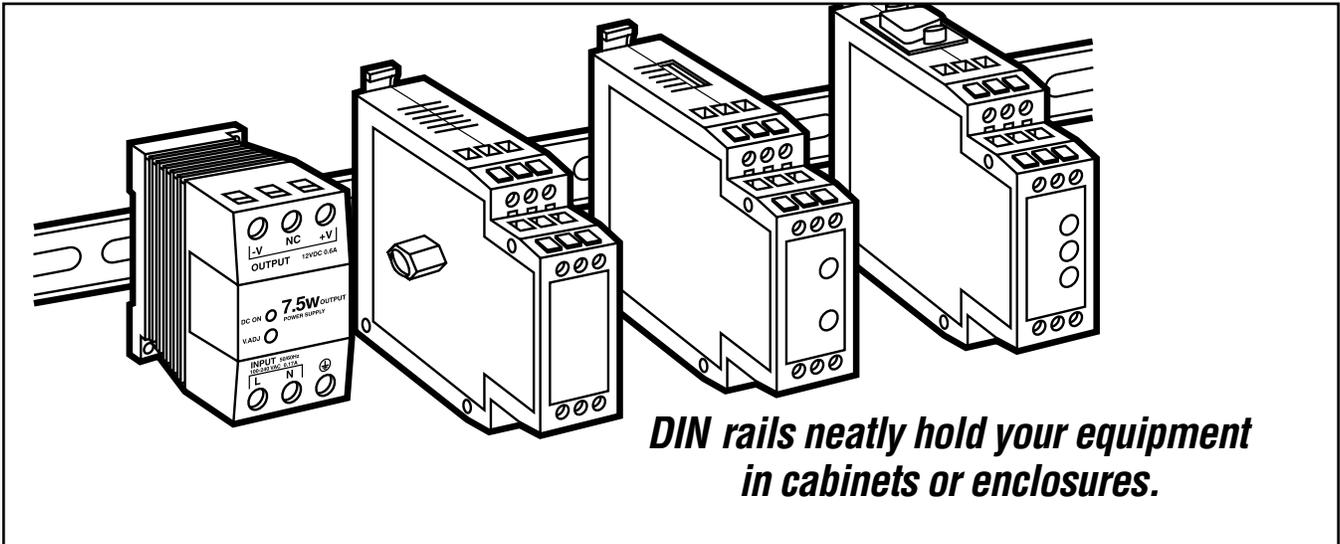


BLACK BOX[®]

NETWORK SERVICES

DIN RAILS AND DIN RAIL DEVICES



Key Features

- ▶ **DIN rail holds 2.75" wide components.**
- ▶ **Install converters, repeaters, and/or fiber drivers in the DIN rail.**
- ▶ **All devices are optically isolated for smooth fiberoptic transmission.**
- ▶ **RS-232 converters link to RS-422/RS-485 or current loop.**
- ▶ **Repeater for RS-422 or RS-485 equipment.**
- ▶ **Protect your equipment from damaging ground loops and transient spikes on data lines.**

Use the DIN rails to mount a variety of devices—such as interface converters, repeaters, line drivers, and surge protectors—in industrial cabinets or enclosures. Each item uses 10 to 30 VDC of power from a DC supply in the cabinet (ordered separately) or has an included plug-in power supply. The DIN rail case for each device clips easily to a standard track via adapter clips included with each device.

The ICD100A lets you convert RS-232 signals to full- or half-duplex RS-422 or RS-485 at distances up to 4000 ft. (1219.2 m).

The ICD101A has one 20-mA transmit loop and one 20-mA receive loop. Both of these signals are optically isolated for protection against surges and ground loops. Each loop can be

set to active or passive. When set to active, an isolated 20-mA current is supplied for each loop.

To optically isolate and protect your equipment from damaging ground loops and transient spikes on the data lines, choose the ICD102A. It provides interconnection and isolation between RS-422 and RS-485 systems at data rates up to 460 kbps.

The ICD103A functions in the same way as the ICD102A, but it's used for RS-232 connections.

