

AS-CVTPRO300-1 and AS-CVTPRO400-1 Zone Bus/N2 Bus Interface Converters

Application

The AS-CVTPRO300-1 and AS-CVTPRO400-1 Zone Bus/N2 Interface Converters are portable converters designed to provide a communication interface between the room sensors and controllers operating on a Zone Bus or N2 Bus and a computer. See Table 3 for compatible tools, Operating Systems (OSs), and controllers.

The AS-CVTPRO300-1 and AS-CVTPRO400-1 converter can be used in place of the MM-CVT101-0 converter module. The MM-CVT101-0 converter is not compatible with Windows NT®, Windows® 2000, and later versions of Windows OSs.

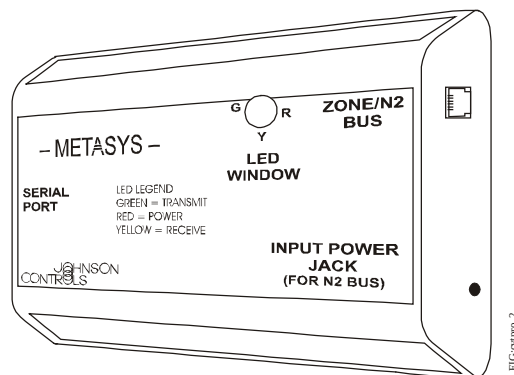


Figure 2: CVTPRO Converter

Connection Ports

The sides of the CVTPRO converter have connections to an External Power Adapter (Figure 1) and a Zone Bus/N2 Bus RJ11 6-pin network cable phone plug.

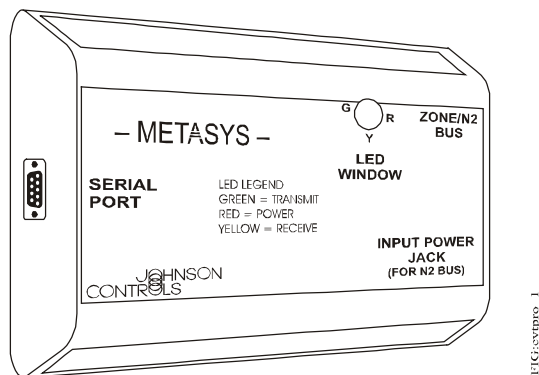


Figure 1: CVTPRO Converter Side

Figure 2 shows the RS-232 input. Green and yellow Light-Emitting Diodes (LEDs) display the N2 communication status of the unit relative to the field device. The red LED shows power status.



CAUTION: Risk of Property Damage

Do not apply power to the system before checking all wiring connections. Short-circuited or improperly connected wires may result in permanent damage to the equipment.

Mise En Garde: Risque dégâts matériels. Ne pas mettre le système sous tension avant d'avoir vérifié tous les raccords de câblage. Des fils formant un court-circuit ou connectés de façon incorrecte risquent d'endommager irrémédiablement l'équipement.

Cable Connectors

Figure 3 shows the 6-pin phone plug end of the N2 cable used by the CVTPRO converter for N2 Bus communication. For Zone Bus communication, always use standard Zone Bus cables.

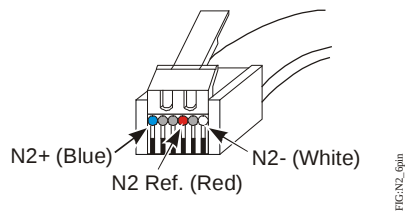


Figure 3: N2 Cable 6-Pin RJ11 Network Phone Plug

Pin	Signal
1	N2+
2	Zone Bus Power
3	GND
4	N2 Ref
5	Zone Bus Signal
6	N2-

FIG: pin_sig

Figure 4: Zone Bus/N2 Bus RJ11 Network Phone-Jack Pin Designations

Table 1: Cable Connections for the AS-CVTPRO300-1 and ASCVTPRO400-1 Converters

To Connect the CVTPRO Converter To:	Use This Cable:
Controller via the Zone Bus	8-pin RJ45 to 6-pin RJ11 phone cable (1.8 m/6 ft)
Controller via the N2 Bus	4-pin N2 socket/3-pin N2 plug to 6-pin RJ11 phone cable (1.8 m/6 ft) Note: Remove the 4-pin N2 socket from the cable and use the bare wires to connect to N2 screw terminal devices.
Controller Zone Bus (via TE-6x00/ TMZ Sensor)	6-pin to 6-pin RJ11 phone cable (1.8 m/6 ft)

