Overview of the Cisco IAD2420 Series

This chapter provides a brief description of the Cisco IAD2420 series IADs and contains the following sections:

Overview

The Cisco IAD2420 series integrated access device (IAD) aggregates multiple channels of data and voice/fax user-side traffic for transport over a single wide-area network (WAN) uplink. Voice/fax traffic is transported by Voice over Internet Protocol (VoIP) or by Voice over Asynchronous Transport Protocol (VoATM).

On the user side, the Cisco IAD2420 series IADs support the following interfaces:

- Ethernet LAN connection
- Any one of the following options:
  - T1 interface to a PBX
  - Multiport analog voice interface with 8 on-premise FXS ports
  - Multiport analog voice interface with 16 on-premise FXS ports
  - Multiport analog voice interface with 16 off-premise FXS ports and 8 FXO ports
- Synchronous, universal input/output (UIO) serial data port

The following WAN interface options are available in the Cisco IAD2420 series:

- Cisco IAD2421 devices with a T1 WAN interface
- Cisco IAD2423 devices with an Asymmetric Digital Subscriber Line (ADSL) WAN interface
- Cisco IAD2424 devices with a Symmetric High-Bit-Rate Digital Subscriber Line (SHDSL) WAN interface

The available interface combinations are shown in Table 1-1:

Table 1-1 Interface Combinations

WAN Interface	Cisco IAD Model	User Interface
None	IAD2420	16 on-premise FXS ports
T1	IAD2421	8 on-premise FXS ports
		16 on-premise FXS ports
		8 FXO ports and 16 off-premise FXS ports
		T1 to digital PBX
ADSL	IAD2423	8 on-premise FXS ports
SHDSL	IAD2424	8 on-premise FXS ports
		16 on-premise FXS ports
		8 FXO ports and 16 off-premise FXS ports
		T1 to digital PBX

You can place a Cisco IAD2420 series IAD on a desktop, or you can mount it in a 19-inch rack or on a wall.

Figure 1-1 to Figure 1-6 show the basic types of Cisco IAD2420 series chassis as seen from the cabling side.

Figure 1-1 Cisco IAD2420 Chassis for Multiport Analog Voice Interface

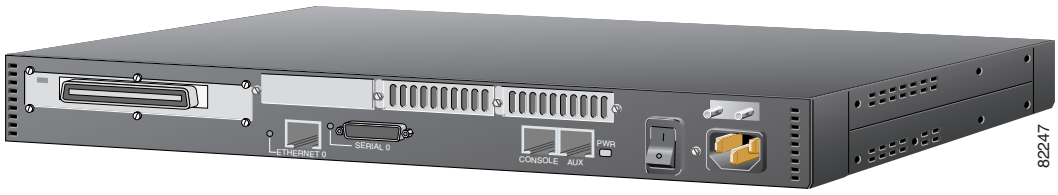


Figure 1-2 Cisco IAD2421 Chassis for T1 WAN Interface and Multiport Analog Voice Interface

Figure 1-3 Cisco IAD2421 Chassis for T1 WAN Interface and Digital PBX Interface

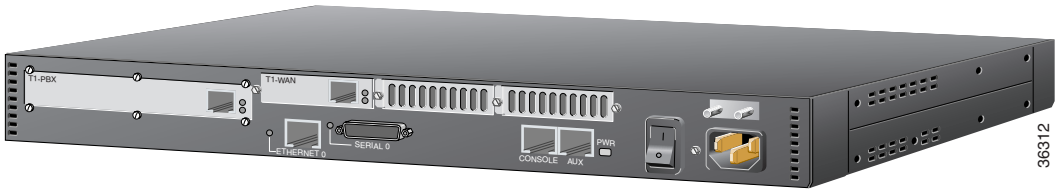


Figure 1-4 Cisco IAD2423 Chassis for ADSL WAN Interface and Multiport Analog Voice Interface

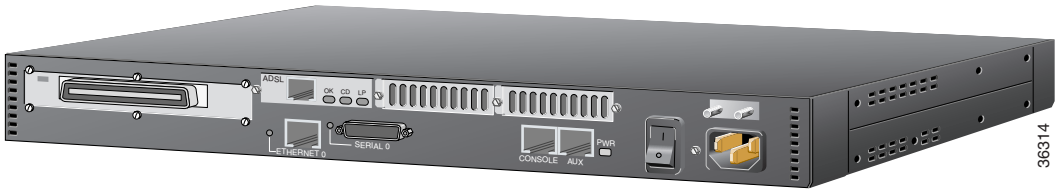


Figure 1-5 Cisco IAD2424 Chassis for SHDSL WAN Interface and Multiport Analog Voice Interface

