



3. Functional Description

The Remote Controls communicate by radio signals with a base unit installed on the designated equipment.

The same radio channel must be ө chosen for the remote terminal as for the Base Unit. Please refer to last page for settings

3.1 Operating Range

The operating range is approximately 200m. "No Link" is shown in the display if the remote terminal is moving out of range or interference is detected.

4. System Setup

Menu Page

1) System ID

2) System

(SUC)

Unlock Code

4) PIN Code

5) Timeout

6) Selectors

7) Feedback

8) Extended

9) Save Edit

5.1 Start

5. Operation

digit.

up/down.

3) Press S1 start/horn.

setup

3) Radio Channel

To enter the settings menu press and hold selector S4 while pulling up emergency stop pushbutton:

Edit

Edit

Edit

4711

0-9999

0.XXXX-XXXX0

3. initially ON

off interlock

Description/Option

Unique 5 digit code eg. 54321

0=frequency from setup file

found at base unit Menu Page 141.

Channel 1-29 (434.075-434.775), Auto or

Inactivity timeout 0-99 minutes or OFF.

8 digit Code needed to make changes eg. 87654321,

PIN Code between 0000 and 9999 or set to NONE

0: toggle, 1: with interlock, 2: with one off interlock,

4: initially ON with interlock, 5: initially ON with one

6: LED off, 7: LED on, 8: Start lock, 9: fixed ON

NONE/Bar Graph/Numerical/Message/Image

Off/On/Quick (Bypassing Start pushbutton)

Set code to 4711 to return to factory default

YES/NO to exit with or without saving edit

Normal/Select/Release (system with 1 terminal, 1+

Configure functionality via base unit and terminal

Wireless Terminal Setup from base unit (YES starts

AaB019Zz (upto 8 characters)

terminal, any matching)

searching then saving)

displays (Save Edit in Base unit)

- Menu Page 1) System ID is then shown. a)
- Press F5 or F6 to scroll through screens. b)
- c) Press F3 or F4 to move the cursor.
- Press F1 or F2 to change the character d)

Sub Page

60) S2

61) S3

62) S4

70) Feedback Type

72) Decimal Point

73) Text Message

71) Maximum

80) Extended

code 81) Auto Start

82) Link Mode

Configuration

mode

85) Factory Reset

Access

83) Base

84) Setup

download

2) Enter 4 digit PIN code if requested.

b) Push F3 or F4 to change digit

L1 LED light flashes green.

a) Push F1 or F2 to select the input

To enter the pin code:

- e) Correct SUC (System Unlock Code) is needed to edit settings
- f) Edit can be saved or discarded at Menu Page 9)

3.2 Signal Encoding

Unique encoding of the radio signal prevents unintentional operation caused by interference from other radio systems.

3.3 Feedback

If connected the operator can read machine information on the display. This is information sent to the operator terminal to indicate % of load, rpm, torque, speed, etc. Refer to Base Unit Manual for details on how to set up this function.

5.4 Batteries

The battery level is shown on the display. When approximately 30 minutes operation time is remaining a warning will be shown and the LED light over the S1 start/horn will flash red.

5.5 Replacing the batteries

1) Turn the system off.

2) Undo the 1/4 turn fastening screw on the back of the unit and open the battery cover.



3) Replace the batteries.



4) Refit the battery cover and turn the fastening screw 1/4 turn clockwise.

5.6 Charging the batteries

The MC-2-3 and MC-2-5 are supplied with 4 AA rechargeable NiMH batteries and a battery charger.

- Risk of electric shock if used incorrectly.
- Do not use the device if it appears to be damaged. V
- V For indoor use only. Keep away from humidity and heat.
- 1) Insert the batteries with the polarity as labelled. Use only AA NiMH rechargeable batteries.



2) Connect the charger to a power outlet. 3) The charging starts and status is shown on the display.



