



## SAE Transit Area Network Cabling Standard (J2496)

■ Visit [www.sae.org](http://www.sae.org) to obtain a copy of the SAE J2496 Specification.

■ Visit [www.connectpositronic.com](http://www.connectpositronic.com) to learn more about Positronic Industries.

Transit vehicles of today have exhibited a need for a number of electronic vehicle enhancements to effectively move forward within ITS America's (Intelligent Transportation Society) effort to better manage the limited resources of the roadways and streets.

In response to the challenge of adding electronic functions and devices to transit vehicles, the FTA<sup>†</sup> (Federal Transit Administration), acting as a lead agency in ITS America, created the Advanced Public Transportation System Vehicle Area Network (VAN) Cabling Standard Subcommittee. They recommend solutions which would provide advantages to transit authorities through VAN integration.

### VAN Integration Objectives:

- Minimize electronic hardware costs.
- Provide interchangeability of on-board electronic equipment.
- Create standards which minimize the negative impact of proprietary systems.
- Provide flexibility for expansion as technology advances while minimizing hardware and software upgrade costs.

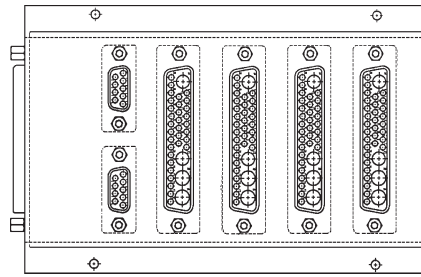
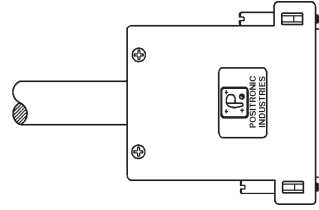
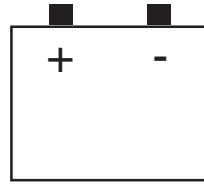
The VAN Subcommittee was successful in meeting these objectives. Their efforts have resulted in the SAE J2496 Transit Area Network Cabling Standard. This is comprised of a series of access boxes and cables, which are simple, effective and modular.

The Network Cabling Standard provides the power required by on-board devices as well as access to a pathway and communication protocol for the exchange of information available to all devices on the network. In addition, it supports on-board use of many devices allowing these devices to function independently or together, creating unlimited possibilities in managing transit vehicle fleets.

The Network Cabling Standard has been incorporated by many transit authorities through upgrades and new vehicle specifications and is currently in use. As we progress further into the 21st century, ITS America's efforts to better manage transit resources becomes ever more clear. The SAE Transit Area Network Cabling Standard is an important part of that effort.

<sup>†</sup> The FTA's Advanced Public Transportation Systems (APTS) Mobile Showcase is a 48-foot expandable exhibition trailer that demonstrates state-of-the-art APTS technologies. Visit [www.ornl.gov/fta/showcase](http://www.ornl.gov/fta/showcase) to learn more about this program and other companies that were a part of this effort.





