | |
| 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | | |
| 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | | |
| | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | | |
| 80 | · · · | | | | | | | | 105 | 400 | 407 | 108 | 109 | 110 | 111 | | |
| 80 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 100 | 105 | 110 | | | |
| | 97 113 Online | 114 Blu | 115 Ie=Rol | 116 Iter MA | 117 | 102 118 ray=01 | 119 | 104 120 | 105 | 122 | 107 | 124 | 125 | 126 | 127 | | |
| 96 112 3reen= Netv Stati | 97 113 Online Vork | 114 Blu S | 115 Ie=Rou | 116 Inter MA | 117 IC G | 118 ray=01 | 119 filine | | 121 | 122 | 123 | 124 | 125 | 126 | 127 | | |
| 96 112 3reen= Netv Stati | 97 113 Online | 114 Blu S | 115 Ie=Rou | 116 Iter M4 : 24 | 117 KC G | 118 | 119 filine | | 121 B/IP 2 | 122 | | 124 | 125 B/I | 126 | | 5 | |
| 96 112 3reen= Netv Stati B/IP 470 | 97 113 Online vork istic 1 In P | 114 Blu S S acket | 115 Ie=Rou rors | 116 Iter M4 : 24 B | 117 C G /IP 1 (| 118 ray=01 Out Pa | 119 ffline ckets | | 121 B/IP 2 | 122 2 In Pa | 123 ackets | 124 | 125 B/I | 126 P 2 O | 127 ut Packets | | |
| 96 112 3reen= Netv Stati B/IP 470 B/Et | 97 113 Online Vork | 114 Blu S S acket | 115 Ie=Rou rors | 116 Iter MA : 24 B. 50 B. | 117 C G /IP 1 (| 118 ray=01 | 119 ffline ckets | | 121 B/IP 2 0 MSTF | 122 2 In Pa | 123 | 124 | 125 B/I 0 MS | 126 P 2 O | 127 | | |
| 96 112 3reen= Netv Stati B/IP 470 B/Etl | 97 113 Online VOR istic 1 In P | 114 Blu S S ackets | 115 Ie=Rou rors | 116 Itter M4 : 24 B 50 B | 117 C G /IP 1 C | 118 ray=01 Out Par ut Pac | 119 ffline ckets kets | | 121 B/IP 2 0 MSTF 42 | 122 2 In Pa P In Pa | 123 ackets ackets | 124 | 125 B/I 0 MS | 126 P 2 O | 127 ut Packets ut Packets | | |
| 96 112 3reen= Netv Stati B/IP 470 B/Ett 0 TX F | 97 113 Online vork istic 1 In P | 114 Blu S S ackets | 115 Ie=Rou rors | 116 iter M4 : 24 B 50 B 0 R | 117 C G /IP 1 C | 118 ray=01 Out Pa | 119 ffline ckets kets | | 121 B/IP 2 0 MSTF 42 TX To | 122 2 In Pa P In Pa oken C | 123 ackets ackets | 124 | 125 B/I 0 MS 227 RX | 126 P 2 O | 127 ut Packets | | |
| 96 112 3reen= Netv Stati B/IP 470 B/Ett 0 TX F 5908 | 97 113 Online vork istic 1 In P | 114 Blu S S ackets ount | 115 rors s | 116 iter MA 24 B 6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 117 IVE G VIP 1 C VEth O X PFN | 118 ray=01 Dut Par ut Pac | 119 ffline ckets kets | | 121 B/IP 2 0 MSTF 42 TX To 14819 | 122 2 In Pa P In Pa oken C | 123 ackets ackets | 124 | 125 B/I 0 MS | 126 P 2 O | 127 ut Packets ut Packets | | |
| 96 112 3reen= Netv Stati B/IP 470 B/Ett 0 TX F 5908 | 97 113 Online vork istic 1 In P | 114 Blu S S ackets ount | 115 rors s | 116 iter MA 24 B 6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 117 IC G //IP 1 C //Eth O X PFM | 118 ray=01 Dut Par ut Pac | 119 ffline ckets kets | | 121 B/IP 2 0 MSTF 42 TX To 14819 | 122 2 In Pa P In Pa oken C | 123 ackets ackets | 124 | 125 B/I 0 MS 227 RX | 126 P 2 O | 127 ut Packets ut Packets | | |