Charging times:

Battery Type	Battery Capacity	Charging Time
AA NiMH	1500 mAh	1,8 h
AA NiMH	2300 mAh	2,8 h

6. Main Data	MC-2-5	MC-2-3	
Dimensions	L: 276 mm W:74 mm H:70 mm	L: 232 mm W:74 mm H:70 mm	
Weight	Approximately 450 g with batteries	Approximately 350 g with batteries	
IP Class	IP66 excluding battery compartment		
Temperature	-25°C to 70°C, or 13F to + 158F operating and storage		
Radio Frequency	Auto/Selectable Channel, 433-434MHz		
Radio Power	< 10mW		
Operating Range	Up to 200 m		
Batteries	2 AA rechargeable NiMH or 2 AA Alkaline non-rechargeable		
Operating Time	Up to 30 hours continuous operation with fully charged batteries		

7. Maintenance

No maintenance is required. The unit should be inspected for damage and cleaned regularly to ensure the labelling can be read. EN 301 489 EMC a) Spare/Replacement. Spare or replacement MC-2-3 or

- Every effort has been made to ensure that the information in this document
- is complete, accurate, and up-todate. The manufacturer assumes no responsibility for the results of errors beyond its control.
- While all reasonable efforts have ø been made to make this document as accurate and helpful as possible, Cavotec Micro-control makes no warranty of any kind, expressed or implied, as to the accuracy or completeness of the information contained herein.

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5.2 Stop and Emergency Stop

1) Press the Emergency Stop button. The display shows "Stop!" for a short time and the L1 LED light flashes red

5.3 Time Out

If the system is not used for a while it will go to power save mode to conserve the battery. Time Out can be adjusted from 0-99 minutes or turned off.

To switch OFF: 1) Release the Emergency Stop button by pulling or twisting it.

once.

- number and ID from the item being replaced, or on the base unit.
- b) Dispose of electronic products according to local rules. ø

MC-2-5 shall be ordered using the serial Equipment.

8. Safety Compliances

EU R&TTE Directive EN 300 220 Radio EN 954-1 Emergency Stop cat 4 EN 60950 Safety of IT and Electrical This device may not cause and it must accept interference. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Instruction Manual







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- 1. Introduction
- 2. Functional Description
- 3. Installation
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- 5. Main Data
- 6. Maintenance
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Cavotec Micro-control AS ø reserves the right to make improvements and/or changes in the products and/or specifications described in this information at any time without notice.

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Safety Notes

- Inspect the MC-IRX-LITE before 롕 using it.
- Check for any damage that may ø be incurred during shipping.
- Do not use the device if it apears
- to be damaged. Do not subject to high impacts.
- Do not subject to high
- V temperatures.
- Do not immerse in water.
- VOLTAGE IS CORRECT.

BE CARRIED OUT BY QUALIFIED PERSONNEL/ELECTRICIAN.

1. Introduction

The MC-IRX-LITE is a Base Unit for Cavotec Micro-control radio operator terminal that is designed for use in industrial environments to control machinery such as overhead cranes, hoists, winches, recovery vehicles, concrete pumps, sludge trucks etc.

1.1 Marking





The product label is located on the short end side of the enclosure, and contains the essential data for the specific system. Please refer to these data in cases of service or other enquiries.

2. Functional Description

The MC-IRX-LITE Base Unit is installed on the designated equipment and is controlled by radio signals from the radio operator terminal.

The same radio channel must be chosen for the operator terminal as for the ø Base Unit.

Please refer to section 4.4 for settings.



Distance for signal from operator terminal to base unit.

2.1 Operating Range

The operating range is approximately 200 m. A "NO LINK"-warning is shown in the display of the MC-2-3/MC-2-5 if the operator terminal is moved out of range or interference is detected.

2.2 Signal Encoding

A five-digit System ID ensures a unique encoding of the radio signal. This prevents unintentional operation caused by interference from other radio systems.

2.3 Feedback

The MC-IRX-LITE can register machine information and shows % of load, rpm, torque, speed, etc. This information can be read by the operator on the display of the operator terminal.

- 3. Installation
- INSTALLATION SHOULD ONLY BE CARRIED OUT BY QUALIFIED PERSONNEL / ELECTRICIAN.
- ENSURE THAT THE SUPPLY VOLTAGE IS CORRECT
- Consider the ambient temperature and IP rating.
- If the installation is subject to e) harsh vibrations, use isolating mountings available from Cavotec Micro-control AS.

3.1 Installing the MC-IRX-LITE

1) Fasten the base unit onto a suitable part of the equipment using M6 bolts or similar fastenings, in holes according to template.

