Screen Sender Transmitter
Screen Sender Receiver/Repeater
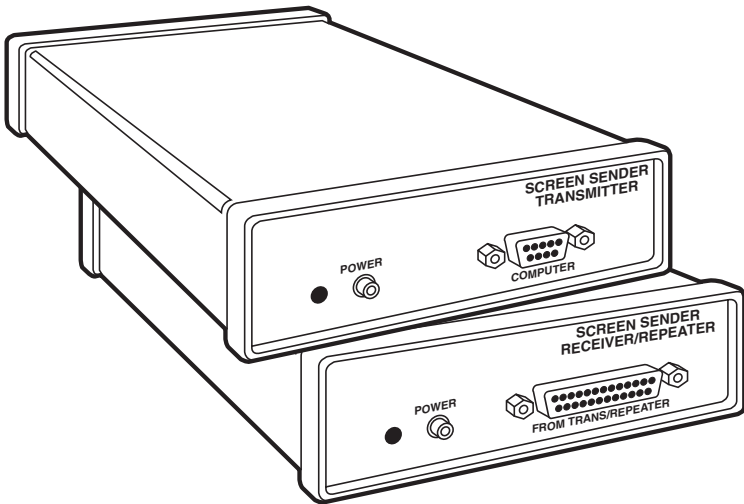
FEDERAL COMMUNICATIONS COMMISSION
AND
INDUSTRY CANADA
RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

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1. Specifications

Video Standards —   EGA, CGA, MDA

Interface —   TTL-compatible PC video

**Maximum
Distance —**   CGA:
   40-column: 1000 feet (304.8 m)
   80-column: 650 feet (198.1 m)
EGA: 350 feet (106.7 m)
Monochrome (MDA): 400 feet (121.9 m)

Indicators —   (1) Front-mounted Power LED

Connectors —   AC070 units: (3):
   (2) Front-mounted: (1) DB15 female (from
    computer), (1) 2.5-mm subminiature jack for power;
   (1) Rear-mounted DB25 female (to AC071 unit);
AC071 units: (4):
   (2) Front-mounted: (1) DB25 female (from AC070
    unit), (1) 2.5-mm subminiature jack for power;
   (2) Rear-mounted: (1) DB9 female (to monitor),
    (1) DB25 female (to AC071 unit)

Power —   AC070A, AC071A:
  From UL® and CSA approved wallmount power
   supply PS056:
    Input: 120 VAC, 60 Hz, 9 watts;
    Output: 9 VDC, 600 mA;
AC070AE, AC071AE:
  From VDE approved desktop power supply
   PS057E:
    Input: 230 VAC, 50 Hz, 20 watts;
    Output: 9 VDC, 1 amp

Size —   1.5"H x 7.3"W x 5.5"D (3.8 x 18.5 x 14 cm)

Weight —   0.9 lb. (0.4 kg)

2. Introduction

With a pair of Screen Senders—a Transmitter (AC070 unit) and a Receiver/Repeater (AC071 unit)—you can site a supplementary monitor hundreds of feet from your PC. These powered drivers convert EGA, CGA, mono, or TTL signals into balanced differential signals for low-noise, long-distance transmission.

You can add more than one long-distance monitor by cascading Receiver/Repeaters. Each Receiver/Repeater reamplifies the signal it receives, to pass it on to an additional monitor. By daisychaining Receiver/Repeaters, you'll be able to span distances that stretch into the thousands of feet.

Once you've put your cable into place, adding your Senders takes almost no time. Once they're set, you'll never need to adjust them—even if you upgrade from one TTL video standard to another.

3. Installation

3.1 General Notes

You should need only a modest amount of time, and little in the way of supplies, in order to set up your Screen Senders. You should devote a much greater part of your time to thinking through and carefully laying out the cable run between your Senders. Ideally, the run should be easy to access and free of obstructions and interference.

You should locate each Sender in a clean, dry, flat, stable spot that affords enough clearance for the connections you'll be making. Place each Sender within 6 feet (1.8 m) of an AC power outlet.

Along with this manual and your Transmitter or Receiver/Repeater, each Screen Sender package should contain a power supply. If any of these items are missing, call your sales representative.