Table 2: CVTPRO Converter and Accessories Product Code Numbers

Product Code Number	Description
AS-CVTPRO300-1	Zone Bus/N2 Bus Interface Converter with 120 VAC/3 VDC power adapter (North American version)
AS-CVTPRO400-1	Zone Bus/N2 Bus Interface Converter without power adapter (European version)
AS-CVTPRO-703	CVTPRO converter without cables or case
AS-CVTCBL-700	Replacement set of cables used with the CVTPRO converter
Edgeport/1*	USB to RS232 adapter

* Manufactured by Inside Out Networks (www.ionetworks.com)

Connecting to the CVTPRO Converter

Figure 5 illustrates the potential connections between a CVTPRO converter and other devices. See Table 1 for more information on cables. See Figure 6 and Figure 7 for more detail about N2 Bus connections.

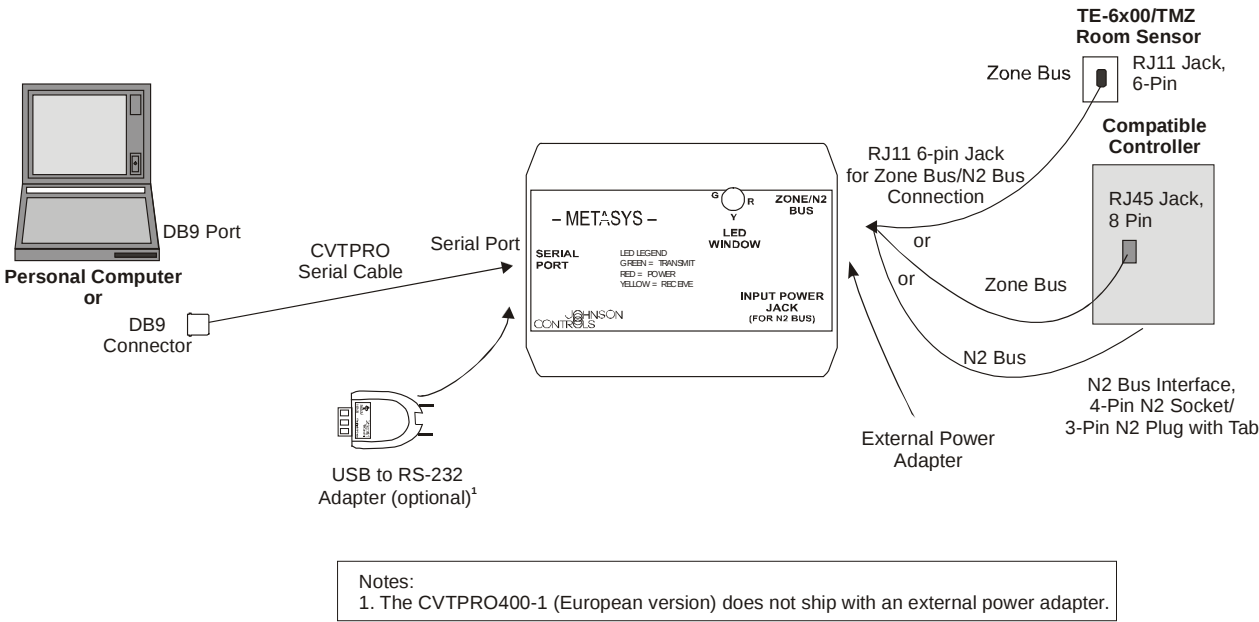


Figure 5: Overview of Possible CVTPRO Converter Connections

Connecting the CVTPRO Converter to a Controller with N2 Screw Terminals

To connect the CVTPRO converter to a controller with screw terminals (Figure 6):

1. Disconnect the three N2 wires from the controller screw terminals and temporarily isolate the individual bare wires with insulating tape.
2. Remove the 4-pin N2 socket from the CVTPRO N2 cable to expose the three wires (Figure 6 and Figure 7).
3. Connect the exposed N2+ (blue), N2- (white), and Ref (red) wires from the CVTPRO N2 cable to the controller screw terminals. Observe proper polarity.
4. Connect the 6-pin RJ11 phone plug on the opposite end of the CVTPRO N2 cable to the CVTPRO converter (Figure 3 and Figure 5).

