Microframe Corporation

Series 3051:
DigiLink DC Version

Operating Manual

B3051-7013

SERIES 3051
DIGILINK DC VERSION

INSTALLATION & SPECIFICATION GUIDE

ITEM NO: A3051-7013
REVISION DATE: 08/05

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Limited Warranty Agreement

Your Microframe System is warranted against failure due to defects in workmanship or material for a period of one (1) year from the date of purchase. Microframe Corporation will repair or replace any defective unit. Obvious abuse or mishandling of the unit is NOT covered by this warranty.

Merchandise Return

If your Unit does not work satisfactorily, please give us a call. We may be able to correct the problem by phone. If it becomes necessary to return your Unit to the factory, please observe the following:

1. Place Unit in a sturdy box with sufficient packing material.
2. If requested, include the power supply.
3. Return the system insured and prepaid since we are not responsible for shipping damages and losses on returned Units.

Warranty Service

For warranty service, please contact Microframe at 1-800-635-3811. A tech will gladly assist you.

Assistance

For any product assistance or maintenance help, contact Microframe by calling 1-800-635-3811 or emailing us at support@microframecorp.com.

Safety

Do not install substitute parts or perform any modification to the product without first contacting Microframe.

Warning

All power adapters, line cords, and electrical equipment should be kept out of the reach of children and away from water.

Life Support Policy

Microframe's products are not authorized for use as components in life support devices or systems without the express written approval of the president of Microframe Corporation. As used herein:

1. Life support devices or systems are defined as systems which support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user or anyone depending on the system.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system,

Disclaimer

We are constantly striving to improve our products. Due to this, specifications are subject to change without notice.

Microframe Corporation
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1-800-635-3811

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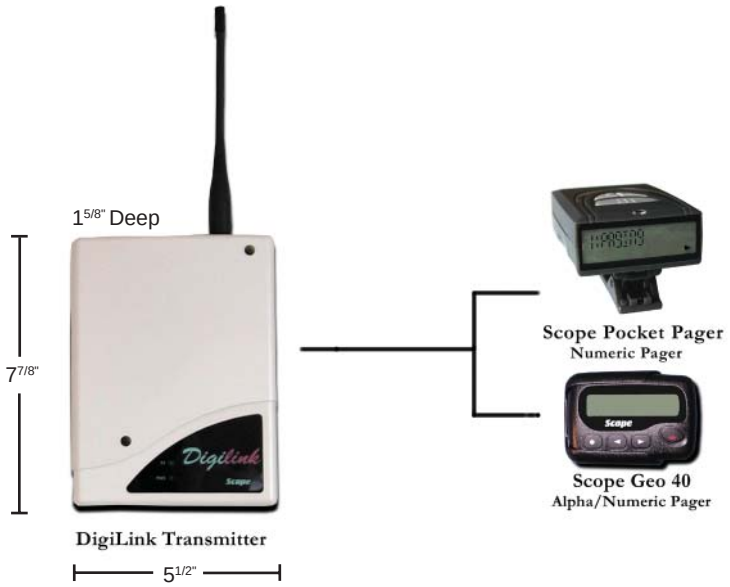
DIGILINK DC VERSION SPECS
On-Premise Paging

Features

The DigiLink offers powerful "on-premise" paging, ideal for security and remote sensing.

The DigiLink can be configured to accept "wet" or "dry" contacts as inputs. The 4-Zone DigiLink has four contact closure inputs. The 8-Zone DigiLink has eight contact closure inputs. Each contact closure input can be independently configured for "normally open," "normally closed" or "change of state" triggers. Upon trigger, the DigiLink will send the pre-defined message based upon the trigger to a pager. The DigiLink may be used to page numeric or alpha pagers.

