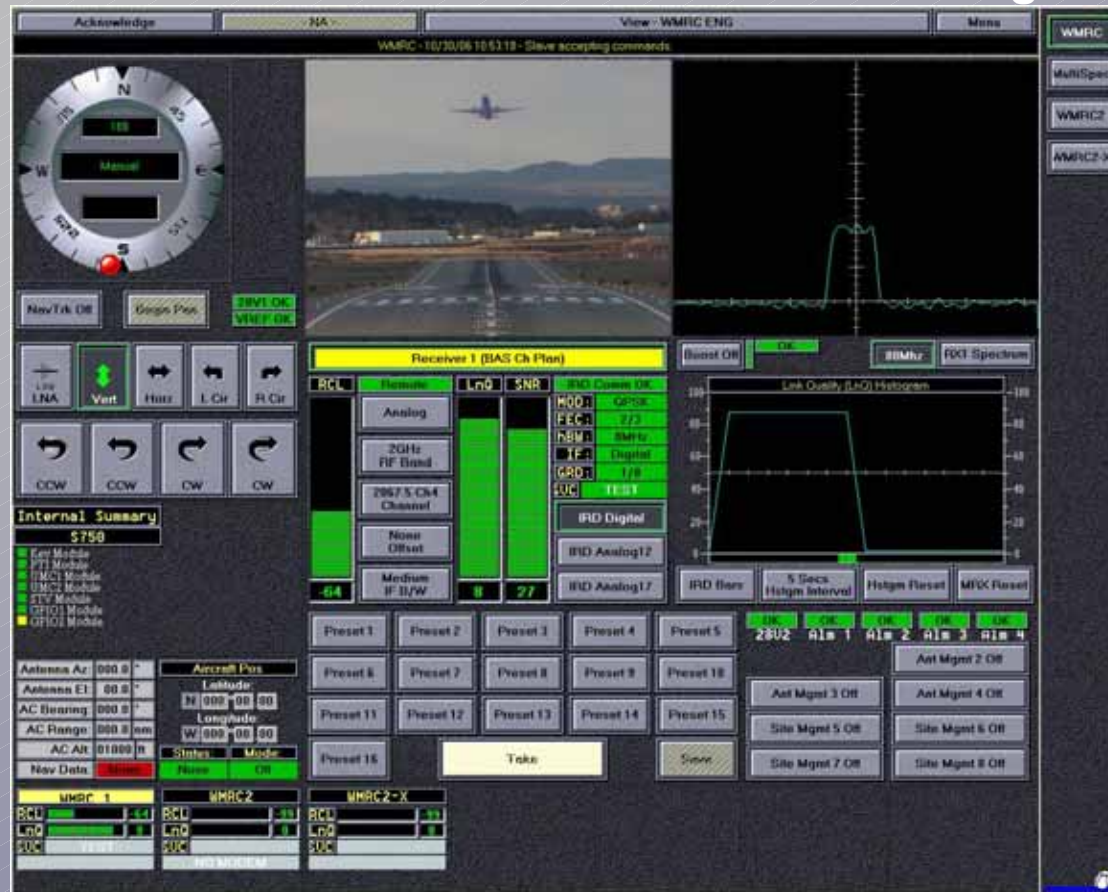




Central Receive System

PC-Based Touchscreen Interface for Controlling Remote Antennas



Manual Part No. 400535-1
Rev. A February 2007

Installation Guide

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Notices

About This Manual

Part number **400535-1**

Revision A **February 2007**

The information in this manual applies to the Microwave Radio Communications (MRC) Central Receive System.

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Authorized EU representative: Vislink PLC.

Conventions

Pay special attention to information marked in one of the following ways:

WARNING Pay close attention to WARNINGS to prevent personal injury or death.

CAUTION Pay attention to CAUTIONS to prevent damage to the equipment.

Note Read Notes for additional information to assist you in using and maintaining the equipment.

