WISYCOM
VOX INFRAGILIS

MCR54 User Manual

Multi-band

Quad True Diversity

Camera Receiver

rev.6 (reference FW 1.3)

Date: 16 September 2020

SAFETY INSTRUCTION

- Read this safety instruction and the manual first
- Follow all instructions and information.
- Do not lose this manual.
- Do not use this apparatus under the rain or near the water.
- Do not install the apparatus near heaters or in hot environments, do not use outside the operating temperature range.
- Do not open the apparatus, only qualified service technicians are authorized to operate on it. The apparatus needs servicing when it is not properly working or is damaged by liquids, moisture or other objects are fallen in the apparatus.
- Use only accessories or replacement parts authorized or specified by the manufacturer.
- Clean the apparatus only with dry cloths, do not use liquids.
- Report the serial number and the purchasing date in front of the manual. It is needed to have proper replacement parts or accessories from the manufacturer.
- When replacement parts are needed, use only replacement parts authorized from the manufacturer. Substitution with not authorized parts could result in electric shock, hazards or fire.
- Keep attention on all the labels with warnings or hazards on the apparatus.

WARNING: The apparatus is intended for professional use; the manufacturer alerts the user that the headphone output power of the apparatus could exceed the level of 85 dB(A) of sound pressure level and this could be dangerous for the hearings. Do not use the headphone with high power level or for long time. Reduce the power or suspend the hearing in case of any kind of hearing problem.

MAIN FEATURES

MCR54 is a camera mount quad true diversity wireless-microphone receiver system in a modular stand-alone or slot-in configuration (compatible with most camera's slot):

- Wideband just isn't enough anymore! Upgrade to a Multi-Band system with up 790 MHz tuning range to find your frequency, anywhere in the World.
- With the combination of Narrowband Modulation (High Density) and Linear transmitters, set your channels every 200kHz without intermodulation distortion and get an extra 3dB sensitivity.
- With eight internal receiver boards, the MCR54 boasts an unprecedented capacity for range and reliability.
- DSP delivers ENC and ENR algorithms for perfect audio in any application with less than 1ms delay –Create and shape presets for the desired sound. This enables the use of third-party transmitters with Wisycom receivers
- Modular configurations for stand-alone or slot-in formats in many Cameras or Audio Devices
- Monitor & control through USB C or Bluetooth 5 (long range) on Wisycom Manager 2.2 (computer SW)
- High contrast OLED display and 4 buttons enable quick manual setup
- DSP Analog & Digital Audio Output (AES3)
- Extreme low noise VCO with ultrafast spectrum scan for optimal quick & easy setup
- Wisycom exclusive digital sub-carrier telemetry technology enables:
    - remote TX battery monitoring
    - advanced tone-squelch operating
    - Push-to-talk function (via optional back-panel module):
      Simply pushing this button (PTT), the presenter causes the remote switching of the receiver's output-line, from the "main line" to the additional "intercom line", in order to be able to talk "off-air" directly with the technical team. Then all PTT's MICs can be connected in pre-fading allowing a clever intercom setup.
- Rear antenna connectors and micro audio and power adapter
- 40 groups of 60 channels fully user programmable (2400 frequencies)

TECHNICAL DESCRIPTION

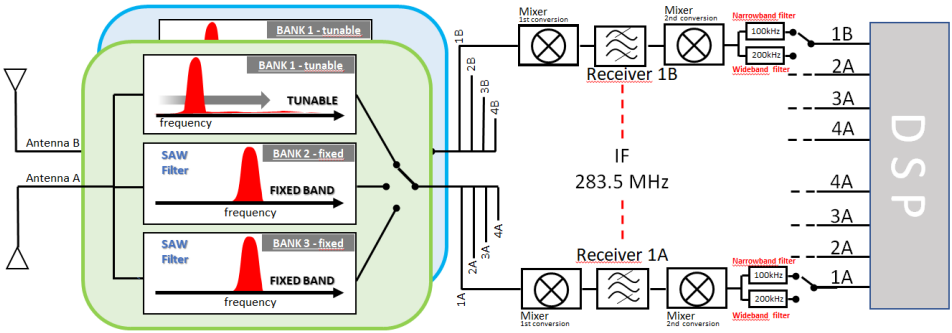
The MCR54 is a professional quad true diversity receiver for wireless microphones reception designed for broadcast television production, live performances, theatres and many other professional applications.