DigiLink Transmitter



DigiLink Specifications

Temperature Range	0°C to 50°C or 32°F to 122°F
Frequency Range	450-470 MHz
TX Baud Rate	512 or 1200
Distance Range	1/4 to 1/2 Mile
FCC Approval No.	JRNUSASERILINK
Mounting	Wall Mounted
Operating Voltage	12 to 13.8V dc
Power Consumption	Less than 200 uA (microAmp) standby; 300 mA transmit
Channel Spacing	25 KHz or 12.5KHz
Ports	4 or 8 Dry Contact/Voltage Inputs (configurable Open Collector (siren) output: 1A max

Support and Sales
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Broken Arrow, OK 74013

1 INSTALLATION PROCEDURES

The information contained in this section is intended for use by authorized system installation engineers only. Unqualified personnel should not undertake installation of this equipment under any circumstances whatsoever.

1.1 PRECAUTIONS

1. Never install antennas near or adjacent to telephone, public address or data communication lines or overhead power cables.

2. Avoid, wherever possible, running antenna coax alongside other cables.

3. Avoid mounting the transmitter in the immediate vicinity of telephone exchanges or computer equipment.

4. Always use 50 ohm coaxial cable between the antenna and the transmitter. If cable runs exceed 5 meters, always use low loss 50 ohm cable such as RG213 or UR67.

Coaxial cable intended for TV, Satellite or CCTV installations is normally 75 OHM, and therefore totally unsuitable for any transmitter installation manufactured by Scope.

5. Also remember that the performance of the system will be affected by the type of material the unit is mounted on and its surroundings.

The following is a list of materials that this transmitter will be adversely affected by if mounted on or if mounted in close proximity to:

a) Foil back wallboard
b) Metal mesh or wire reinforced glass
c) Metal sheeting, large mirrors or suspended ceilings
d) Elevator shafts

All of the above can reflect radio waves and thereby reduce the capability of the transmitter to perform its desired functions.

6. The circuit boards within this equipment may be harmed by Electrostatic Discharge (ESD). Installers should avoid touching the circuitry wherever possible, and should ensure that adequate anti-static procedures are adhered to at all times.

7. ***Warning!*** Never transmit without an antenna attached to the transmitter.

8. ***Warning!*** Carefully check the **Installation** section in this manual covering terminal connections prior to installation. Damage caused by incorrect connection is the responsibility of the installer!

1.2 LOCATION OF HARDWARE

Before locating the hardware in any given location, it is important to take into account the range of operation that you require to obtain from your system. The standard transmitter can quite easily provide ranges of up to a mile or more and will provide excellent propagation on most industrial sites, covering a considerable area with just a BNC terminated quarter wave antenna connected directly to the unit.

For coverage of very large sites, or where exceptionally difficult operating conditions exist, it may be advantageous to install an external antenna. Installing the transmitter on the second or third floor of a building will more often than not boost overall range. However, horizontal range is not always required as much as propagation through a multi-story building. Here it may be more useful to use a small external antenna mounted outside the building at half the building height. Sometimes range is required more in one direction than in the other: moving the aerial to one side of the building can provide a bias in the required direction, which may overcome the range difficulties.

Important: Coaxial feeds which are longer than 5 meters (16.4 feet) must employ low loss 50 ohm coax. We normally do not recommend feeds of more than 15 meters (49.2 feet) for standard applications. However, we suggest you contact our technical department where other considerations may prove this to be impractical.

A further consideration that must be taken into account is the length and location of the dry contact cables. To avoid interference and possible false triggering, cable runs should be kept to a minimum (ideally less than 10 meters or 32.8 feet) and should be isolated from other cabling (i.e. mains, telecoms. PC

networks, etc).

1.3 INSTALLING THE TRANSMITTER

The following procedure must be adhered to when installing the DigiLink paging system. Ensure you have taken into consideration all of the above information before selecting the location for your transmitter. If in doubt, please contact Microframe Corporation.

1. Remove the cover from the DigiLink transmitter unit by unscrewing the two screws located at the top and bottom of the unit (see Diagram 1 on page 9).