Routing Table

Multiple networks, possibly employing different physical layer technologies, may be interconnected by BACnet routers to form a BACnet internetwork. The Routing table web page provides a routing table which contains information about the network topology of the surrounding BACnet internetwork such as *Destination Network*, *Network Type*, *Connecting* Network, and Network Status. This table will be blank upon powering the BASrouter. Click the "Discover Routing Table" button to discover other routers on the BACnet network which will send a "Who-Is-Router-To-Network" message and fill the table with the discovered BACnet routers.

| | TROLS | Configuration | Advanced | Routing | Security | Status | BDT | FDT |
|----------------------|----------------|--------------------|--------------|----------|--------------|--------|-----|-----|
| | Routing St | atus | | | | | | |
| Discover Routing Tab | le | | | | | | | |
| Routing Table | _ | | | | | | | |
| Destination Network | Network Status | Connecting Network | Network Type | Next Ro | outer Addres | s | | |
| 1326 | Operational | Direct | MS/TP | N/A | | | | |
| 1 | Operational | Direct | B/IP1 | N/A | | | | |
| 9292 | Operational | 1 | B/IP1 | 10.0.13 | .33:47808 | | | |
| 218 | Operational | 1 | B/IP1 | 10.0.0.2 | 218:47808 | | | |
| 221 | Operational | 1 | B/IP1 | 10.0.3.2 | 206:47808 | | | |
| 1100 | Operational | 1 | B/IP1 | 10.0.11 | .68:47808 | | | |
| | | | | | | | | |

BAS Router Parameters Main Settings

| Device Parameters | Default Value | Description |
|---------------------------|---------------|--|
| Device Name | BASRT-Bxxxxxx | The unique default value ends with the last 6 characters of the unit's Ethernet MAC address. You can edit it to be up to 20 characters. |
| Device Instance | 0 | The router device instance is a 22-bit decimal value (0–4,194,303). Each BACnet device has a unique device instance. |
| BACnet Ethernet Parameter | Default Value | Description |
| BACnet Ethernet Network | 0 | 16-bit decimal value (1–65534). Each BACnet network, regardless of technology, must have a unique network number. By retaining the default value of 0, BACnet Ethernet routing is disabled. |
| BACnet/IP Parameters | Default Value | Description |
| BACnet/IP UDP Port | BACO | 16-bit hex value (0–FFFF) is set to BAC0 as the default value and should be used. All BACnet/IP devices on the same BACnet network must have the same UDP port assignment. For other assignments choose ports in the range from BAC1 to BACF while verifying that these ports are available. |
| BACnet/IP Network | 1 | 16-bit decimal value (1–65534). Each BACnet network, regardless of technology, must have a unique network number. It is recommended that all subnets of the same BACnet/IP network be given the same BACnet network number as well. |
| IP Address | 192.168.92.68 | IP address in dotted decimal format. Select a valid address in the range from 0.0.0.1 through 255.255.255.254. |
| IP Subnet | 24 | Decimal value (0–30) in the "slash" notation is the number of bits with a "1" in the mask. The default value of 24 corresponds to 255.255.255.0 in the dotted decimal format. All devices on the same subnet which communicate via BACnet/IP should use the same subnet mask. |
| IP Gateway | 192.168.92.1 | IP Gateway address in dotted decimal format. Select a valid address in the range from 0.0.0.1 through 255.255.255.254. |
| MS/TP Parameters | Default Value | Description |
| MS/TP MAC Address | 0 | Decimal value (0–127) represents the MAC address of the router's MS/TP port. Lower MAC address numbers are preferred. |
| MS/TP Network | 2001 | 16-bit decimal value (1–65535). Each BACnet network, regardless of technology, must have a unique network number. |
| Max Masters | 127 | This 8-bit decimal value (1–127) represents the highest master MAC address in the MS/TP network. If the highest value MAC address is unknown or if additional devices are to be added in the future above the current highest MAC address, use the default setting of 127. |
| Max Info Frames | 100 | This is the maximum number of messages (1–100) that can be routed onto the MS/TP network by the router per token pass. Values above 20 are typical. |
| MS/TP Baud Rate | 38400 | The baud rate of the MS/TP network can be 9600, 19200, 38400 or 76800 bps. All MS/TP devices on the same MS/TP network must use the same baud rate. Auto-bauding devices will set their baud rates to that of the BAS Router. |
| MS/TP Tolerance | Lenient | Affects the degree to which interoperability with devices is successful. Lenient option causes less efficient traffic but optimises interoperability. |