The winning features:

- High immunity on strong RF environment
- Massive switching bandwidth
- Dynamic audio performances and flexibility with analog or digital processors
- Unprecedented reliability and durability

One of the milestones in the design of the MCR54 is unprecedented reliability: most of the circuitry of the receiver is independent one from each other. Above a schematic with an overview of main receiver functions.

RF layout:



For each antenna the RF signal is split in 4 to receiver 1,2,3 and 4 (antenna A and antenna B) with a wide band splitter. Then 3 banks of filters are selected according to the frequency of the 4 receivers:

	MCR54-B1 (UK)	MCR54-B2 (USA/EU)	MCR54-B3 (JP)
FILTER BANK 1:	470-800MHz Tuneable filter with 32MHz of bandwidth		
FILTER BANK 2:	961-1000 MHz	823-832 MHz	806-810 MHz
FILTER BANK 3:	1045-1075 MHz	940-960 MHz	1240-1260 MHz

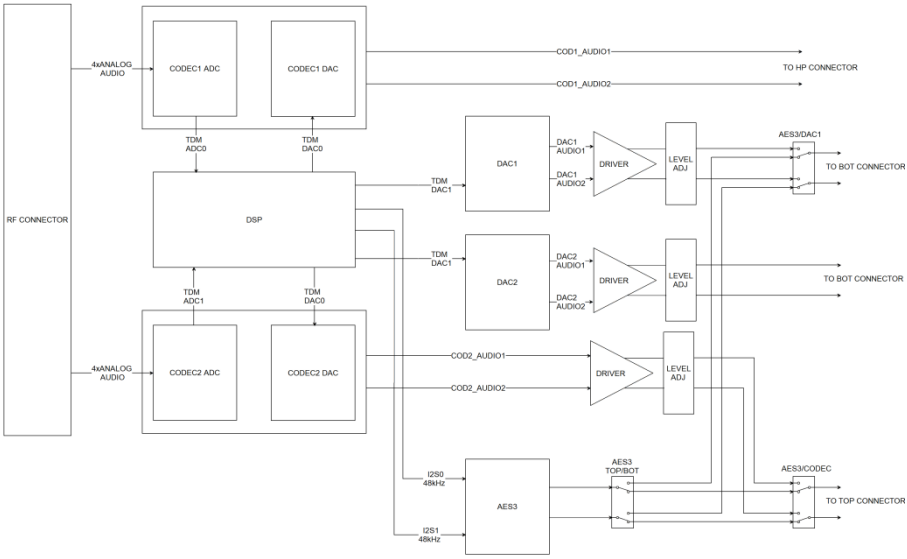
NOTE: the tuning frequencies of all the 4 receivers has to be in the same bank of filter!

All the 4 receivers are true diversity receivers: each one is made of two receivers tuned on the same frequency. Subsequently the selection of the band filter between 100 kHz or 200kHz allows to work with Narrowband (High Density) or Wideband transmitters respectively.

Each receiver has its own demodulated signal and its own RSSI signal (Receiver Signal Strength Indication); RF squelch used measurement of RSSI level for antenna diversity and for audio enabling. In addition to the RSSI level, each receiver measures the Channel Quality. It is a more powerful tool than RF squelch because it actually looks at the quality of the signal from the TX relative to the noise floor on the channel which can vary over time. With the noise squelch set to on you can set the RF squelch to a much lower level.

A DSP **selects** or **combines** signals from section A & B to have the best audio.

Audio Layout



As shown on the above schematic, MCR54 provides the following audio signals:

- HP [HEADPHONE]: an analog monitor audio output to headphone 3.5mm jack socket. Thanks to the "Setup>Headphone" menu the user can select which of the 4 receivers he wants to listen to and can adjust the volume from 0 to -24 step 1dB.
- BOT [MAIN]: 4 audio signal streams come out in the connector on the bottom and depending on the plugged slot-in can be configured according to the following table:

		Slot in (SLK54-IK/SX)		**BASE outputs (on BPA54)**			
		CH1	**CH2**	**CH1**	**CH2**	**CH3**	**CH4**
AES3 en.	**None**	An [RXi]	An [RXi]	An [RX1]	An [RX2]	An [RX3]	An [RX4]
	AUX	An [RXi]	An [RXi]	An [RX1]	An [RX2]	An [RX3]	An [RX4]
	MAIN (Base outputs)	AES** [RX1+RX2]	AES** [RX3+RX4]	AES [RX1+RX2]	AES [RX3+RX4]	-	-

