BLACK BOX®
NETWORK SERVICES

ULTRA2 SCSI LVD MULTIMODE EXTENDER AND ULTRA2 SCSI LVD/HVD MULTIMODE EXPANDER

Ultra2 SCSI LVD
Multimode Extender
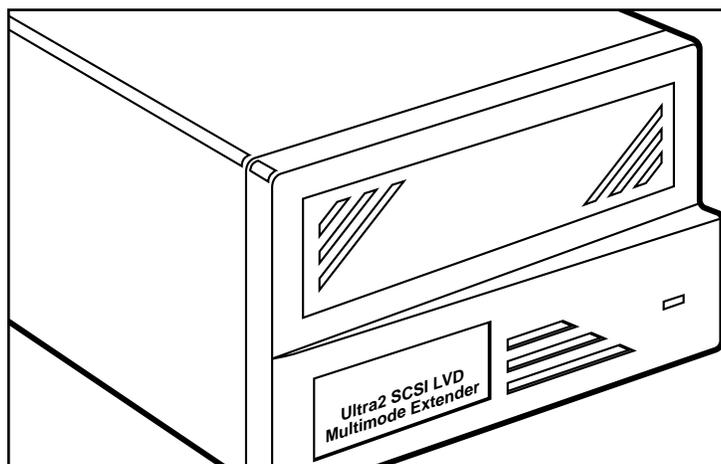
Lengthen your Ultra2 SCSI LVD bus, or put LVD and single-ended or HVD devices on the same bus.

Key Features

▶ *Put legacy and Ultra2 SCSI devices on the same bus.*

▶ *Backward compatible with all earlier SCSI versions.*

▶ *Switchable internal termination and TERMPWR.*

▶ *Up to 80 Megabytes per second on LVD.*

▶ *Double standard bus lengths.*

▶ *Work transparently— no software or SCSI ID.*

▶ *Support all standard SCSI functions.*

SCSI is a fast, powerful interface—there's no doubt about that. But its distance limitations can be severe, and its different "flavors" don't get along very well.

If you're tired of not being able to put Ultra2 SCSI low-voltage differential (LVD) devices where you want to, or of not being able to use them with your older SCSI devices, we have a couple of boxes that can help.

The Ultra2 SCSI LVD Multimode Extender (product code IC540A) joins two SCSI buses so that they function as two segments of the same bus. Each segment can be either LVD or SE, because both of the Extender's ports are autosensing "multi-mode" type. So the Extender can work as a converter, allowing you to use newer and older SCSI devices at the same time.

You can also use the Extender as a repeater. Because each attached segment can be as long as a full bus—depending on the data rate and number of devices, up to 25 m (82 ft.) for an LVD segment, or up to 6 m (19.7 ft.) for an SE segment—the Extender doubles the length you can run. You can even *triple* your distance by daisychaining a pair of Extenders!

The Ultra2 SCSI LVD/HVD Multimode Expander (IC541A) joins a high-voltage differential (HVD) bus to an LVD or SE bus in the same way. In this case, the HVD port is HVD only, and the LVD/SE port is multimode (either LVD or SE). So the Expander operates primarily as a converter.

Here again, though, each segment can be as long as a full bus: LVD and SE as listed above, and 25 m (82 ft.) for HVD. And by daisychaining two Expanders, you can connect widely separated HVD devices.

Both the Extender and the Expander have internal jumpers that you can use to control, for each attached SCSI segment, (a) whether the segment is terminated internally at the Extender/Expander, and (b) whether the Extender/Expander provides terminator power for the other end of the segment.

If you choose not to terminate the bus at the Extender/Expander, you can use a multi-connector ribbon cable to attach the unit in the middle of a segment.

The Extender and Expander don't require software or a SCSI ID. They support arbitration, parity, disconnect/reconnect, and sync or async data transfers. They each have a front-mounted Power LED (in the lower right-hand corner) and Busy LED (in one of the vents at the upper right.)

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Use one Expander/Extender to reach a distant device or to "graft" one type of SCSI bus onto another.