BAS Router Parameters Advanced Settings — BBMD

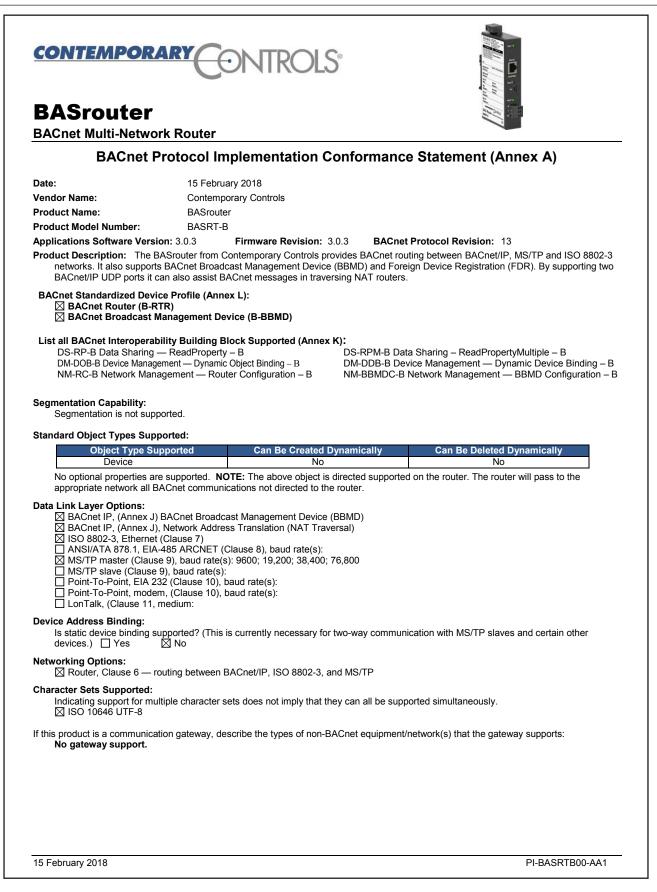
| BBMD Parameters | Default Value | Description |
|------------------------------|---------------|--|
| BBMD Enable | Unchecked | Check to enable BACnet/IP Broadcast Management Device (BBMD). |
| BBMD UDP Port | Primary | Normally the primary port is selected. The secondary port is used in very special applications. |
| Accept FDR | Checked | Uncheck to disable foreign devices from registering with this router. |
| Secondary BACnet/IP UDP Port | 0000 | Enter secondary UDP port as a 16-bit hex value (0-FFFF) when operating with two BACnet/IP BACnet networks. In this case use BAC1 if it is available. |
| Secondary BACnet/IP Net | 0 | Assign a unique network number from all other BACnet networks. |
| Public IP Address | 0.0.0.0 | Enter the public IP address in dotted decimal format of the IP router in the system. |