- TOP [AUX]: 2 audio signal streams come out in the TA5 top feed connector and can be configured in digital (enabling AES3 on AUX outputs) or in analog

		AUX (on TOP FEED)	
		CH1	**CH2**
AES3 en.	**None**	An [RXi]	An [RXi]
	AUX	AES [RX1+RX2]	AES [RX3+RX4]
	MAIN (Base outputs)	An [RXi]	An [RXi]

Product overview

1 SMA antenna connectors

2 Mini XLR 5-pin connector
2 channels analog audio outputs electronically balanced or
4 channels digital audio outputs (AES3)

1 GND
2 CHANNEL1+
3 CHANNEL1-
4 CHANNEL2+
5 CHANNEL2-

3 LED power supply

GREEN	*The receiver is on with an external power supply*
PALE GREEN	*The receiver is on with battery*
GREEN BLINKING	*The external power is low*
PALE GREEN BLINKING	*The power of the battery is low*
RED BLINKING	*Relative transmitter battery is low:* *- slowly blinking if 25% lifetime* *- quickly blinking if 12% lifetime*

4 Led Bleutooth BLUE

5 DISPLAY 128 x 96 pixels

6 LED receiver status

OFF	*Relative receiver is not active*
RED	*RF level below squelch and/or Noise squelch on both diversity receivers*
RED BLINK	*frequency is out of filter (32MHz) see* *NOTE page 3*
GREEN	*RF level above squelch and/or Noise squelch and receiver A is active (ANTENNA A)*
BLUE	*RF level above squelch and/or Noise squelch and receiver B is active (ANTENNA B)*

7 Headphone output (jack 3.5 mm)

8 "PWR/EXIT" BUTTON
Push and keep this button to power on/off the receiver. The on/off status is permanently memorized into the non-volatile memory, this way the system can be setup to automatically turn on the receiver when power up.
During menu navigation push this button to exit from current menu (escape function).

9 "MENU/SEL" BUTTON
Push this button to navigate function menu's and to confirm the chosen setup.

10 "Arrow down/SCAN" BUTTON
Push and keep this button to start the automatic scan.
During menu navigation push this button to move-down and select the previous item.

11 "Arrow up/SYNC" BUTTON
Push and keep this button to start a synchronization with a Wisycom transmitter (follow instructions on display). Before starting synchronization IRDA must be enabled on Wisycom transmitter.
During menu navigation push this button to move -up and select the previous item.

Display menu

Using navigation buttons it is possible to quick & easy navigate through the menu:
- SEL/Exit to enter or exit a level
- Arrow up/down to circle on the same level
- To save the modified parameters press and hold the SEL /MENU button 9 until appears the message "SAVED!".

Status screen

WARNING!
RX Number and Rx red LED blink if frequency is out of filter (32MHz)
see NOTE page 3

Tree menu

Main	**Preset**	**Active**	
		Load	U01-Preset1/U02-Preset2/U03-Preset3…. U16-Preset16
		Save	U01-Preset1/U02-Preset2/U03-Preset3…. U16-Preset16
		Factory	
	Setup		
	Info		Supply/ Model / Serial / Range / Base / HW/ FW / Diagnostic / Alarms
	Bluetooth	**Pwr on**	No/Yes

Infrared:

By activating the infrared, you can connect the MCR54 to other devices (such as Wisycom Transmitter MTP40S/MTP41S/MTH410/MTB40S o the programmer UPKmini)

Preset:

The preset menu has the following two submenus:

- **Act**: that allows to verify the active preset
- **Load**: that allows to reload up to 16 Preset
- **Save**: that allows to save up to 16 Presets

Setup:

Select Setup menu to access to the main parameters setting.