2. Carefully lift off the cover and set aside.

3. The transmitter should be fixed to an even wall surface using suitable screws fitted through the three holes provided in the chassis plate. Hold the chassis up to the chosen location and with the aid of a pencil, mark the position of the mounting holes.

Warning: **Do not use the chassis plate as a template for drilling the holes into the wall. Hammer drills vibrating through the chassis may irreparably damage the quartz crystals on the printed circuit boards.**

4. Place the DigiLink transmitter over the mounting holes and secure the unit with suitable screws. Check that the chassis plate does not bend and that the screws do not snag or pinch any of the internal cables.

5. Connect the antenna to the unit via the BNC connector located at the top of the housing. If the antenna is an external antenna, or an antenna which is separate from the transmitter unit itself, ensure that the previous criteria covered under the section "Location of Hardware," has been strictly adhered to (also see section headed Other Antennas).

6. Connect the input cables to the zone terminals. Unless the unit has been specifically configured for voltage input, these should be simple “dry” (no voltage) contacts only (i.e. isolated switch or relay contacts).

If configured for voltage input (5-15V dc), the jumper link beside the relevant terminal must be positioned nearest the “V” symbol marked on the circuit board.

If in doubt, check with your dealer before proceeding; incorrect connection may cause permanent damage.

7. Connect the power input lead to the + and – terminals provided. Voltage must be 12 to 13.8V dc max.

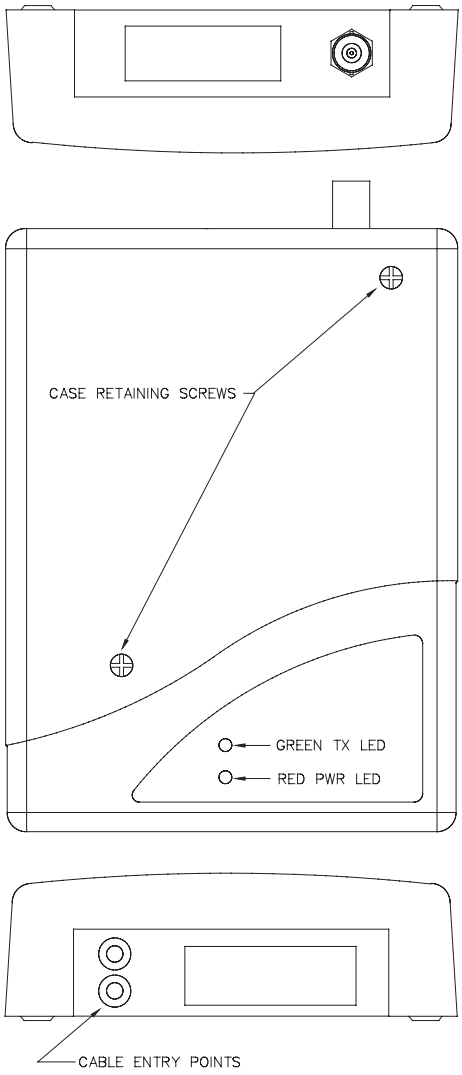
8. Replace the cover and refit the two retaining screws.

9. With power applied, the red power LED on the front face of the unit will blink continuously after automatic activation of zone 8. This indicates that the system is running and that the power source is good. The red LED will remain off during transmission repeat periods, or when the power source falls below 10.5V dc (low battery mode.)

10. The system is now active and will transmit the pre-programmed message for each of the zones when triggered. Repeat transmissions and other programmed parameters (e.g. battery low message) will be identified on the

The Transcoder PCB contains static sensitive components. Care should be taken to avoid contact wherever possible and anti-static precautions should be observed during installation.

Diagram 1:



2 OPERATION

2.1 POWER CONFIRMATION

Confirmation of power connection is by way of the red LED on the front face. This will remain off until a zone is triggered. The unit normally triggers once at power up. It will then blink continuously, except during transmission repeat periods or when the power source falls below 10.5V dc, when it will remain off.