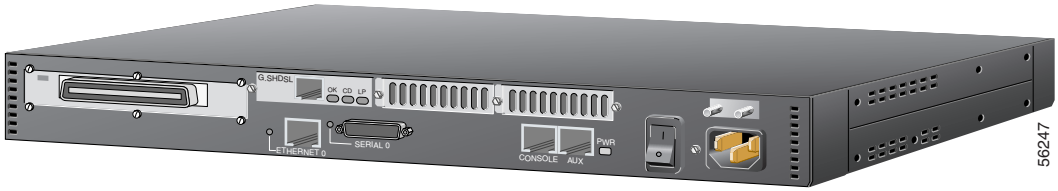
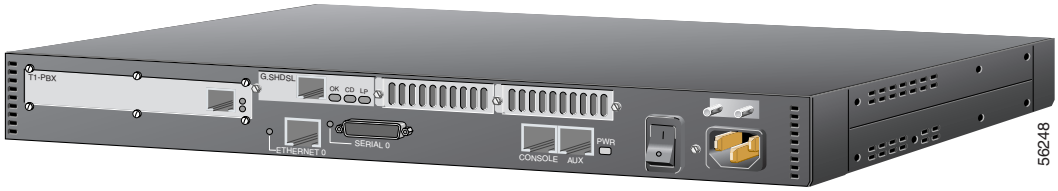


Figure 1-6 Cisco IAD2424 Chassis for SHDSL WAN Interface and Digital PBX Interface



Cisco IAD2420 Series Deployment

Figure 1-7 to Figure 1-13 show some typical deployment scenarios for Cisco IAD2420 series integrated access devices.