Info

In the info menu the following information are displayed:

Info		description	example
Supply		Supply voltage measured (on the rear connector)	*12.0Volt*
Model		MCR54	*MCR54*
Serial		The serial number composed by 1 letter+7 numbers	*X3536539*
Range		Frequency range according to the MCR54 band (minimum and maximum frequency)	*470--960*
Base		Version of rear panel: BPA54 SLK 54-SX SLK 54-IK	BPA54
HW	**Country**	Country code	*EU*
	Main rev.	Hardware revision of the main board	*1*
	Main opt.	Option of the main board	-
	RF rev.	Hardware revision of the RF board	*2*
	RF opt.	Option of the RF board	-
	Panel rev.	Hardware revision of the panel board	*1*
	Panel opt.	Option of the panel board	-
	Base rev.	Hardware revision of the Base (rear panel)	*0*
	Base opt.	Option of the Base (rear panel)	-
FW	**Version:**	FW version	*v2.0.5*
	BL:	Bootloader version	*v.1.0.18*
	App:	Application version	*v2.5d*
	DSP:	DSP version	*v0.0.55r*
Diagnostic			
Alarms		Number of alarms. If the number of alarms is > 0 push SEL button to enter or the Alarms list. For each error a brief description and the error code is showed.	*0*

Setup Menu

Active RXs		RX1 RX2 RX3 RX4		
Edit RX1/RX2/RX3/RX4	**Name**	"8 characters max"		
	Frequency	Group / Channel and Frequency selection		
	Ch. Modulation	Wide/Narrow (HD)		
	Compander	ENR Wis/ENC Wis…		
	Sq. mode	OFF/Long Range/Normal/User		
	Audio Out	LINE level		
		AES3 level		
		Sign. Phase		
		Cal. Tone	Cal Tone	OFF/ON
			Frequency	400/600/1000 Hz
			Level	-30 to 0 dB (1 dB step)
	Sync			
Scan	**Scan now**	Channel/Freq		
	Scan squelch	OFF- 0/3/6/9/12/15/18/21/24/28/32/36/40/46 dBµV		
	Scan BNT	Channel/Freq		
	View last			
Headphones	**Volume**	0/-24 step 1dB		
	RX sel	RX1/RX2/RX3/RX4		
Display	**LED mode**	Full/Alarm/OFF		
	Brightness	0/5		
	Low Timeout	5/60 sec (step 5 sec)		
	OFF Timeout	10/120 sec (step 10 sec) / OFF		
Adv. Audio	**AES3 enabled**	None/MAIN/AUX		
	AUX1	RX1/RX2/RX3/RX4		
	AUX2	RX1/RX2/RX3/RX4		
	AUX1 level	18dBu/-24dBu step 1dB		
	AUX2 level	18dBu/-24dBu step 1dB		
Signalling	**Audio off**	RX1 RX2 RX3 RX4	*visible only with SLK54-IKSS*	
	TX Batt.	RX1 RX2 RX3 RX4		
Act. Code				
Panel locked		No/Yes		

Power on

Allow to enable/disable each single receivers:

Edit RX (same menu for each of the 4 receivers)

Edit RX: Name

Selecting Name, it's possible to edit the name of the receiver (12 characters). The number of visible characters depends on the type of characters used (uppercase or lowercase characters).

Edit RX: Frequency

Select current group and channel. If the specific group/channel is not locked, frequency can be edited in this menu.

Edit RX: Channel modulation

Narrowband or Wideband software selectable according to transmitter modulation.

NOTE: During the SYNC process the receiver sends the type of modulation (NB or WB) and the TX adapts automatically to the receiver's modulation settings accordingly.

Edit RX: Compander

MCR54 supports 5 different type of "Compander systems" (others on request through Digicom)

ENS: designed for voice and music applications

ENR-Wisy: designed for maximum noise reduction. Ideal for use in louder environments.

ENC-Wisy: designed for maximum audio fidelity (use this in case of special vocal application or to remote instruments). Ideal for use in quite environments.

ENR-1.2*/ENC-1.2*: to use with some type of camera (ex. Canon® C300, Canon® XF305, Sony® Pmw200, Sony® Pmw300, Sony® PmwF5, Sony® Fs7, Nikon® D600 or Nikon® D800, Canon® SD mark3...) which accept a signal with reduced dynamic. This type of expansion doesn't add artifacts to the signal and allows to have a less noisy signal. It allows to improve the quality of the audio registration (compared to the ENR/ENC standard) increasing the S/N ratio up to 15dB.

To use these expanders, it's necessary to set ENR on the transmitter and ENR 1.2 on the receiver or set ENC on the transmitter and ENC 1.2 on the receiver.

ENR-1.2 it's used for the optimization of noise, ENC-1.2 it's used to optimize the voice.

NOTE: The compander of the receiver must be the same as the transmitter

MCR54 core is a power digital audio processor that, besides an unbeatable audio quality and flexibility, can emulate most expanders systems on the market. On this menu you can setup the

audio expanding chipset emulation. ENR is emulating the Philips™ SA572 and PTT digital data of Wisycom transmitters. Other setups can be loaded on request.