107 û UP û 88

Drilling template (Dimensions in millimeters)

- a) Install, if possible, in direct line of sight with the operator.
- b) Ensure that the base unit is installed where it will not be conflicting with moving parts in operation.
- 2) Reserve space around the unit to ensure easy removal of the lid and easy access to the connectors and buttons in the base unit.
- 3) Do NOT mount the base-unit inside a metal housing!

Ъ, Menu button F Enter SW2: à Menu button / Select SW1: SW3: Menu function selector

RS232 P1:

Display

LCD1:

Figure 3.



3.2 Connections



2) Power-supply connection:



2) Emergency stop relays connection (J5):



3) NO relays connection (J8):

4) CO (Change Over) relays connection (J9):

5) Analogue input connection (J7): See figure 3.2

<pre>4. Settings 4.1 Display At start up one of the following screens appears: Base Unit display when the operator terminal is not switched on: 2-3 r x 1 Idle 02:01:20 Base Unit display when the operator terminal is switched on: 1 7 Online 00:09:05 Communication At the terminal is are operating. 4.4 Configure Menu</pre>			 4.2 Controls The Settings Menu are operated with one rotary selecting switch and two buttons (A and B). Selecting switch Selecting switch Confirm Beturn (rotary) 4.3 The Settings Menu Push the button A to enter the settings menu. Push the rotary switch to select the setting. Push button A to confirm the choice. To edit a parameter value, press and hold button A while turning the rotary switch. Release button A to confirm the value. To go back one level to the top menu, push the button B (return) 		
Menu	Page	Sub Page		Description/Option	
1) System	10) Signal Strength 11) Signal Quality 12) Radio Frequency 13) Data view	130-138)	Ana.	Information Only Information Only Information Only Shows switch, input and relay	
		input- Relay 25-32 140) System ID 141) SUC 150-159) Mes- sages 1-10		status 0-65535 (factory set) System Unlock Code Last 10 events during system operation	
2) Configure	20) Radio chan 21) Program 22) Save Edit 23) Discard Edit 24) Extend Code			0=AUTO, 1-29 radio channel Program 1, 3 relay per motion with common 2nd relay with interlock Program 2, 4 relay per motion with interlock Program 3, Seperate relay for each step no interlock Hold in button A, turn selector for 0 or 1, release button Hold in button A, turn selector for 0 or 1, release button Enter code 4711 press button B and turn selector for 3) Extended Menu.	
3) Extended (see 24)	 30) Unit Mode 31) Auto Start 32) Interlock (learn mode) 33) Toggle (learn mode) 34) Relays (learn mode) 35) Ext.Relays (learn mode) 36) Save Edit 37) Discard Edit 38) F. Reset Code 	Select: 340-34F) 1-16 350) Ext.R.Ena 351- 35G lays 17-32	Relays ble) Re- 2	0-basic mode, terminal is MC-2-3 1-learn mode, MC-2-3. Set termi- nal in Base Cfg Mode 2-learn mode, MC-2-5. Set termi- nal in Base Cfg Mode 3-setup file mode Enable start without start pushbut- ton "Check machine safety" Enable and disable function button interlocks Enable and disable function button toggle Program pushbutton keys activat- ing relays 1-16 Extended Relay Enable, 0=No, 1=Yes Program pushbutton keys activat- ing relays 17-32 Save Edit, 0=No, 1=Yes Discard Edit, 0=No, 1=Yes Enter code 4711	

39) Fact. Reset

- nold ch.

Factory Reset 0=No, 1=Yes

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5. Main Data

Dimensions	L: 327,2 mm W:181,5 mm H:114,3 mm		
Weight	1600 g		
IP Class	IP65		
Temperature	-25°C to +70°C or 13°F to +158°F		
Radio Frequency	Auto/Selectable Channel, 433-434MHz		
Radio Power	< 10mW		
Operating Range	Up to 200 m from operator terminal		
Power Supply	85-260 VAC, 50/60 Hz 10-30 VDC Automotive		
Inputs	0-10V Analogue		
Outputs	Dual redundant Emergency Stop Relay 5A 12 NO Relay 5A 4 Changeover Relays 5A		

6. Maintenance

No maintenance is required.

7. Conformity and Approvals

EU R&TTE Directive.

EN 300 220 Radio

EN 301 489 EMC.

EN 954-1 Emergency Stop cat 4.

EN 60950 Safety of IT and Electrical Equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.