Figure 1-7 Analog FXS User Interfaces With No WAN Interface

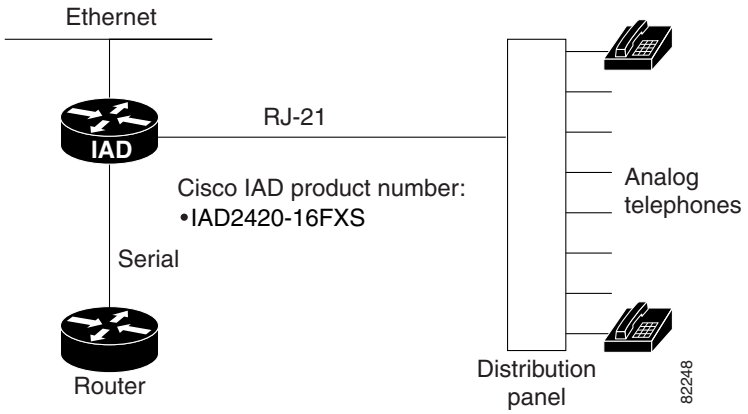


Figure 1-8 T1 WAN Interface with Analog FXS User Interfaces

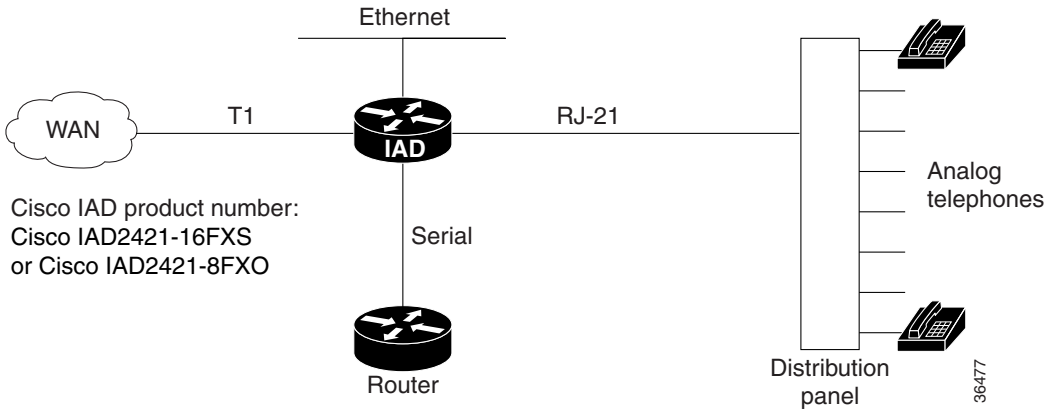


Figure 1-9 T1 WAN Interface with Analog FXS and FXO User Interfaces

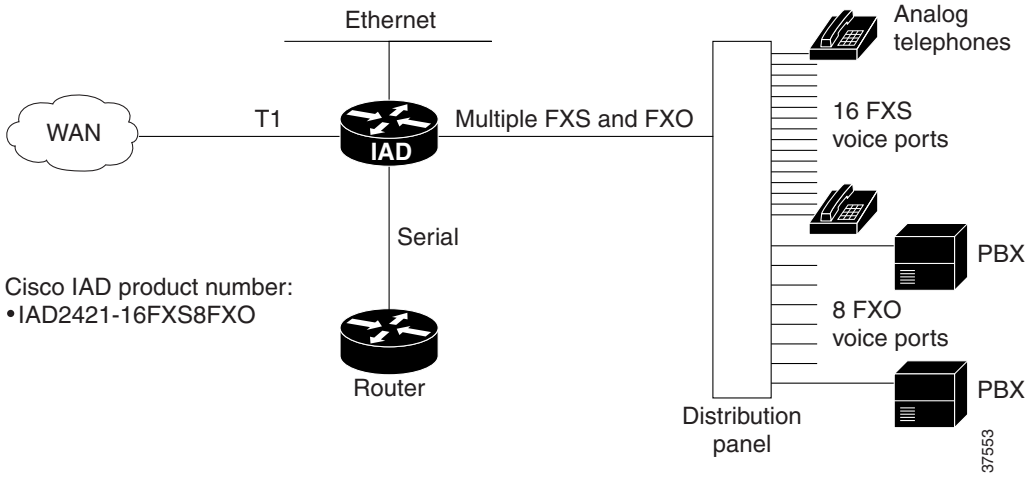


Figure 1-10 T1 WAN Interface with T1 Interface to PBX

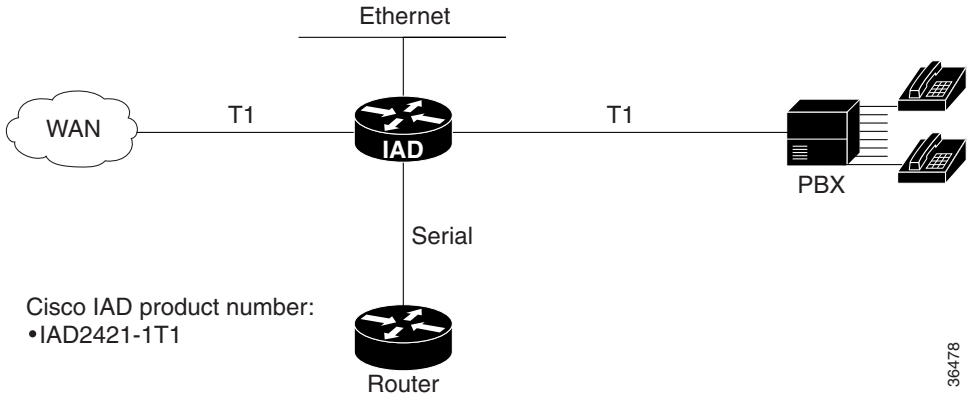


Figure 1-11 ADSL or SHDSL WAN Interface with Analog FXS User Interfaces

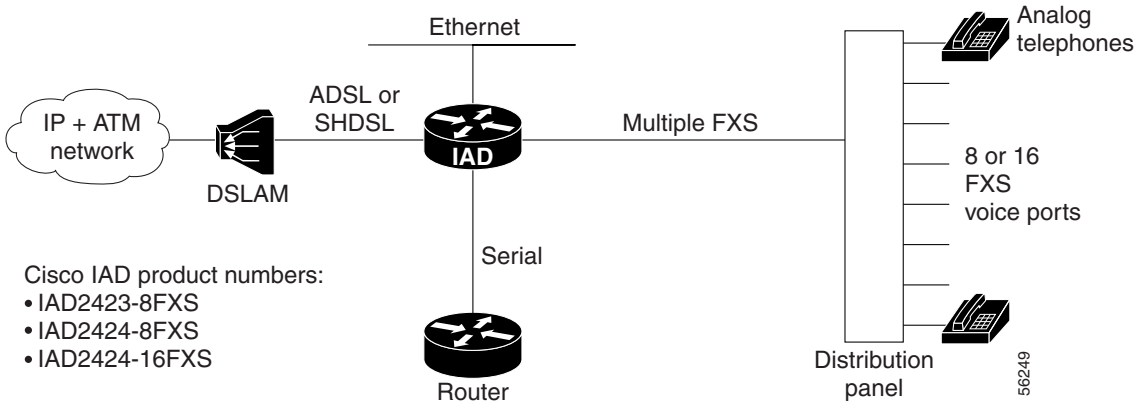


Figure 1-12 SHDSL WAN Interface with Analog FXS and FXO User Interfaces