Edit RX: Sq. Mode

Squelch Mode is available in 3 possible configurations: Normal, Long Range or OFF.
Relevant setup are summarized in the following table:

	FIXED PARAMETERS				
	RF squelch [dBµV]	**Noise Squelch [dB]**	**Squelch ON delay [ms]**	**Tone squelch**	**TSQ delay [ms]**
Normal	6	11	0	ON	500
Long Range	3	8	0	OFF	500
OFF	OFF	0	0	OFF	500

NOTE: For expert users, there is an 4th configuration named User which allows to modify each single parameter using the Wisycom Manager.

	VARIABILE PARAMETERS				
	RF squelch [dBµV]	**Noise Squelch [dB]**	**Squelch ON delay [ms]**	**Tone squelch**	**TSQ delay [ms]**
User	OFF/0/3/6… /46	From 0 to 30	0 to 2000	ON/OFF	0 to 2000

RF Squelch
RF squelch is a function that acts to suppress the audio output of a receiver in the absence of a sufficiently strong desired input signal.

Noise Squelch
Noise squelch is a more powerful tool than RF squelch because it actually looks at the quality of the signal from the TX relative to the noise floor on the channel which can vary over time. With the noise squelch set to ON you can set the RF squelch to a much lower level.

Tone Squelch
MCR54 is able to detect a digital tone squelch generated by a Wisycom transmitters (*ex. MTH410/MTH400/MTP40S/ MTP41S/MTB40S/RPU500*).

Tone squelch ON: when the tone squelch is enabled the audio is muted unless the correct carrier is detected. Tone squelch allows to work with lower RF squelch, increasing the coverage and the robustness especially in presence of digital television carriers (DVB-T).

Edit RX: Audio Out

Max audio level output can be set:

- from -24dBu to 18 dBu for analog output
- from 0 to -30 dBFS step 1 for digital AES3 output

Edit RX> Audio Out: Sig. Phase

To change audio phase of 0 deg. or 180 deg.

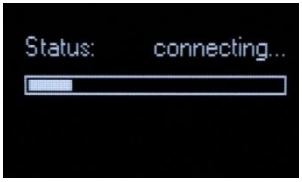
Edit RX> Audio Out: Cal. Tone

If Cal. tone is enabled, a calibration tone is transmitted from the outputs of the receiver and the audio LED of the relative RX become blue (to turn off the calibration tone, go on the menu Advanced>RX and press EXIT)

It's possible to select the audio level between -30dB to 0 dB (referred to the maximum output level set on the audio outputs). It represent the reference of the peak deviation (56KHz).

The frequency of the tone can be chosen between 400/600/1000 Hz.

Edit RX: Sync



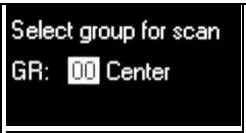
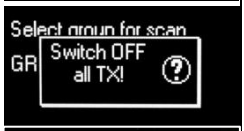
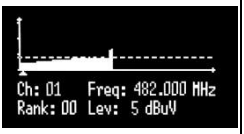
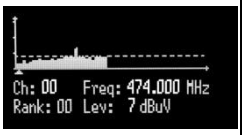
The SYNC function is useful to tune a transmitter on the same frequency of the receiver via the IR interface. Before starting the sync function tune the receiver on desired channel, manually or using the SCAN utility. After this, enable the IR interface on the transmitter. Now press UP&EXIT buttons together or enter in the Sync menu to start the SYNC function. Keep the IR window of the transmitter in front of the IR window of the receiver and, as soon as the connection is done, the receiver will send to the transmitter all the information needed.

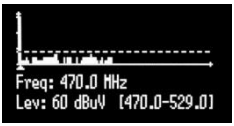
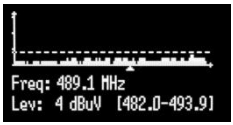
If the operation is not possible, (i.e. the frequency range of the transmitter is not compatible with the frequency of the receiver), the display will show an error message.

If the transmitter has the function "NAME" enabled, when the sync function is completed it will show the same name of the synchronized receiver.

Scan

The MCR54 allows the user to scan using the Group/Channel frequency file in the unit or by scanning a manual selection of frequencies. Select which type of scan by going into the scan menu.