2.2 TRANSMISSION

Confirmation of transmit is by way of the momentary green LED on the front face. This will light for approximately one second each time a transmission occurs.

When any zone is changed to its active state, the pre-programmed message for that zone will be transmitted to the pager(s). Repeat transmissions can be programmed at the factory for added security. These pre-defined messages will be detailed on the Configuration Data sheets provided with your system.

2.3 VOLTAGE INPUT

Where the system has been configured for voltage input:

volts present = an open input
no volts = a closed input

2.4 SIREN OUTPUT

The siren output is an “open collector” type switching to ground. It may be used to switch up to 24V dc @ 1A max.

Note: If it is used to switch a relay, a suitable diode must be connected across the relay coil (stripe toward the positive side of coil). If using a battery to power the unit, it should also be noted that use of a siren will severely shorten the battery life.

2.5 PROBLEM SOLVING

1. Check that the input cables are connected to the active zones. For a 4-zone unit, these are the lowermost terminal blocks on the main PCB.

2. Check the Configuration Data sheet supplied with the system to confirm the active (trigger) state of each input; i.e. Normally Open, Normally Closed or Change of State.

3. If your system has been configured for dry contact operation, ensure that no voltage is present on the input cables. Also check that cable runs are not excessive (preferably less than 10 meters or 32.8 feet) and are not in close proximity to other power cables and telephone lines.

4. Check that the pagers are at least 3 meters from the transmitter and antenna. Under certain conditions it is possible to flood the pager receivers and corrupt the data received.

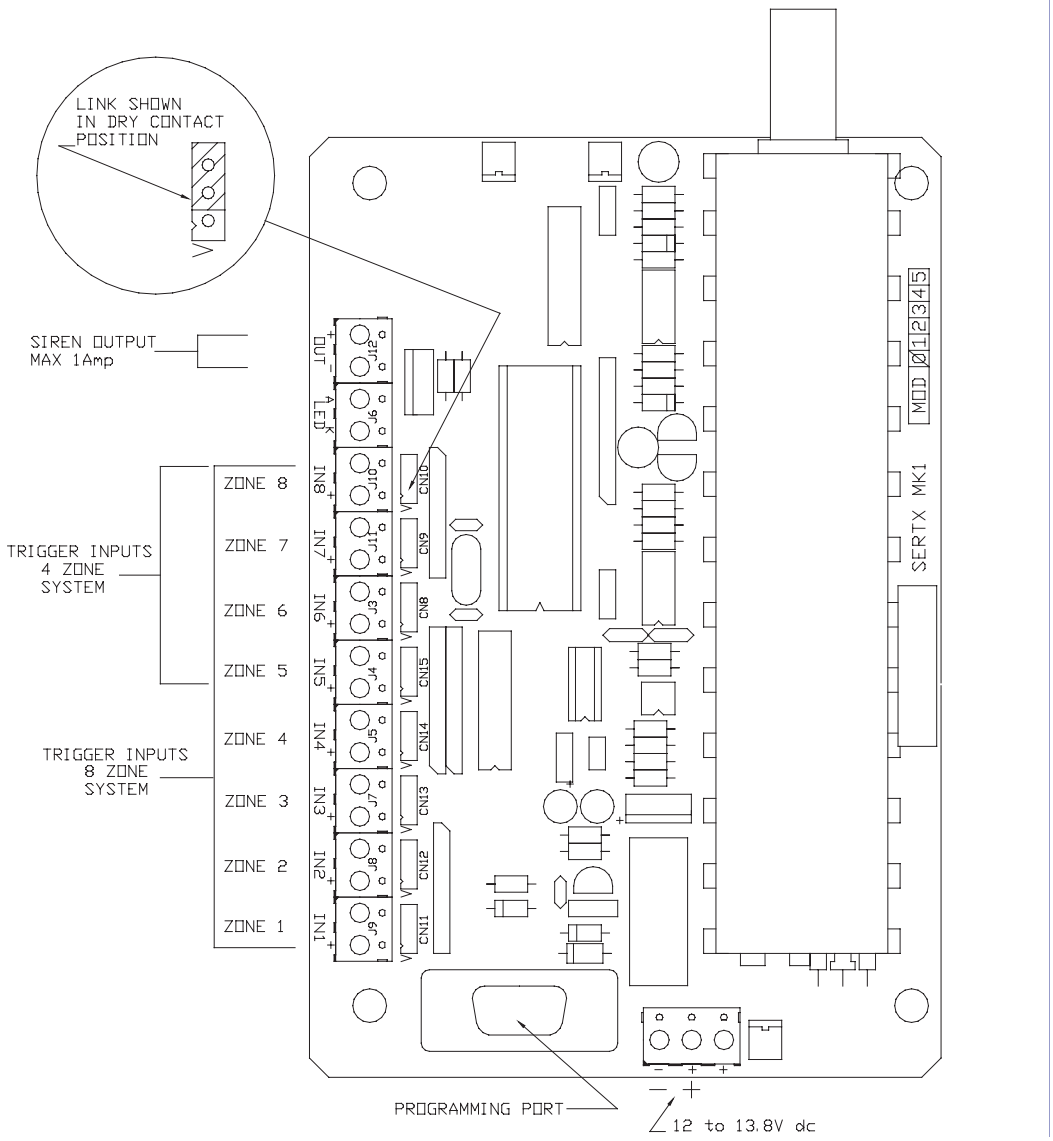
5. Check that the pagers have the battery installed with the correct polarity and are correctly powered up.