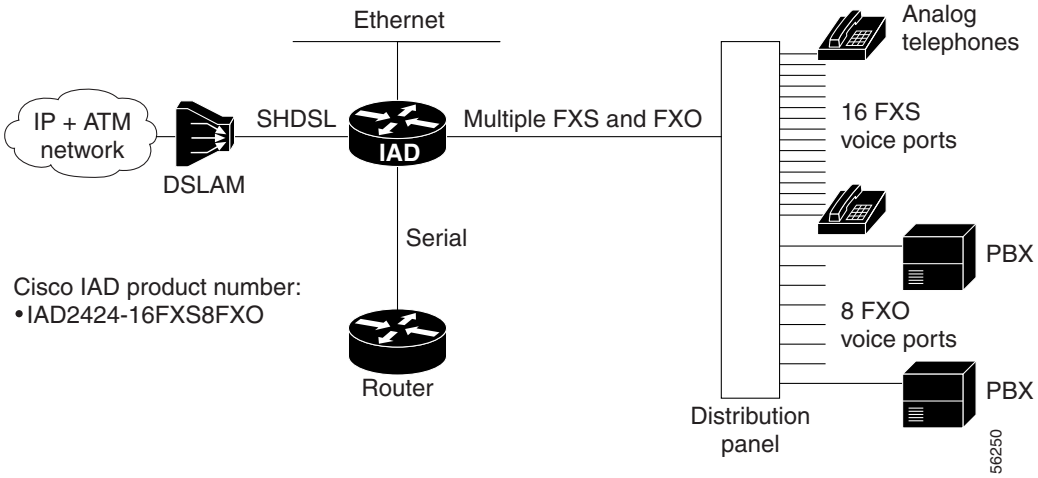
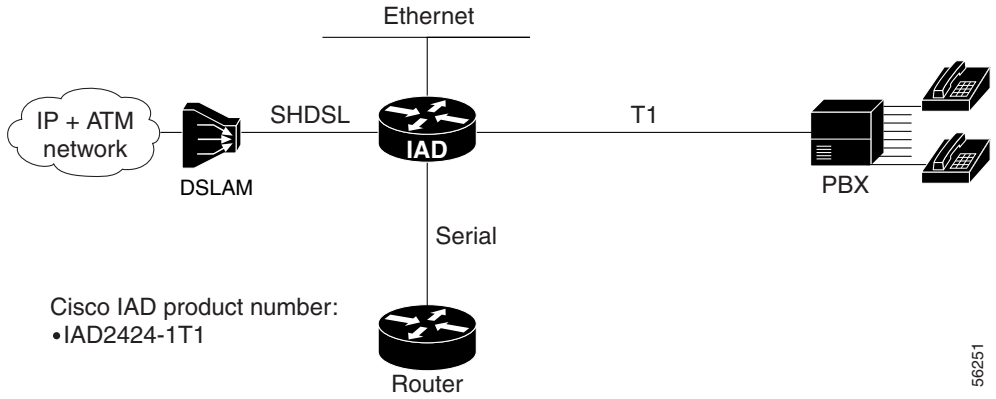


Figure 1-13 SHDSL WAN Interface with T1 Interface to PBX



Interfaces and Service Capabilities

The various physical ports and the services supported by each port type are described in Table 1-2.

All Cisco IAD2420 series IADs are equipped with the following ports:

- Two administrative ports—One console and one auxiliary
- One Ethernet 10BASE-T LAN port
- One synchronous serial port (S0)

Cisco IAD2421 IADs for T1 WAN interface are equipped with one T1 WAN port.