Ultra2 SCSI LVD/HVD
Multimode Expander (IC541A)

HVD segment   LVD segment

HVD devices   LVD devices   Ultra2 SCSI
                                    host adapter
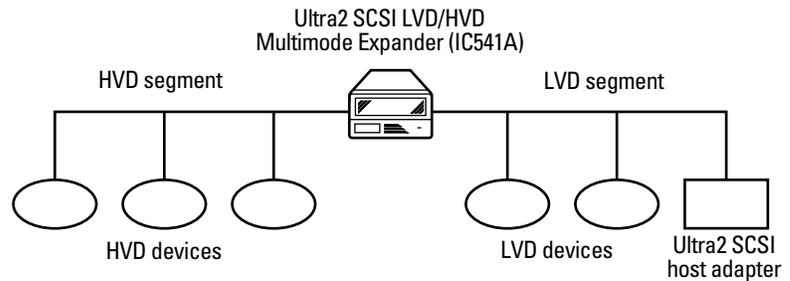
Or use a pair of Expanders/ Extenders to interconnect widely separated legacy devices with an LVD link.

Two Ultra2 SCSI LVD Multimode Extenders (IC540A) with all ports
terminated and an LVD SCSI cable between them up to 25 m (82 ft.) long

3 m (10 ft.) max.   3 m (10 ft.) max.

SE   LVD   SE

Legacy SE devices   Legacy SE devices
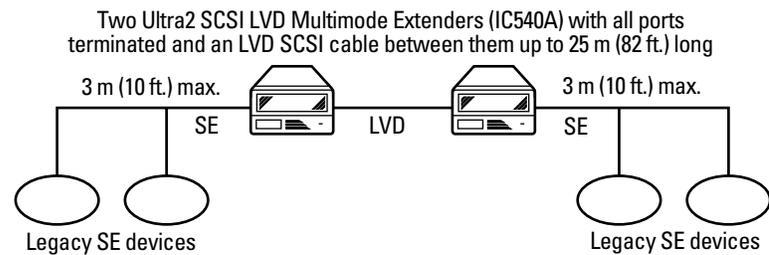
Specifications

Compliance: FCC Part 15 Subpart J
Class B, IC Class/classe B

Interface:
IC540A, LVD/SE port of IC541A:
Wide (16-bit) SCSI, multimode
(can be either Ultra2 SCSI
LVD or Ultra SCSI [SCSI-3]
single-ended, autosensing);
HVD port of IC541A:
Wide (16-bit) Ultra SCSI
(SCSI-3), high-voltage
differential

Protocol: Transparent to
synchronous or asynchronous
communication

Data Rate:
LVD: Up to 80 MBps (Megabytes
per second);
Other bus types: Standard
maximum specified for the bus
type of the slowest attached
device, given the total number
of SCSI devices attached to
the bus segment

Maximum Distance:
IC540A: Can extend LVD SCSI
bus as far as 25 m (82 ft.) with
a single unit, farther with
daisychained units;
IC541A: Can extend HVD SCSI
bus as far as 37 m (121.3 ft.)

User Controls:
IC540A: (4) Internal jumpers for
termination, others reserved;
IC541A: (1) Dual and (2) single
internal jumpers for
termination

Indicators:
Both models: (2) Front-mounted
LEDs, Power and Busy;
IC540A: (6) Internal LEDs: (4) Bus
type, (1) busy, (1) reserved

Connectors: (2) Micro D68 (68-pin
high-density) female

Power: 110 to 220 VAC, 50 to 60 Hz
(autosensing)

Size: 2.9"H x 4.8"W x 7.8"D (7.4 x
12.2 x 19.8 cm)

Weight: 3.3 lb. (1.5 kg)

The complete package

- The Extender or Expander.
- Its power cord.
- Its manual.

▼ *Ordering Information*

ITEM	CODE
Ultra2 SCSI LVD Multimode Extender	IC540A
Ultra2 SCSI LVD/HVD Multimode Expander	IC541A

You might also need:
Standard Ultra2 SCSI LVD cable, Micro D68 M/M:
3 ft. (0.9 m)	EVMS25-0003
6 ft. (1.8 m)	EVMS25-0006

Standard Ultra SCSI (SCSI-3) HVD/SE cable,
Micro D68 M/M:
3 ft. (0.9 m)	EVNSC07-0003
6 ft. (1.8 m)	EVNSC07-0006

Ribbon cable, (5) Micro D68 M:
Ultra2 SCSI LVD, 5 ft. (1.5 m)	EVMSCC21
Ultra SCSI (SCSI-3) HVD/SE, 4.3 ft. (1.3 m)	EVMSCC16

*Call Black Box Technical Support for help determining
your best options for external termination and
AC-power and data-line protection.*