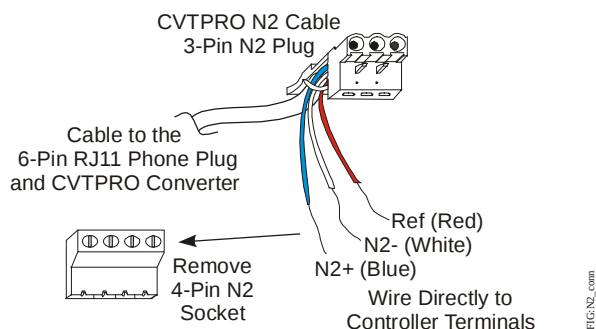


Figure 6: CVTPRO N2 Connection to Controllers with Screw Terminals

Connecting the CVTPRO Converter to a Controller with a N2 Jack

To connect the CVTPRO converter to a controller with a removable N2 plug:

1. Remove the 3 or 4-pin N2 plug from the controller.
2. Plug the 3-pin plug CVTPRO N2 cable into the jack on the controller (The Variable Air Volume Modular Assembly [VMA] has 4-pin jack, and other N2 controllers have 3-pin jacks). Observe proper polarity (N2+ is blue, N2- is white, Ref is red).
3. Connect the 6-pin RJ11 phone plug on the opposite end of the CVTPRO N2 cable to the CVTPRO converter (Figure 3).

Figure 7 shows the possible connections with a VMA controller with a removable 4-pin N2 plug.

To scan an N2 Bus:

1. Disconnect the N2 Bus from the N2 master controller.
2. Remove the N2 plug (with attached N2 wires) from the controller (4-pin plug on the VMA and 3-pin plug on other controllers).
3. Connect the 3-pin or 4-pin N2 plug that was disconnected from the controller in Step 2 to the 4-pin N2 socket on the CVTPRO converter cable. (See Figure 7.) Observe proper polarity (N2+ is blue, N2- is white, Ref is red).
4. Connect the 6-pin RJ11 phone plug on the opposite end of the CVTPRO N2 cable to the CVTPRO converter (Figure 3 and Figure 5).

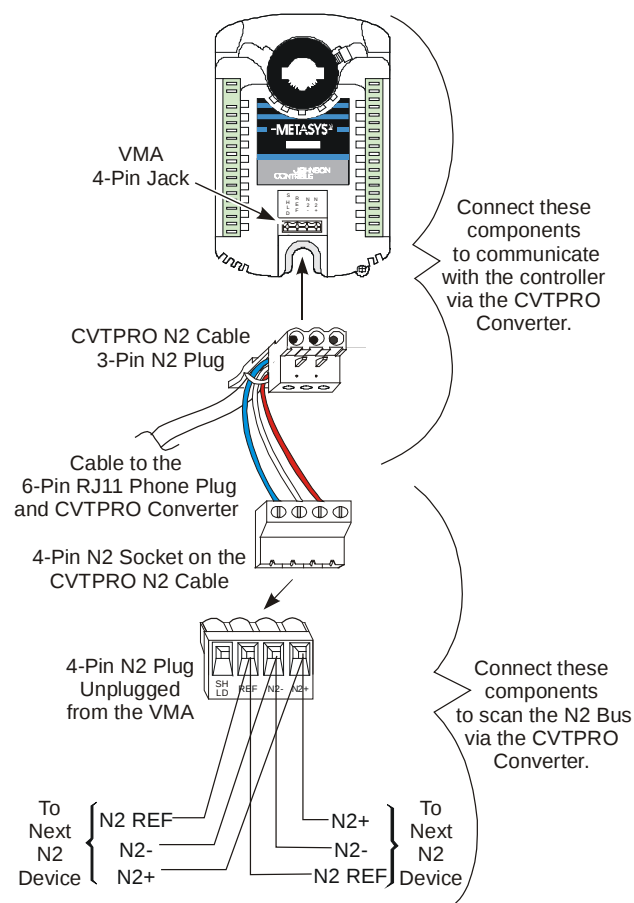


Figure 7: CVTPRO N2 Connection to a VMA with a Removable N2 Plug

Compatibility

Table 3 lists compatible tools, Operating Systems, and controllers used over the Zone Bus and N2 Bus with the CVTPRO converter.