Cisco IAD2423 IADs for ADSL WAN interface are equipped with one ADSL WAN port.

Cisco IAD2424 IADs for SHDSL WAN interface are equipped with one SHDSL WAN port.

Cisco IAD2420 series IADs for analog voice user interface are equipped with an RJ-21X/CA21A port for connection to a distribution panel.

Cisco IAD2420 series IADs for digital voice user interface are equipped with a T1 port for connection to a PBX.

Table 1-2 Cisco IAD2420 Series Interfaces and Service Capabilities

Port	Interface Configurations	Interface To	Services Supported	Details
Console	EIA/TIA-232 asynchronous serial (DCE[1])	ASCII terminal Personal computer	Local administrative access	RJ-45 physical interface
Auxiliary	EIA/TIA-232 asynchronous serial (DTE[2])	Modem	Remote administrative access Data backup	RJ-45 physical interface
Ethernet	10BASE-T (802.3)	LAN	Data	RJ-45 physical interface
S0 (serial)	HDLC-based data	WAN Carrier network User equipment	Cisco HDLC PPP[3] VoIP over PPP	Physical interfaces: • EIA/TIA-232 • EIA/TIA-530 • EIA/TIA-449 • V.35 • X.21
T1 trunk	Channelized T1	WAN Carrier network	Service types: • ATM • Cisco HDLC[4] • PPP[3] Transport types: • TDM[5] trunk • Leased lines	Built-in CSU/DSU[6] T1.403-compliant RJ-48C/CA81A physical interface Supports as many as 24 DS0s
ADSL	ITU-T G.992.1 (G.DMT) ITU-T G.992.2 (G.lite) ANSI T1.413	WAN Carrier network (DSLAM)	ATM	RJ-11C/CA11A physical interface
SHDSL	ITU-T G.991.2 (G.SHDSL) ETSI TS101	WAN Carrier network (DSLAM)	ATM	RJ-11C/CA11A physical interface
8 or 16 analog FXS voice ports	FXS (loop-start or ground-start)	Analog phone, fax, or modem (2-wire) Network side of key system (2-wire) Network side of analog PBX (2-wire)	Analog voice/fax or modem	Provides battery RJ-21X/CA21A physical interface 8-port FSX is on-premise only 16-port FXS: on- premise or off-premise; see Table 1-1

Table 1-2 Cisco IAD2420 Series Interfaces and Service Capabilities (continued)

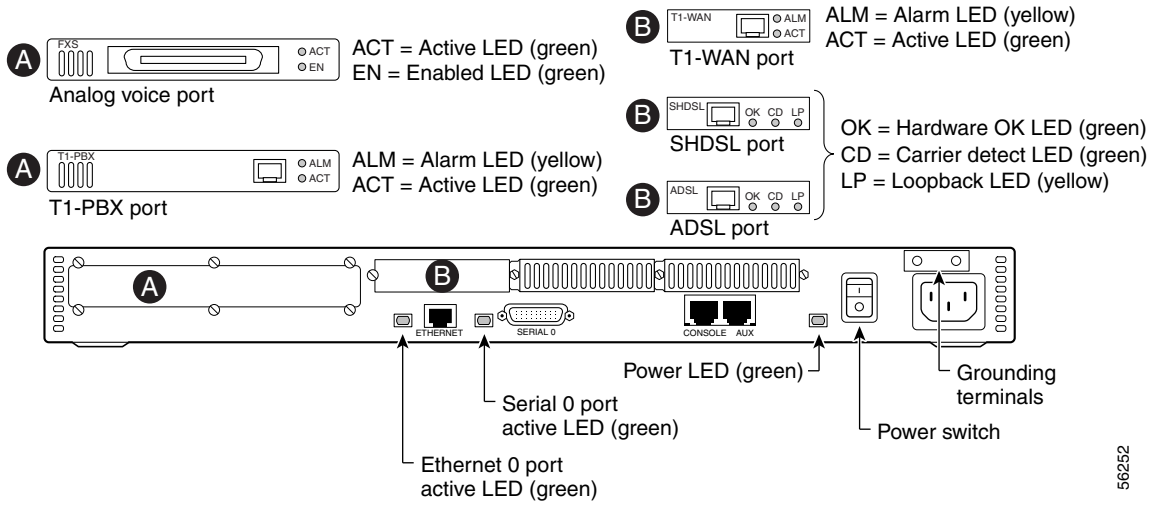
Port	Interface Configurations	Interface To	Services Supported	Details
8 analog FXO voice ports	FXO	Station side of analog PBX (2-wire) Station side of key system (2-wire)	Analog voice Direct Inward Dialing (DID)	Does not provide battery RJ-21X/CA21A physical interface
T1 digital voice	T1 with CAS[7]	Digital PBX	Voice/fax	Supports FXS[8], FXO[9], and E&M[10] voice ports RJ-48C/CA81A physical interface Supports as many as 24 DS0s