The MED100A allows two asynchronous serial devices to communicate in full- or half-duplex mode over two fibers at a distance of up to 2.5 miles (4 km) using fiber optics' EMI/RFI and transient immunity.

The PSD100 can be used as a redundant power supply in case your primary power supply fails. It autosenses from 110 to 220 VAC.

Protect your devices from data loss caused by surges or spikes with the SPD001A.

All of the devices mount easily in the DIN rail. The DR100 holds 2.75" (7-cm) wide cards on flat surfaces, or, with adapter clips, to DIN rails. Each rail is 1 meter (3.2 ft.) long and may be easily cut to fit the length of cards.

DIN adapter clips (included with the DIN rail devices) snap into the back of the track and slip easily and solidly onto the DIN rail.

Specifications

DIN Rail Devices

Data Rates:

ICD100A: 1200 to 115.2 kbps, 2400 to 19,200 bps switch-selectable;
ICD101A: Up to 19.2 kbps;
ICD102A: Switch-selectable for 2400 to 115.2 kbps, for other baud rates up to 460.8 kbps;
ICD103A: Up to 115.2 kbps;
MED100A: RS-232 operation: Up to 115.2 kbps, RS-422/485 operation: Up to 460.8 kbps

Isolation: ICD100A: 2000 VAC optical isolation of data signals and ground;

ICD101A: 1000 VDC for 1 second;

ICD102A: 2000 volts RMS for 1 minute optical isolation of data lines;

ICD103A: 2000 VDC isolation for 1 minute

End-to-End Delay: MED100A:

2000 ns typical, 2650 ns maximum in point-to-point RS-232 operation; 550 ns typical, 1000 ns maximum in point-to-point RS-422/485 operation

End-to-End Skew: MED100A: 900 ns

typical, 1100 ns maximum in point-to-point RS-232 operation; 50 ns typical, 120 ns maximum in point-to-point RS-422/485 operation

Surge Suppression: ICD100A: 7.5 V,

bidirectional avalanche breakdown device, 500 W peak power dissipation; Clamping time: < 1 picosecond (theoretical);

ICD102A: 6.5 volts working peak voltage, bidirectional over-voltage suppressor, 600 watts peak power dissipation, 3000 pF maximum capacitance

Transmission Line: MED100A:

Dual multimode optical cable; Point-to-point transmission: Asynchronous, half- or full-duplex;

Multipoint transmission: Asynchronous, half-duplex fiber ring

Fiber Optic Characteristics:

MED100A: Wavelength: 820 nm; Fiber TX Launch Power: -17 dBm

minimum, -13 dBm typical, -10 dBm maximum;

Maximum Required RX Power: -25.4 dBm typical; -24 dBm maximum;

Maximum Receiver Power: -10 dBm maximum;

Coupled Power Budget: 12.1 dB typical;

Delay Between RX and TX on a Fiber Ring: 52 μ s;

Fiber Range: 2.5 miles (4 km);

Maximum Total Fiber Ring

Length: 5 miles (8 km)

Interfaces: MED100A: RS-232,

RS-422, or RS-485;

ICD100A, ICD102A: RS-422 or RS-485;

ICD101A, ICD103A: RS-232

Connectors:

ICD100A: (2) 6-position terminal blocks, (1) DB9 female (DCE); ICD101A–ICD103A: (2) 6-position terminal blocks;

MED100A: (2) 6-position terminal blocks, (1) pair of ST[®]

Indicators: ICD100A: (3) LEDs:

(1) RS-485 transmit data,

(1) RS-485 receive

data, (1) power;

ICD101A–ICD102A:

(3) LEDs: (2) data flow

direction, (1) power;

ICD103A:

(5) LEDs: (4) data flow

direction, (1) power

Temperature Tolerance:

ICD100A, ICD102A–ICD103A,

MED100A: -40 to +176°F

(-40 to +80°C);

ICD101A: 32 to 176°F (0 to 80°C)

Relative Humidity: All models: Up to

90%, noncondensing

Power:

ICD100A–ICD103A: +10 to

30 VDC @ 100 mA;

MED100A: 140 mA at full RS-485

termination via terminal block

connections

Size: ICD100A: 1"H x 3.1"W x 4.2"D

(2.5 x 7.9 x 10.7 cm);

ICD101A–ICD102A:

0.9"H x 2.9"W x 3.9"D

(2.3 x 7.4 x 9.9 cm);

ICD103A: 1"H x 2.9"W x 3.9"D

(2.5 x 7.4 x 9.9 cm);

MED100A: 1"H x 2.3"W x 4.3"D

(2.5 x 5.8 x 10.9 cm)

DIN Rail (DR100)

DIN Type: 35 mm

Material: Steel

Perforation Dimensions:

0.3"H x 0.7"L (0.8 x 1.8 cm)

Perforation Center-to-Center

Spacing: 1" (2.5 cm)

Overall Size: 0.3"H x 39.4"W x 1.4"D

(0.8 x 100 x 3.6 cm)

Surge Protector (SPD001A)

Clamping Voltage: 72 VDC

minimum, 108 VDC maximum

Series Resistance: 2.7 ohms

Clamping Time: < 5 x 10⁻⁹ seconds

Connectors: (2) 6-position terminal

blocks

Temperature Tolerance: -40 to

+176°F (-40 to +80°C)

Relative Humidity: Up to 95%,

noncondensing

Size: 1.4"H x 3.1"W x 4.2"D

(3.6 x 7.9 x 10.7 cm)

Weight: 0.2 kg (0.1 lb.)

Power Supply (PSD100)

Overload Protection: 120% typical (Zener-limiting)

Leakage Current (at no load):

75 mA maximum (60 Hz, measured in conformance with UL[®], CSA, CDE)

Typical Efficiency: 73%

Output Voltage Adjustments: \pm 10%

Output Holding Time: 20 ms

minimum (at full rated input and output)

Rise Time: 2000 ms maximum

(at full rated input and output)

Dielectric Strength: Between input

and output terminals: 3000 VAC, 1 minute;

Between input terminals and

housing: 2000 VAC, 1 minute;

Between output terminal and

housing: 500 VAC, 1 minute

Vibration Resistance: 45 m/s², 10 to

55 Hz, 2 hours on each of 3 axes

Shock Resistance: 294 m/s²,

3 shocks in each of 6 directions

Termination: Spring-up, finger-safe

terminals with captive M3.5

screws

Approvals: UL (UL508), cUL, TUV,

and CE (both LVD and EMC)

Connectors: (5) screw terminals

Temperature Tolerance:

Operating: 14 to 140°F

(-10 to 60°C);

Storage: -22 to +185°F

(-30 to +85°C)

Power: Input voltage (single-phase,

2-wire): 100 to 240 VAC (110 to

340 VDC);

Input current: 0.17 A at

100 VAC (0.11 A at 200 VAC);

Output voltage: 12 VDC or

24 VDC;

Output current: 0.6 A or 0.3 A;