Channel		Once started a channel scan operation the receiver asks for group to be used*. Press and hold the SEL button to select the group to scan.
		Then it prompts to turn off all transmitters. This is in order to provide the most accurate scan data.
		Press SEL to start the scan!
		After few seconds, scan results are displayed sorted by level, making easier to pick up the best one. The dotted line in the graph indicate the squelch threshold. Under the graph are reported the following parameters: - **Ch**: Channel - **Rank**: Ranking position (Best/Lowest Noise Level to Worst/Highest Noise Level) - **Freq**: Frequency - **Lev**: RF level
		Pushing simultaneously UP and DOWN button, the results can be also displayed on a chart in ascending order according to the number of the channel.
		After the selection of the desired channel, a screen appears with the selected frequency, channel and group and it is possible to Set or Synchronize the receiver with the transmitter. We recommend setting the frequency and then synchronize it with the transmitter.

Freq		The Frequency scan allows to select a range of frequency to scan, between a maximum and a minimum value and the step with which to perform the scans. Press and hold the SEL button to confirm.
		Then it prompts to turn off all transmitters.
		Press SEL to start the scan!
		After few seconds, scan results are displayed on a chart in ascending order according to the frequency (step 1MHz). The dotted line in the graph indicate the squelch threshold.
		Pushing simultaneously UP and DOWN button it's possible to zoom the graph to show all the steps of scan
		After the selection of the desired frequency, a screen appears with the selected frequency and the RF level and it is possible to Set or Synchronize the receiver with the transmitter. We recommend setting the frequency and then synchronize it with the transmitter.

Headphones:

This menu the user can select which of the 4 receivers he wants to listen to and can adjust the volume from 0 to -24 step 1dB.

Display:

In this menu item it's possible to set the mode of switch on of the front LEDs and the contrast and timeout of the display.

LEDs mode can be:

- Full: all LEDs are activated
- Alarm: the LEDs are ON only in case of alarm (only red)
- OFF: all LEDs are always off

Low timeout indicates the time until the display stays on with the contrast set (after which, the display contrast is lowered and after another "Low timeout" the display shows the Status screen).

Off timeout is the time until the display stays on (after which, the display will automatically turn off). If Off timeout is set to OFF the display never turn off automatically.

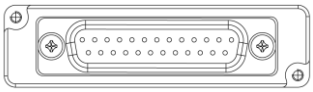
Advanced audio:

This menu allows to decide the type of audio outputs (digital AES3 or analog) and what receivers come out to the connectors.
Depending on the plugged slot-in it can be configured according to the following tables:

With **BPA54** it is possible to enabled AES outputs on AUX (Top Feed) or on MAIN (Base outputs). When AES is disabled (set to None) or enabled on AUX, analog Base outputs can be configured with any combination of 2 receivers (RX1+RX2, RX2+RX3, …)

		AUX (on TOP FEED)		BASE outputs (on BPA54)			
							
		CH1	**CH2**	**CH1**	**CH2**	**CH3**	**CH4**
AES3 en.	**None**	An [RXi]	An [RXi]	An [RX1]	An [RX2]	An [RX3]	An [RX4]
	AUX	AES [RX1+RX2]	AES [RX3+RX4]	An [RX1]	An [RX2]	An [RX3]	An [RX4]
	MAIN (Base outputs)	An [RXi]	An [RXi]	AES [RX1+RX2]	AES [RX3+RX4]	-	-

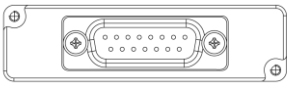
With **SLK54-IK** it is possible to enabled AES outputs on AUX (Top Feed) or on MAIN (Base Outputs). When AES is disabled (set to None) or enabled on AUX, analog Base outputs can be configured with any combination of 2 receivers (RX1+RX2, RX2+RX3, …)

		AUX (on TOP FEED)		BASE outputs (on SLK54-IK)	
				2 CHANNEL1+ 3 CHANNEL1- 15 CHANNEL2+ 16 CHANNEL2- 	
		CH1	**CH2**	**CH1**	**CH2**
AES3 en.	**None**	An [RXi]	An [RXi]	An [RXi]	An [RXi]
	AUX	AES [RX1+RX2]	AES [RX3+RX4]	An [RXi]	An [RXi]
	MAIN (Base outputs)	An [RXi]	An [RXi]	AES [RX1+RX2]	AES [RX3+RX4]