3.2 Power Precautions

Although the Senders draw only small amounts of current and pose little threat of shock or damage, the devices they are connected to require substantial amounts of energy. Before you install your Senders, you should shut down all of the devices you'll attach to them.

You might also want to consider adding surge protectors to your lines. Adding any kind of powered electronic equipment to your lines increases the risk of harm to you, your equipment, and your data, and the Senders are no exception. Putting the right surge protector in place will reduce the potential for hazards. Call your technical representative for details.

3.3 Distance

The signals generated by the Screen Sender are not only strong, but able to withstand significant amounts of noise and electrical interference. The distance your signal will travel depends on the type of monitor you use and the conditions at your site. To determine the maximum distance from your Transmitter to a Receiver/Repeater, or from one cascaded Receiver/Repeater to another, refer to the **Maximum Distance** specification on page 2.

3.4 Cables and Pinning

You can either buy cable that meets the specs for the Screen Sender (check with your technical representative for details), or create your own from bulk.

If you plan on building your own cable, it should have a capacitance of less than 11 pF/ft. (36.1 pF/m), and must be terminated with DB25 connectors. The signals are balanced differential signals, and travel along adjacent pairs within the cable. The connectors must be pinned according to **Table 3-1** below.

You'll also need a short length of DB9 male-to-male cable for every Transmitter you order, to run from the Transmitter to the attached computer. (You might need DB9 cables to run from Receiver/Repeaters to any monitors that do not have a video cable.)

Table 3-1. Connector Pinouts

Cable Pair		Leads to connector marked		Cable Pair		Leads to connector marked	
		COMPUTER	**REPEATER**			**COMPUTER**	**REPEATER**
1	+	2	1	5	+	6	5
	–	2	14		–	6	18
2	+	3	2	6	+	7	6
	–	3	15		–	7	19
3	+	4	3	7	+	8	7
	–	4	16		–	8	20
4	+	5	4	8	+	9	8
	–	5	17		–	9	21

3.5 Procedure

You'll need one Transmitter for your PC, and as many Receiver/Repeaters as you have monitors. Your cable should be installed before you begin, and you should also switch off all the devices you wish to connect. Follow these steps:

1. Set up the Transmitter within 6 feet (1.8 m) of your computer.

2. Connect a DB9 cable from the monitor port of your PC to the connector on the Transmitter marked COMPUTER.

3. Connect the primary monitor for your computer to the connector marked MONITOR.

4. Connect the multi-pair cable to the connector on the Transmitter marked TO NEXT REPEATER.

5. Plug the output cord from the Transmitter's power supply into the jack on the Transmitter marked POWER.

6. Plug the power supply's input cord into a wall outlet. The Transmitter's front-panel Power LED should light.

7. Turn ON your computer and your primary monitor. The monitor should display your computer's output. Turn both devices back OFF.

8. Set the Receiver/Repeater within 6 feet (1.8 m) of a subsidiary monitor.

9. Connect the remaining end of your multi-pair cable to the connector on your Receiver/Repeater marked FROM TRANS/REPEATER.

10. Connect the subsidiary monitor to the connector on the Receiver/ Repeater marked MONITOR.

11. Plug the output cord from the Receiver/Repeater's power supply into the jack on the Receiver/Repeater marked POWER.

12. Plug the power supply's input cord into a wall outlet. The Receiver/ Repeater's front-panel Power LED should light.

13. Turn ON the computer and the subsidiary monitor. The monitor should display your computer's output.

14. If this is the extent of your Screen Sender system, turn ON the primary monitor; your system should be ready for continuous operation. If you are installing additional Receiver/Repeaters, turn the computer and the subsidiary monitor back OFF and repeat steps 8 through 13 as many times as necessary.

4. Troubleshooting

4.1 Calling BLACK BOX

If you determine that one of your Screen Senders is malfunctioning, *do not attempt to alter or repair the unit.* It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500. The problem may be solvable over the phone.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.

- when the problem occurs.

- the components involved in the problem.

- any particular application that, when used,
  appears to create the problem or make it worse.

4.2 Shipping and Packaging

If you need to transport or ship your Screen Sender:

- Package it carefully. We recommend that you use the original container.

- If you are shipping the Sender for repair, include its power supply. If you are returning the Sender, make sure you include everything you received with the unit. Before you ship, contact Black Box to get a Return Materials Authorization (RMA) number.

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