BAS Router Additional Tables and Screens

| Table or Screen Name | Description |
|------------------------------------|--|
| Broadcast Distribution Table (BDT) | This table must contain the entries of any other BBMDs located on the network. The IP address and subnet mask of the BBMDs must be listed. |
| Foreign Device Table (FDT) | This table is automatically lists all the foreign devices that have registered with this router. Information includes IP address, port number, time-to-live, and remaining time on its lease. |
| Status Screen | Displays a log of events (automatically refreshed each second) to facilitate troubleshooting. Use this information when discussing any routing issues with Contemporary Controls' technical support. |
| Security Screen | Authentication menu. Allows the user to change user name and password. Depressing the Reset IP button restores user name and password to default settings. |

Data Sheet – BASrouter

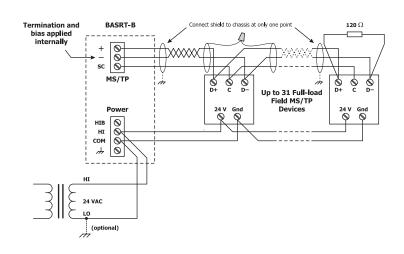
BACnet Protocol Implementation Conformance (PIC) Statement

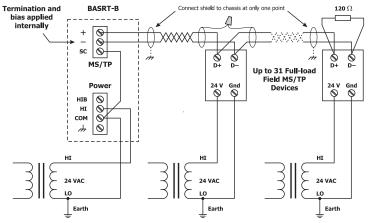


Wiring Diagrams

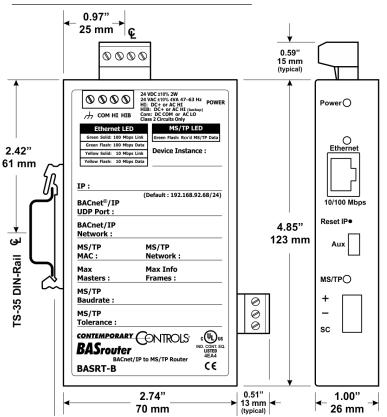
Since the BAS Router incorporates a half-wave rectifier circuit, it can share the same 24 VAC power with other half-wave rectified devices. It can also be powered from a 24 VDC source. A redundant power connection exists for back-up power schemes.

The BAS Router incorporates a 3-wire optically-isolated EIA-485 interface for the MS/TP connection, allowing better circuit protection and noise immunity. To connect to other 3-wire devices simply make a one-to-one connection to the other devices. But when connecting to 2-wire non-isolated devices, the signal common (SC) on the BAS Router must share the reference used by the 2-wire devices. This is accomplished by tying the SC pin to COM on the BAS Router and by grounding the low-side of each power supply on all connected devices. In this way all EIA-485 transceivers share the same earth reference. Notice that the SC pin is signal common and not a shield pin.





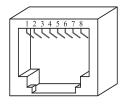
Mechanical Drawing



Connector Pin Assignments

Ethernet

| Pin | Function | |
|-----|----------|--|
| | | |
| 1 | Signal 1 | |
| 2 | Signal 2 | |
| 3 | Signal 3 | |
| 4 | N/C | |
| 5 | N/C | |
| 6 | Signal 4 | |
| 7 | N/C | |
| 8 | N/C | |



MS/TP

| Pin | Function | |
|-----|---------------|--|
| + | Signal High | |
| - | Signal Low | |
| SC | Signal Common | |



Specifications

| Power Requirements | 24 VDC ±10% 2 W | or 24 VAC ±10% 4 VA 47–63 Hz | |
|-----------------------------|---|--|--|
| Operating Temperature | -40°C to +75°C | | |
| Storage Temperature | –40°C to +85°C | | |
| Relative Humidity | 10–95%, non-condensing | | |
| Protection | IP30 | | |
| Ethernet Communications | IEEE 802.3 10/100 Mbps data rate 10BASE-T, 100BASE-TX physical layer 100 m (max) CAT5 cable length | | |
| MS/TP Communications | ANSI/ASHRAE 135 (ISO 16484-5) 9600, 19200, 38400, 76800 bps data rate EIA-485 physical layer 1200 m (max) cable length | | |
| LEDs | Power | Green = power OK | |
| | Ethernet | Green = 100 Mbps Yellow = 10 Mbps Flash = activity | |
| | MS/TP | Flashing Green = receive activity | |
| Regulatory Compliance | CE Mark; CFR 47, Part 15 Class A; RoHS UL 508, C22.2 No. 142-M1987 | | |