1. DCE = data communications equipment.
2. DTE = data terminal equipment.
3. PPP = Point-to-Point Protocol.
4. HDLC = High-Level Data Link Control.
5. TDM = time-division multiplexing.
6. CSU/DSU = channel service unit/data service unit.
7. CAS = channel associated signaling.
8. FXS = Foreign Exchange Station.
9. FXO = Foreign Exchange Office.
10. E&M = 2-wire or 4-wire interfaces with separate signaling paths (from "ear and mouth").

Controls and LEDs

All controls and LEDs are on the rear of the chassis. Their locations and functions are described in Figure 1-14, which shows a digital voice chassis as an example. In Figure 1-14, modules marked A and B go into chassis slots A and B respectively. (An analog voice chassis has no LEDs for the analog voice ports; otherwise, the LEDs are the same as those in a digital voice chassis.)

Figure 1-14 Cisco IAD2420 Series Controls and LEDs



Chassis Grounding

Chassis grounding is provided through the power cable, which uses a standard grounding plug. In addition, the chassis is equipped with two M4 x 0.7 screw terminals for chassis grounding. The accessory kit contains a crimp-type ground lug that attaches to the two screw terminals.

Software Elements

The operating system for Cisco IAD2420 series IADs is the Cisco IOS software that resides in Flash memory.

Configuration Connections

You can use an ASCII terminal or a PC to configure a Cisco IAD2420 series IAD. The configuration can be performed:

- Locally, with a direct connection through the console port
- Remotely, with a connection through the auxiliary port and a modem
- Through Telnet/TFTP

Configuration Methods

Automated Configuration

If your Cisco IAD2420 series IAD was ordered with the Simple Network-enabled Auto-Provision (SNAP) option, no on-site configuration is required. When the Cisco IAD is powered on and connected to the WAN, the SNAP application downloads the applicable configuration files automatically. For additional information about SNAP, refer to the *Simple Network-enabled Auto-Provision for Cisco 2420 Series IAD* feature module.

Manual Configuration

When a Cisco IAD2420 series IAD is first installed, use the procedure in Chapter 4, “Powering On the Cisco IAD,” for the initial configuration. This sets the basic communication parameters. After the Cisco IAD is operating and able to communicate, use the procedures in the *Cisco IAD2420 Series Software Configuration Guide* to configure the specific services and functions, or to make changes to the existing configuration.

There are multiple methods for configuring a Cisco IAD2420 series IAD:

- System Configuration Dialog
- Configuration mode—Cisco IOS software command-line interface (CLI)
- Setup command facility—Remote configuration through a LAN or WAN
- SNMP-based application—CiscoView or HP OpenView
- HTTP-based configuration server—Provides access to the CLI from a web browser

Specifications

Table 1-3 Cisco IAD2420 Series IAD Technical Specifications

Characteristic	Value
Dimensions (H x W x D)	1.75 x 17.5 x 10.56 in. (44.4 x 444.5 x 268.2 mm)
Weight	10 lb (4.5 kg) max
Input power	100 to 240 VAC, 1A (max), 50 to 60 Hz, 62W (max)
Main processor	80-MHz Motorola MPC860P PowerQUICC
Operating environment	32 to 122°F (0 to 50°C)
Nonoperating temperature	–40 to 185°F (–40 to 85°C)
Operating humidity	5 to 95%, noncondensing
Noise level	38 dB @ 3 ft (0.914 m)
Agency approvals	Refer to the *Cisco IAD2420 Series Regulatory Compliance and Safety Information* document

Warning **Ultimate disposal of this product should be handled according to all national laws and regulations. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**