6. Check that the power source is the correct type (12 to 13.8V dc) and correctly wired to the terminals provided (see diagram page 11). After triggering any zone, the red LED should blink to indicate that the system is running.

7. Check that the green LED lights for the duration of the transmission. If not, go back to the cabling and re-check the terminal connections.

8. Check that the antenna is correctly installed.

Transcoder PCB: terminal connections



3 SYSTEM OVERVIEW

3.1 DESCRIPTION

The Scope Digilink DL4DCUSA & DL8DCUSA are DC powered (12 to 13.8V dc), programmable radio paging systems which can be used to transmit both text and numeric messages direct to pocket pagers carried by individuals or entire groups. The unit is supplied with either 4 or 8 inputs, which can be hardware configured to accept either dry contact (no voltage) or voltage (5-18V dc) triggers. Each input is pre-programmed as either N/O (Normally Open), N/C (Normally Closed) or C/S (Change of State). Triggering any of the inputs (zones) will result in a pre-programmed message being transmitted to the selected pager or group of pagers.

The unit can be programmed to repeat transmit (1, 2, 3 transmissions or until reset) if required. In addition, the trigger period can be defined (period for which the zone must remain in the active state before triggering). One input can be configured as a Reset to clear any current transmission cycles. This can also be used as an "Arm/Disarm" facility for the alarm inputs. Selected inputs can also be set to 24 hour (always armed) mode (for use as "Panic" buttons, etc.). Various other parameters can be programmed to suit specific user requirements.

The Programming Sheet accompanying your system will detail how all the various parameters have been set. It is vital that you retain this information in a safe place as you will need to quote the unit's serial number in the unlikely event that you experience any problems. You will also need this information should you wish to order more pagers. (These must be matched to the identity of your system.)

3.2 RANGE EXPANSION

The range and performance of this equipment can be improved by the addition of more efficient antennas.* These can be installed either inside or outside the building and are connected to the transmitter with 50 OHM coaxial cable.

The center-fed half wave dipole, measuring approximately 12 inches from tip to tip, will provide excellent all round local signalling. It is a light duty antenna suitable for sheltered environments/internal installation (LUHFDP). It includes a 15 foot cable.