Ordering Information

Model BASRT-B RoHS

Description

BASrouter BACnet/IP to MS/TP to Ethernet DIN-Rail Mount

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DS-BASRTB00-AB4 October, 2020

EISK5-100T



5-Port Skorpion Switch Cost Effective, 100 Mbps-speed — Compact Size

The EISK5-100T Skorpion Switch is a five-port unmanaged Ethernet switch that provides 100 Mbps performance on all ports in order to accommodate a range of control devices and workstations commonly found in an automation project. For 10 Mbps legacy devices, the switch will automatically reduce its port-speed accordingly. This low-cost compact unit utilizes a rugged metal enclosure and is intended for installation in control panels using DIN-rail mounting.

This is a plug-and-play Ethernet switch which requires no configuration. All ports automatically configure their data rate

and duplex using the Auto-Negotiation protocol. Depending on the capability of the link partner, communication is set at 10 or 100 Mbps and at either half- or full-duplex. Each port will accommodate either a straight-through or crossover cable by using the Auto-MDIX protocol.

The unit is powered from a choice of low-voltages (AC or DC). Redundant power connections are provided for back-up power schemes. LED indicators assist in troubleshooting network issues.

- Plug-and-Play operation
- 10BASE-T/100BASE-TX
- Shielded RJ-45 connectors
- Auto-negotiation of speed and duplex
- Auto-MDIX supports cable inversion



- DIN-rail mounting
- Rugged metal enclosure
- Diagnostic LEDs
- Enhanced EMC compliance
- UL 508 listed, c-UL listed, CE mark
- 24 VAC/VDC powered



CONTEMPORARY ONTROLS

Overview

The Skorpion Switch is intended for control panel installations where DIN-rail space is at a premium by requiring a width of only one inch (26 mm) of rail space. A metal DIN-rail clip attached to the aluminium enclosure can survive the toughest installation. A writable side label allows the installer an opportunity to document field cabling locations right on the unit.

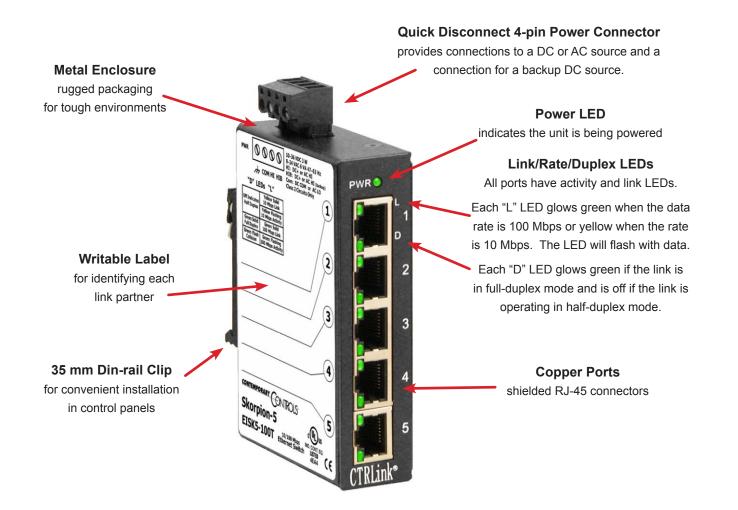
The switch can be powered from either a 10-36 VDC or 24 VAC ($\pm 10\%$) source. Its half-wave rectified low-voltage power supply allows the sharing of power with other 24 VAC/VDC control devices from a common power supply. With

redundant power connections, a backup power scheme can be supported. A removable power connector facilitates the servicing of the unit.