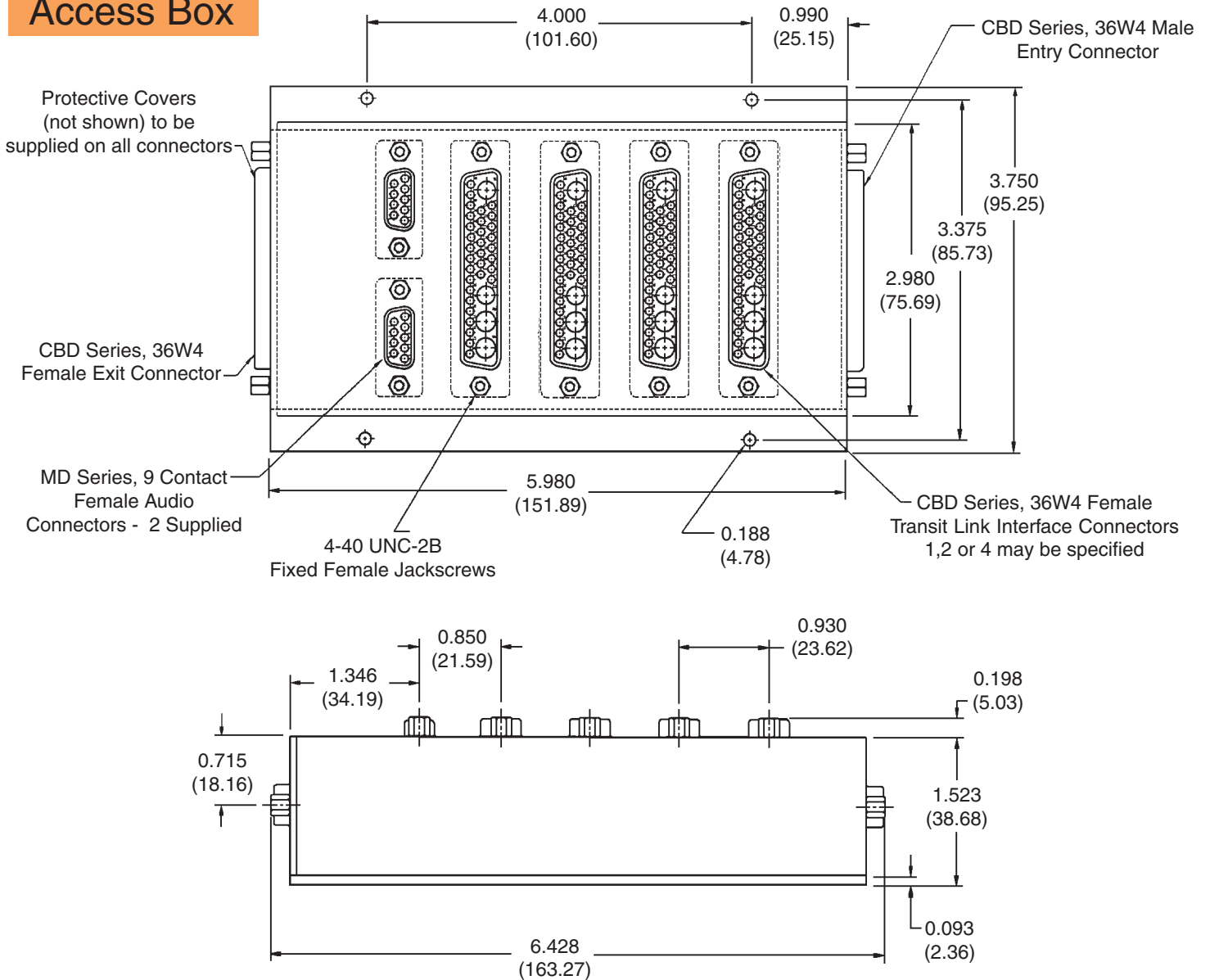
Battery

Power Feed Cable

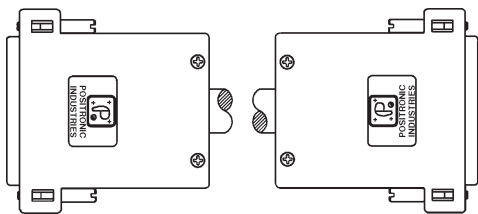
Access Box

**Transit Area Networks**, using the SAE J1708 protocol, allow communication between multiple devices and provide power to them. When used as a system, the cables and access boxes shown here meet all the requirements of the SAE J2496 Specification.

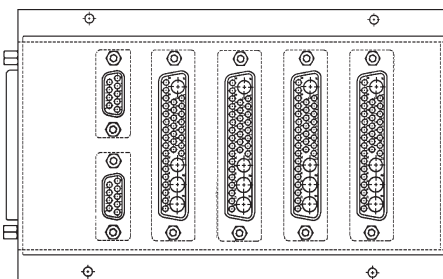
## Access Box



Part Number	Description
SK2609-1	2 audio connectors, 1 36W4 interface connector and exit connector
SK2609-2	2 audio connectors, 2 36W4 interface connectors and exit connector
SK2609-3	2 audio connectors, 4 36W4 interface connectors and exit connector
SK2609-4	2 audio connectors, 1 36W4 interface connector without exit connector
SK2609-5	2 audio connectors, 2 36W4 interface connectors without exit connector
SK2609-6	2 audio connectors, 4 36W4 interface connectors without exit connector



Backbone Cable



Access Box (terminating)