NOTE: High frequencies can equate to high power losses. Always use quality cable. RG58 is only acceptable on cable runs of up to 5 meters. We recommend RG213, or equivalent, on greater lengths. If in doubt consult your dealer.

**Subject to license conditions. Specifically, mounting height and Effective Radiated Power (ERP).*

3.3 IMPORTANT INFORMATION

It is the purchaser's responsibility to determine the suitability of this equipment and its derivatives for any given application.

Good working practice dictates that a suitable system installation log must be generated, together with a record of the dates when the system has been manually checked, (with the aid of signal strength meters, etc.) enabling the system performance to be compared with the original installation data.

3.4 SAFETY INFORMATION

These products are designed to operate safely when installed and used according to general safety practices. The following requirements should be observed at all times:

Do NOT subject this equipment to:
Mechanical shock
Excessive humidity or moisture
Extremes of temperature
Corrosive liquids

This equipment is designed for indoor use, unless expressly stated otherwise, and must not be used in classified Hazardous Areas, including areas containing explosive or flammable vapors, unless express authorization has been given in writing by the manufacturer. If in doubt, consult Microframe for further information.

Do not obstruct any slots or openings in the product. These are provided for ventilation to ensure reliable operation of the product and to protect it from overheating.

3.5 CARING FOR YOUR TRANSMITTER

Only use a damp cloth for cleaning (not liquid or aerosol-based cleaners), and ensure that any power is removed from the unit prior to beginning the cleaning operation.

Removal of covers from the equipment must only be undertaken by authorized service personnel at Microframe, who must ensure that power is isolated prior to removal.

3.6 LIABILITY

Scope and Microframe do not accept liability for any damage or injury, caused as the result of misuse of this equipment. It is the responsibility of the user to ensure that the equipment is operated in the manner for which it was intended and that it is the correct item of equipment for the required task.

3.7 WARRANTY INVALIDATION

Alteration or modification to any part of this equipment, without the prior written consent of the manufacturer, will invalidate all manufacturer approvals and warranties. No adjustments can be undertaken except by qualified and licensed persons as defined by the FCC Rules and Regulations. Operation of altered equipment can result in fines, imprisonment, and/or confiscation of such equipment.

3.8 SERVICE INFORMATION

If you experience a problem with your equipment, please contact Microframe at 1-800-635-3811.

4 POCKET PAGER USER GUIDE

4.1 TURNING ON THE PAGER

Hold down the “LARGE GRAY BUTTON” until the pager comes on.

4.2 RECEIVING A PAGE

The Pocket Pager will start to vibrate or tone when it is paged. No action is necessary on the receiving end at this point. The pager will stop paging after approximately eight seconds. If the user would like to stop the vibration before the eight seconds, simply press the “LARGE GRAY BUTTON.” If a numeric message is sent to the pager, the message will be visible on the pager screen until the pager stops vibrating. To view the message after the pager has stopped vibrating, press the “LARGE GRAY BUTTON” once.

4.3 MANUAL PAGER TURN-OFF

Press the “DOWN ARROW BUTTON” four times. The words “PGR OFF” will appear on the LCD screen. Press the “LARGE GRAY BUTTON” once to confirm.

4.4 POWER CHECKING

When the battery level is low, a low-battery symbol will appear at the bottom of the pager screen.

4.5 LIGHTING FUNCTION

Pressing the “UP ARROW BUTTON” for two seconds can turn on the backlight on the LCD screen. The light will shut off automatically after approximately 10 seconds, or the user may turn the light off manually by pressing the “UP ARROW BUTTON” once.

4.6 CAUTION

a) The pager is made up of LCD and precision elements. Avoid water and high temperature.

b) Remove the battery if the pager will not be in use for a long period of time.