Technical Tip

Information in a shaded area contains technical tips that provide additional insights into how a feature works or examples that improve your productivity.









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Symbols Used

The following symbols are used on the equipment.

Symbol	Meaning
	WARNING: General Warning. Risk of Danger
	WARNING: Risk of Electric Shock
	CAUTION: Electrostatic Discharge. Possible Damage to Equipment
 -OR- 	Fuse - Identifies fuses or their location.
	Frame or Chassis Ground - Identifies the frame or chassis terminal.
	Earth Ground - Identifies the Earth Ground Terminal
	Protective Earth Ground - Identifies any terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal on a protective earth electrode.

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- a.** Products manufactured by MRC are warranted against defects in material and workmanship for a period of two (2) years from date of delivery, as evidenced by the MRC packing slip or other transportation receipt (unless otherwise noted).
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1 Introduction

1.1 Chapter Overview

This chapter introduces you to the Central Receive System Installation Guide – what it covers, how it is organized, and the audience for whom it is written.

1.2 How to Use This Manual

This manual is available in PDF format for viewing and printing on a Windows®-based PC or other platform that supports the Adobe Reader®. A PDF file for this manual is provided on the CD ROM delivered with each Central Receive System. The CD ROM contains PDF files for the Installation Guide and Operator's Guide. Printed copies of the Installation Guide and Operator's Guide are also delivered with each Central Receive System.



Viewing this manual in PDF format requires the Adobe Reader, version 5.0 or newer.



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Click on the Adobe Reader's Previous View button to return to the previous link.

1.3 What This Manual Covers

This manual explains how to install a Central Receive System at a customer site, and how to modify, test, and troubleshoot the system.

The following major topics are covered in detail:

- Installing hardware and cabling
- Modifying the configuration as needed
- Testing the configuration
- Troubleshooting procedures
- Glossary of technical terms

1.4 How Manuals Are Organized

The manuals for the Central Receive System are organized as follows:

Installation Guide – Provides instructions for installing a system at a customer site, and for modifying, testing, and troubleshooting the system.

Operator's Guide – Explains how to use the features of the hardware and software components.

System Overview Guide – Describes infrastructure requirements, typical components and sample configurations, and installation summaries.

1.5 Intended Audience

This manual is intended for use by technically-trained customer installers and by MRC Technical Services personnel. Users of this manual should already be familiar with the basic concepts of microwave radio, video, and audio.

1.6 Related Documents

The following documents provide important technical or reference information. These documents are not part of the MRC Central Receive System.

- *MRC CodeRunner 4 Analog/Digital Receiver Operator's Guide* (part no. 400438-1)
- *MRX4000 Integrated Analog/Digital Receiver Operator's Guide* (part no. 400512-1)
- *Master Control Typical Connection Diagram (for Troll MC-17 with UCC-2000 Applications)* (part no. 60010-4)
- *Master Control Typical Connection Diagram (for Troll MC-17 with TNS-3000 Applications)* (part no. 60010-5)
- *Central Receive Typical Connection Diagram (for S750 Troll Applications)* (part no. 60010-1)
- *Central Receive Typical Connection Diagram (for S350 Troll Applications)* (part no. 60010-3)

1.7 Ordering Documentation

Any of the above manuals may be ordered by contacting MRC Customer Service:

Business Hours:

Monday-Thursday 8:00 AM - 7:00 PM Eastern Time (US)
(0800 - 1900 hrs US ET)

Friday 8:00 AM - 5:00 PM Eastern Time (US)
(0800 - 1700 hrs US ET)

Telephone: 800-490-5700 (Press 3)
978-671-5700 (Press 3)

Fax: 978-671-5948

E-mail: customerservice@mrcbroadcast.com

When contacting Customer Service, please have the following information available:

- Model number and serial number of the unit. This is located on a label on the outside of each unit.
- Approximate purchase date.
- Firmware version, if available, which appears on the component front panel at startup.
- OR -
- Firmware version(s) displayed on the Main page of the relevant manual.