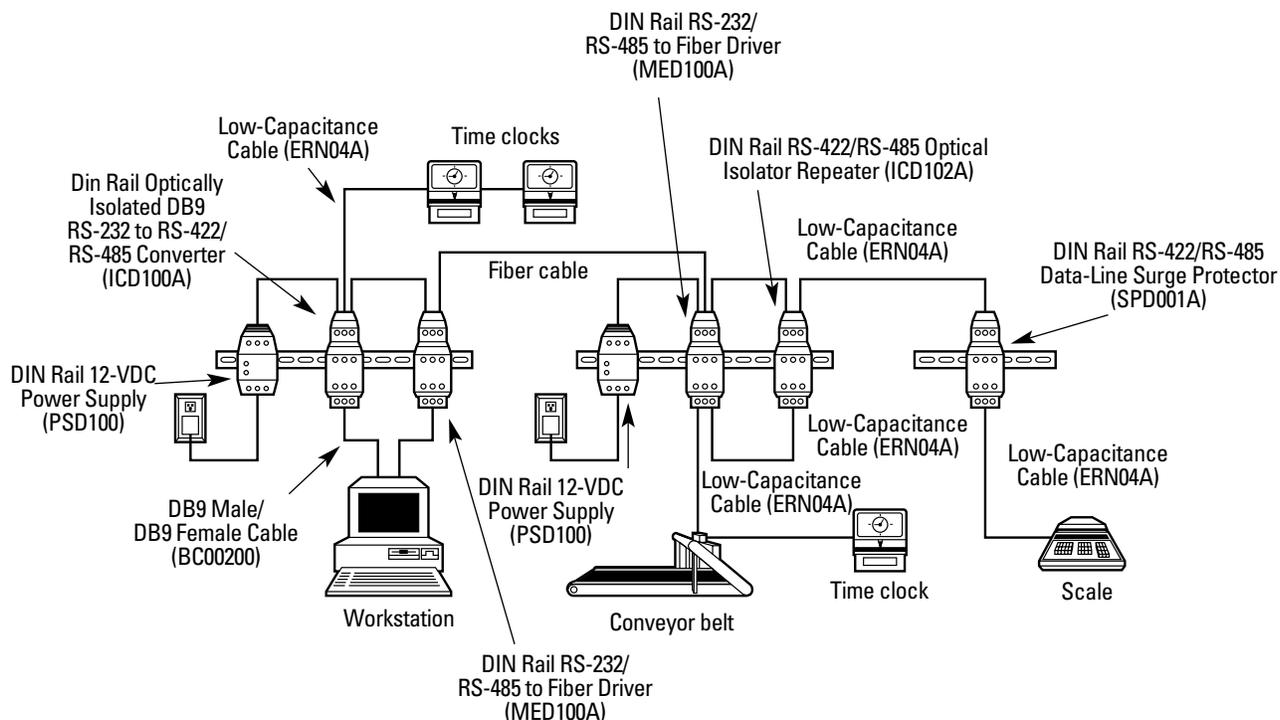
Output power: 7.5 W;

Internal fuse rating: 2 A

Size: 2.8"H x 1.8"W x 3"D

(7.1 x 4.6 x 7.6 cm)

The converters, repeaters, and fiber drivers mount in a DIN rail.



Why Buy From Black Box? Exceptional Value. Exceptional Tech Support. Period.

Recognize any of these situations?

- You wait more than 30 minutes to get through to a vendor's tech support.
- The so-called "tech" can't help you or gives you the wrong answer.
- You don't have a purchase order number and the tech refuses to help you.
- It's 9 p. m. and you need help, but your vendor's tech support line is closed.

According to a survey by Data Communications magazine, 90% of network managers surveyed say that getting the technical support they need is extremely important when choosing a

vendor. But even though network managers pay anywhere from 10 to 20% of their overall purchase price for a basic service and support contract, the technical support and service they receive falls far short of their expectations—and certainly isn't worth what they paid.

At Black Box, we guarantee the best value and the best support. You can even consult our Technical Support Experts before you buy if you need help selecting just the right component for your application.

Don't waste time and money—call Black Box today.

Ordering Information

ITEM	CODE
DIN Rail Optically Isolated DB9 RS-232 to RS-422/RS-485 Converter.....	ICD100A
DIN Rail RS-232 to Current Loop Converter.....	ICD101A
DIN Rail RS-422/RS-485 Optical Isolator Repeater.....	ICD102A
DIN Rail RS-232 Optical Isolator Repeater.....	ICD103A
DIN Rail RS-232/RS-485 to Fiber Driver.....	MED100A
<i>The items above mount on a DIN rail...</i>	
DIN Rail, 1 Meter	DR100
DIN Rail DB25 to Terminal Block Adapter	IC980
<i>For redundant power, order...</i>	
DIN Rail 12-VDC Power Supply.....	PSD100
<i>You might also need surge protectors...</i>	
DIN Rail RS-422/RS-485 Data-Line Surge Protector	SPD001A