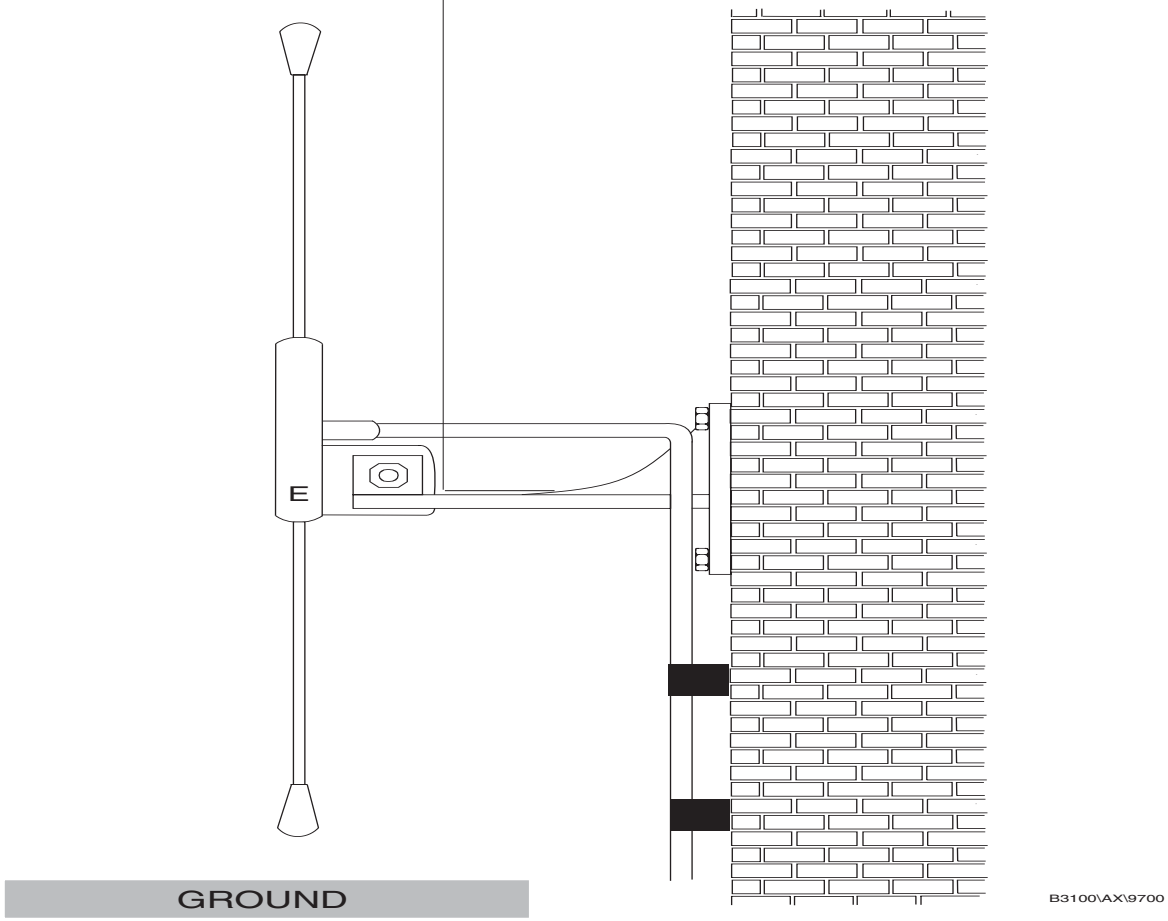
MINI DIPOLE ANTENNA MOUNTING
Optional Range Extender

For optimum operation, the dipole radiators must be positioned **vertically**, with the "E" symbol facing downwards toward the ground.

Avoid mounting the dipole on or near to any metal girders, pilars or other metallic obstructions.

The dipole should preferably be mounted at a height which avoids potential snagging with any moveable objects that might be used in the vicinity, e.g. ladders.

Ensure that the bracket is firmly bolted to a solid surface and that the feeder cable is adequately clamped along the entire run between the dipole and the transmitter/receiver.



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