LEDs built into the connector indicate data rate and activity on each of the five ports. For each port, the data rate will be indicated along with port activity thereby greatly assisting in troubleshooting connection issues.

The switch is UL 508 Listed and c-UL Listed for Industrial Control Equipment. It complies with CFR 47 Part 15 Class A, and carries the CE Mark. It is RoHS compliant.

CONTEMPORARY

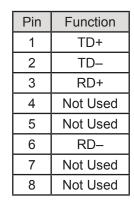


Specifications

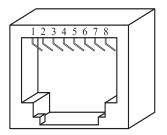
| Power Requirements | 10–36 VDC 3 W | or 24 VAC ±10% 6 VA 47–63 Hz | |
|------------------------------|--|--|--|
| Operating Temperature | 0°C to 60°C | | |
| Storage Temperature | –40°C to 85°C | | |
| Relative Humidity | 10–95%, non-condensing | | |
| Protection | IP30 | | |
| Mounting | TS-35 DIN-rail | | |
| Shipping Weight | 1 lb (0.45 kg) | | |
| Ethernet Communications | IEEE 802.3 10/100 Mbps data rate using RJ-45 connectors, 100 m (max) | | |
| LEDs | Power "L" LEDs "D" LEDs | Green = power OK Green = 100 Mbps communication established Yellow = 10 Mbps communication established Flashing = data transmissions occurring Green = Full-duplex communication established | |
| Regulatory Compliance | Off = Half-duplex communication established RoHS CE Mark; CFR 47, Part 15 Class A; RoHS; LISTED US C C O UL 508 Industrial Control Equipment LISTED C C O | | |

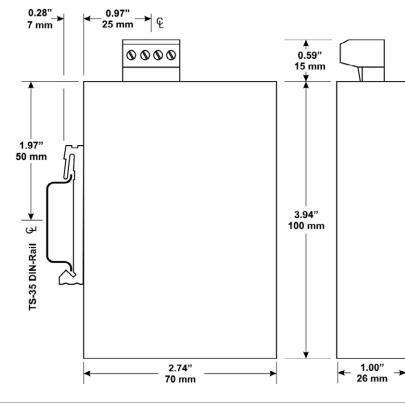
RJ-45 Connector Pin Assignments

Mechanical Drawing



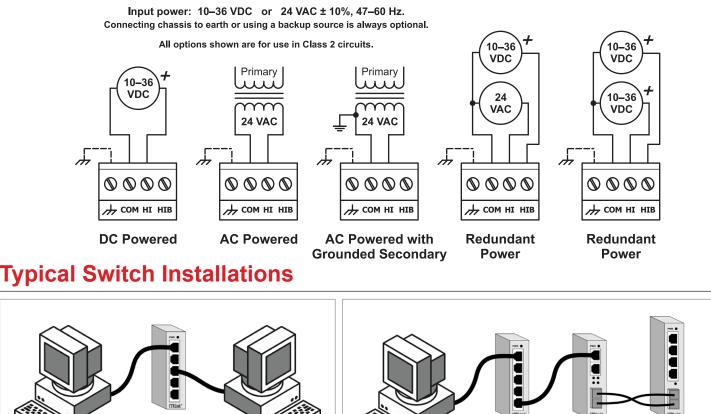
MDI and MDIX



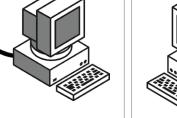


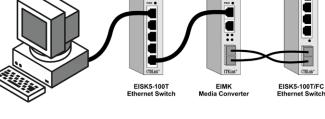
Power Considerations

Applied voltage must be in the specified range and deliver a current commensurate with power consumption. The recommended size for solid power conductors is 16-20 AWG; and for stranded conductors use 16-18 AWG. Zero volts (COM) is isolated from chassis (earth). Input connections are reverse-polarity protected.



EISK5-100T Ethernet Switch





Ordering Information

Model EISK5-100T

Description

Skorpion 5-Port 10/100Mbps Switch

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CONTEMPORARY