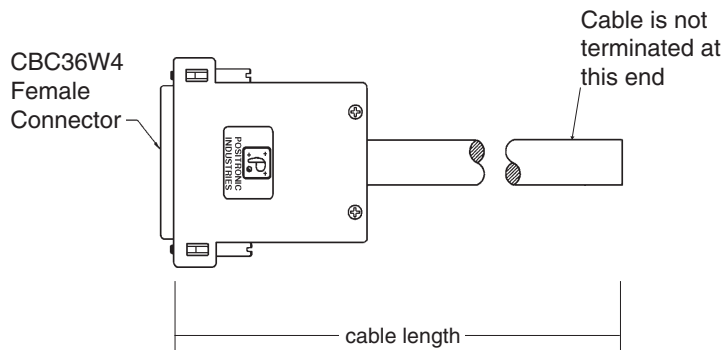


Cable / Connector Contact Assignment			
Contact Number	Wire Size	Element	Color Code
See Note 1	18 AWG	Not assigned	
See Note 1	18 AWG	Not assigned	
See Note 1	20 AWG	Shield 2	
18	20 AWG	Shield 2	
21	20 AWG	Shield 2	
24	20 AWG	Shield 2	
25	20 AWG	Shield 2	
26	20 AWG	Shield 2	
27	20 AWG	Shield 2	
28	20 AWG	Shield 2	
29	20 AWG	Shield 2	
30	20 AWG	Shield 2	
31	20 AWG	Shield 2	
32	20 AWG	Overall Shield 2	
See Note 1	12 AWG	Shield 2	Orange
A1	12 AWG		Green
A2	14 AWG		Red
A3	12 AWG		Black
A4	12 AWG		White

Notes:

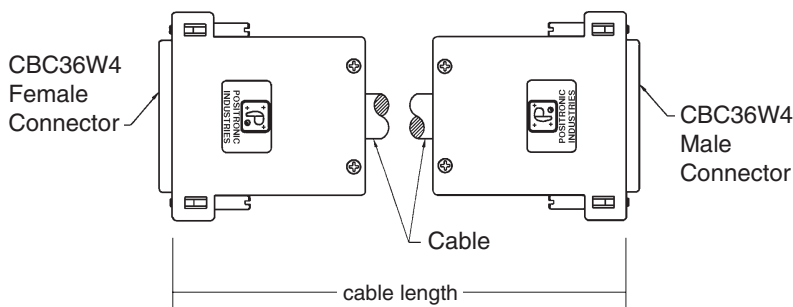
1. The 18 AWG shielded conductors are not terminated to contacts and are to be coiled inside hood for future use.
2. All shielded conductors are to join with a 12 AWG conductor color coded orange at a single point within connector hood.

## Power Feed Cable



Part Number: CC110-007-\*. \*\*  
 (To complete part number, replace \*. \*\* with cable length in meters to two decimal places.)