1.8 Calling for Service

MRC Technical Support is available 24 hours a day, 7 days a week. During regular business hours you can reach our expert staff directly.

Business Hours:

Monday-Friday 8:00 AM - 7:00 PM Eastern Time (US)
(0800 - 1900 hrs US ET)

Telephone: 800-490-5700 (Press 4)
978-671-5700 (Press 4)

Fax: 978-671-5948

E-mail: technicalsupport@mrcbroadcast.com

After regular business hours and on weekends and holidays, you can also reach our expert staff as follows:

After Hours Telephone: 978-671-5929

Your call will be automatically forwarded to the on-call Technical Support specialist.

When contacting Technical Support, please have the following information available:

- Model number and serial number of the unit. This is located on a label on the outside of each unit.
 - Approximate purchase date.
 - Firmware version, if available, which appears on the component front panel at startup.
- OR -
- Firmware version(s) displayed on the Main page of the relevant manual.

1.9 Supported Repairs

The components of the Central Receive System are designed to be compact, lightweight, bandwidth efficient, multipath resistant, rugged, reliable, and flexible to support multiple configuration requirements with user-friendly Preset selections.

These components require specialized test equipment to calibrate amplitude and frequency characteristics after repair. In addition, sealing the remote site components after repair requires exacting techniques and special fixtures to ensure weather resistance of the units.

There are NO supported field repairs for the Central Receive System.

Return the affected component for factory repair.

If you attempt field repair, you risk damaging your equipment. If your equipment is under warranty, you may also affect your warranty coverage.

1.10 Tell Us What You Think!

We would appreciate any comments or suggestions you have about this manual. The more feedback we get, the better the manuals get.

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Be sure to tell us the product you're writing about, and the title of the manual.

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2 *Installing Hardware and Cabling*

2.1 Chapter Overview

This chapter provides instructions for installing a Central Receive System at a customer site. This system can include components such as the TouchStar MC-17 Master Control System at the studio or command center and components such as the MRC CodeRunner 4 Central Receiver, MRX4000, and S750 Slave Controller at one or more central receive sites.

These instructions are written for technically-trained customer installers (that is, for those customers who have an IT staff or other technical personnel responsible for installing broadcast equipment) and for MRC Technical Services personnel who install such systems.

The following topics are discussed.

Topic	Page
Reviewing Customer Specifications	2-1
Unpacking the Components	2-1
Inspecting the Components	2-2
Reporting Any Damage	2-2
Preparing the Site	2-2
Installing Studio/Command Center Components	2-4
Testing the Antenna(s)	2-6
Installing Receive Sites Components	2-6

2.2 Reviewing Customer Specifications

Before installing any components, you, the customer, need to review several details so that the installation can proceed in a timely fashion. Use the following steps.

1. Verify with the MRC Inside Sales representative that all components for the customer order have been shipped.
2. Set up an installation date and resolve with MRC any open issues or questions about the customer order.
3. Verify that your site complies with all infrastructure requirements (such as power and communications lines).
4. If you require that Accepted Test Procedures must be performed, identify the procedures and the person who is to sign off the completed procedures.

2.3 Unpacking the Components

Each system is shipped after factory testing with all components ready to install at your site. Components are packaged in appropriate shipping containers.

Adhere to the following guidelines when unpacking your new equipment:

CAUTION *Verify that all packing material has been removed from each antenna.*

- Unpack the equipment carefully to avoid accidental damage.
- Be sure to locate all parts and accessories in each container.
- Verify that the items shipped agree with those listed on the packing list.
- **DO NOT** discard the container or packing material until you have inspected the equipment and are sure there is no

shipping damage. The container and packing must be available in case you need to file a damage claim with the shipping carrier.