Compatible controllers include the Air Handling Unit (AHU), Unitary Controller (UNT), Variable Air Volume Controller (VAV), Network Dialer Module (NDM), and VMA.

Table 3: Compatibility Chart

Tool	Bus	Operating System	Compatible Controller
HVAC PRO Software (part of M-Tool Release 5.0 or later)	N2 Bus	Windows 98 SE/Windows NT ¹ / Windows 2000PE ² OS	AHU1xx UNT1xx
	Zone Bus	Windows 98 SE/Windows 2000PE ^{2,3} OS	UNT11xx VAV1xx VMA14x0
	Zone Bus	Windows NT ¹	VMA14x0*
VBT1400	Zone Bus	Palm™ OS simulator and Windows 2000 or Windows XP OS	VMA14x0
GX-9100 Software Configuration Tool (part of M-Tool Release 5.0 or later)	N2 Bus	Windows 98 SE/Windows NT ¹ / Windows 2000PE ² OS	DT-9100 DX-9100 XT9100 (XP91xx) XTM-905 (XPx-xxx)
XTM Configuration Tool	N2 Bus	Windows 98 SE ¹ /Windows NT ¹ / Windows 2000PE ² OS	XTM-105 (XPx-xxx)
NDM Configuration Tool	N2 Bus	Windows 98 SE/ Windows NT ¹ / Windows 2000PE ² OS	NDM

Note: The CVTPRO converter is not compatible with Zone Terminal Units (ZTUs). For ZTUs, use the CBLPRO-2 converter. Refer to the *Auxiliary Gear Technical Bulletin (LIT-6363080)* for details on Johnson Controls® converters.

1. For proper CVTPRO converter operation when running on Windows NT OSs, Service Pack 6 must be installed.
 2. For proper CVTPRO converter operation when running on Windows 2000 OSs, use the Professional Edition only, and Service Pack 2 must be installed.
 3. On Zone Bus applications running on Windows 2000 OSs, HVAC PRO Version 8.04B or later must also be installed.
- * When using the VMA14x0 with HVAC PRO software (versions prior to Version 8.04B only) over the Zone Bus with Windows NT OSs, a Device Conflict box appears whenever the user attempts an operation (for example, upload or download). To bypass the box, select Yes or No and the box disappears. The selected operation continues as expected.

Technical Specifications

Product	AS-CVTPROx00-1 Zone Bus/N2 Bus Interface Converter AS-CVTPRO300-1 with 120VAC/3VDC External Power Adapter (North American version) with USB/RS-232 AS-CVTPRO400-1 without power adapter (European version)
Power Requirements	Zone Bus: Controller Supplied Power: Stand-Alone or via Thermostat - 24 VAC or VMA applications - 15 VDC N2 Bus: External Power Adapter: 120 VAC to +3 VDC 200 mA Class 2 Transformer (Included with CVTPRO Converter in North America only)
Agency Listings	FCC Part 15 Subpart B, Class A CE Mark: EN50081-2 (Electromagnetic Compatibility, EN55011, Class A) EN50082-2 (Electromagnetic Compatibility, EN61000-3-2 and EN61000-3-3)
Ambient Operating Conditions	0 to 50°C (32 to 122°F) 20-80% RH (Relative Humidity) 30°C (86°F) Maximum Dew Point
Ambient Storage Conditions	-40 to 60°C (-40 to 140°F) 5-95% RH 30°C (86°F) Maximum Dew Point
Shipping Weight	0.227 kg (0.5 lb)

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Refer to the *Auxiliary Gear Technical Bulletin (LIT-6363080)* for necessary information on ordering, operation, and performance specifications of this product.



Controls Group
507 E. Michigan Street
P.O. Box 423
Milwaukee, WI 53201

Published in U.S.A.
www.johnsoncontrols.com