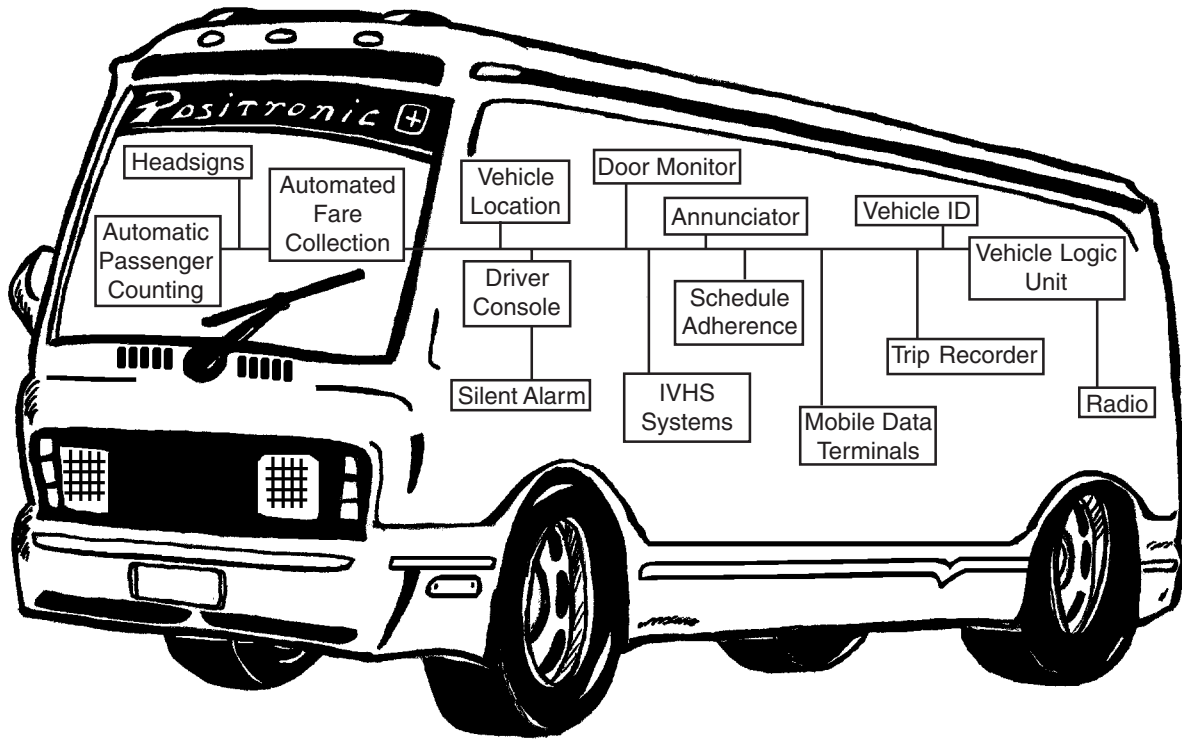
## Backbone Cable



Part Number: CC100-001-\*. \*\*  
 (To complete part number, replace \*. \*\* with cable length in meters to two decimal places.)

General Notes:

1. Dimensions are in inches (millimeters).
  2. Decimal tolerance is 0.015 (0.38).
  3. All connectors are manufactured by Positronic Industries.
- For additional information, consult applicable product catalog.



The Transit Area Network will support a wide variety of electronic management devices. These devices may function together or independently in order to provide solutions to transit authority challenges.

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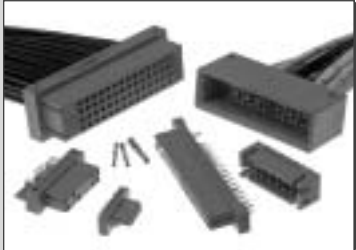
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## POSITRONIC PRODUCTS

Power

**Contact Sizes:** 0, 8, 12, 16, 20 and 22  
**Current Ratings:** To 150 amperes  
**Terminations:** Crimp, wire solder, straight solder, right angle solder, straight press-fit and right angle press-fit  
**Configurations:** Multiple variants in a variety of package sizes  
**Compliance:** PICMG 2.11, PICMG 3.0, VITA 41



**FEATURES:** Hot swap capability • AC/DC operation in a single connector • Signal contacts for hardware management • Blind mating • Sequential mating • Large Surface Area Contact Mating System • Wide variety of accessories • Customer specified contact arrangements

D-Subminiature

**Contact Sizes:** 8, 20 and 22  
**Current Ratings:** To 40 amperes nominal  
**Terminations:** Crimp, wire solder, straight solder, right angle solder and straight press-fit  
**Configurations:** Multiple variants in both standard and high densities  
**Qualifications:** MIL-DTL-24308, Goddard Space Flight 311P, MIL-C-39029, IP65, IP67



**FEATURES:** Three performance levels available: professional quality, military quality and space-flight quality provide multiple performance to cost choices • Options include thermocouple contacts, filtered, environmentally sealed and dual port package including mixed density • Broad selection of accessories

Rectangular

**Contact Sizes:** 16, 20 and 22  
**Current Ratings:** To 13 amperes  
**Terminations:** Crimp, wire solder, straight solder and right angle solder  
**Configurations:** Multiple variants in both standard and high densities  
**Qualifications:** MIL-DTL-28748, MIL-C-39029, CCITT V.35



**FEATURES:** Two performance levels available: industrial quality and military quality provide two performance to cost choices • Large Surface Area Contact Mating System • A wide variety of accessories • Broad selection of contact variants and package sizes

Circular

**Contact Sizes:** 12, 16, 20 and 22  
**Current Ratings:** To 25 amperes nominal  
**Terminations:** Crimp, wire solder, straight solder and right angle solder  
**Configurations:** Multiple variants in two package sizes  
**Qualifications:** Environmental protection to IP67



**FEATURES:** Non-corrodible / lightweight composite construction • EMI/RFI shielded versions • Thermocouple contacts • Environmentally sealed versions • Rear insertion/ front release of removable contacts • Two level sequential mating • Overmolding available on full assemblies

Cable

All Positronic connector products can be supplied as part of cable assemblies whose technical characteristics would reflect those of the connectors being used within the assembly.



**FEATURES:** Shorten the supply chain and reduce additional costs and delays by "cablizing" • Overmolding available • Shielded and environmentally sealed versions available • Power cables and access boxes which meet the SAE J2496 specification

Hermetic

**Contact Sizes:** 8, 12, 16, 20 and 22  
**Current Ratings:** To 40 amperes nominal  
**Terminations:** Feed through is standard; flying leads and board mount available upon request  
**Configurations:** See D-Subminiature and Circular Configurations above  
**Qualifications:** Space-D32



**FEATURES:** Intended for use as an electrical feedthrough in high vacuum applications • Leakage rate:  $1 \times 10^{-9}$  mbar.l/s • Signal, power, coax and high voltage versions available • Connectors can be mounted on flange assembly per customer specification