2.4 Inspecting the Components

After unpacking the equipment, MRC recommends that you inspect all components and cabling using the following checklist:

- Check for any dents or scratches. If the equipment is dented or scratched, it may have suffered internal damage as well.
- Check that the equipment is clean and dry.
- Check that no cables or connectors are broken, damaged, or loose.
- Check that no switches or LED indicators are broken, damaged, or loose.

2.5 Reporting Any Damage

Should you discover any damage after unpacking the system, report the damage by following these steps:

- Immediately file a claim with the shipping carrier.
- Contact MRC Customer Service to determine the disposition of the equipment. See Chapter 1 for contact information.
- Forward a copy of the damage report to MRC Customer Service.

When contacting Customer Service, please have the following information available:

- Sales order number
- Model number and serial number of all damaged items

2.6 Preparing the Site

The following requirements make initial installation easier and allow room for future access and servicing. These requirements

focus on the equipment rack, ventilation, moisture, cabling, power supply, and grounding.

Equipment Rack

All components fasten to the mounting rails of a standard EIA 19-inch (48.3 cm) equipment rack.

CAUTION *Do not overload the rack or load it unevenly. Secure the rack to a solid surface.*

- Make certain that the rack and mounting rails are strong and rigid enough to support all the equipment in the rack.
- The rack should be securely attached to a solid surface such as a floor or wall to prevent movement or tipping over.
- Position the rack to allow easy access to the front and rear of the equipment. MRC recommends at least 18 inches (45.7 cm) clearance at the rear of the rack and at least 36 inches (91.4 cm) clearance in front of the rack.
- The cables at the rear of the rack should not be pressed against the rear of the equipment when closing doors. This can stress the cables and may shorten their life.

Ventilation

Heat generated from components in the rack needs to be ventilated. Proper ventilation is important for preventing excessive hot spots from developing within the rack and adversely affecting the components.

CAUTION *Temperatures inside a closed mounting area can be significantly higher than the ambient temperature. Always allow adequate ventilation.*

- If possible, install components in a climate-controlled area.

- Installation should allow adequate airflow around the equipment. Exhaust air from the rack should be circulated and mixed with room air, not trapped in a closed space.
- When mounting components in an enclosed rack, it is good practice to allow 1 RU (1.75 inches or 4.45 cm) of space between each component. You can fill those spaces with optional grillwork instead of blank panels.

Moisture

Locate the equipment in an area protected from dripping water or excessive humidity.

WARNING Indoor equipment is not designed to withstand water or moisture. If water does penetrate the chassis, it could cause equipment damage and/or create a safety hazard.

Cabling

MRC recommends the following general practices be performed at all installations.

- Secure all cables at close intervals along their entire lengths.
- Protect cabling with added sheathing or padding anywhere cabling passes through a hole or lies against an obstruction.
- Provide flex relief at any location where the cable must change direction sharply, to maintain a smooth bend and prevent kinking.
- Provide strain relief at each connector to absorb any pulling forces on the cable and prevent damage to the connector.

Power Supply

Check the onsite electrical supply to be sure it can provide all the power needed at the site without overloading. Power ratings for equipment can be found on a rating plate, usually on the rear panel. If necessary, consult a licensed electrician.

CAUTION *Be sure the power being supplied matches the power required by the equipment.*

CAUTION *Power supply cords and cables must be protected. Do not run cords where they can be stepped on. Protect cables against pinching and chafing. Pay special attention to locations where the cables enter or exit an enclosure or make a sharp bend.*

CAUTION *Ensure that the electrical supply is protected by overcurrent protection devices as required by the applicable electrical codes.*

Grounding

For safe operation, all equipment must be properly grounded.

- Connect all equipment on a rack to a common ground.
- Connect the common ground to a site ground.
- The ground wire should be as short as possible, and follow the straightest path possible.

CAUTION *Be sure the equipment grounding follows applicable electrical codes.*

CAUTION *Never modify a grounded power plug to connect to an ungrounded receptacle.*