With **SLK54-SX** it is possible to enabled AES outputs only on AUX (Top Feed). Analog Base outputs can be configured with any combination of 2 receivers (RX1+RX2, RX2+RX3, …)

1 GND
2 CHANNEL1+
3 CHANNEL1-
4 CHANNEL2+
5 CHANNEL2-

2 CHANNEL1
3 CHANNEL2

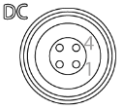


		AUX (on TOP FEED)		MAIN (on SLK54-SX)	
		CH1	**CH2**	**CH1**	**CH2**
AES3 en.	**None**	An [RXi]	An [RXi]	An [RXi]	An [RXi]
	AUX	AES [RX1+RX2]	AES [RX3+RX4]	An [RXi]	An [RXi]

ACCESSORIES AND PARTS

BPA54: Stand alone socket

Hirose HR10A-F



1 GND
4 +VDC

1 GND
2 CHANNEL1+
3 CHANNEL1-
4 CHANNEL2+
5 CHANNEL2-

1 GND
2 CHANNEL3+
3 CHANNEL3-
4 CHANNEL4+
5 CHANNEL4-

SLK54-SX: Sony slot-in

"Slot-in" kit (upper flange +rear-panel) for Sony camera.

SUBD-15pin:

1 GND
2 CH1 Anal (unbalanced)
3 CH2 Anal (unbalanced)
4 VDC

NOTE:
not all Sony cameras has the internal double pin enable.
CHECK IF YOUR CAMERA SUPPORT 2 CHANNELS ON SLOT-IN

SLK54-IK: Ikegami super slot

"Slot-in" compatible with:
- Sound Device SuperSlot (4 audio outs in capable devices, i.e. Soundevices™ SL-2)
- MRK16 Multi Slot rack (4 audio out)
- Unislot (Ikegami, Panasonic cameras1)

SUBD-25 pinout:

1 GND
2 CH1+ Anal/ CH1,2 AES3+
3 CH1- Anal/ CH1,2 AES3-
4 GND
5 VDC (6-18 VDC)
6 RX_ON
7 RX_WARNING
15 CH2+ Anal/ CH3,4 AES3+
16 CH2- Anal/ CH3,4 AES3-
22 UART from Wireless receiver
23 UART to Wireless receiver
25 GND

CABLES

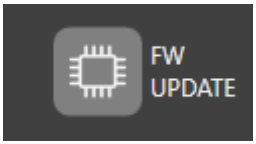
	***CAM50-3***	AF cable (50 cm), mini XLR-5F / 2 XLR-3M connectors
	***CAM50-41***	AF cable (50 cm), mini XLR-5F / 1 XLR-3M connectors Line 1 feed XL3-M (TO BE USED FOR AES3 CAMERA INPUT)
	***CDC34***	External power feeding cable, hirose/raw wires (50 cm)
	***PSP910-H***	AC/DC Power Supply, Switch Mode with Hirose 4 pin connector (to use one “desktop” apparatus alone) Input:100 ÷ 240V ac Ouput:12V@700mA, 8W Plug type: EU
	***CAUSBC1***	USB Cable 1m USB B - USB C Male Black To monitor/control/power on MCR54 receiver

ANTENNAS

	***AWS-BK***	Whip antenna UHF 470-608 MHz SMA connector, black cap
	***AWS-YL***	Whip antenna UHF 572-694 MHz SMA connector, yellow cap
	***AWS-GN***	Whip antenna UHF 670-870 MHz SMA connector, green cap
	***AWS-BL***	Whip antenna UHF 820-1160 MHz SMA connector, blue cap
	***AWS-RD***	Whip antenna UHF 1060-1300 MHz SMA connector, red cap

How to update the firmware:

1. Connect the MCR54 to the PC through the USB-C cable
2. Check if the version of *Wisycom Manager* installed in your PC is the latest version. If not, upgrade to the new version
3. Run *Wisycom Manager*
4. Power up the receiver MCR54
5. Push **FW UPDATE** button



6. Download the .xupf file from the website and load the file using **FW library > Import** button.
7. Select the file
8. Select the receiver and Play

First the program erases the flash memory and later it writes the flash memory. A green bar below the panel shows the progress of this process. **Take care do not disconnect the USB communication or power off the MCR54 during this process.**

CONFORMITY

FCC Conformity

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

In compliance with

FC 47 CFR 15 Subpart B

CAN RSS-Gen/CNR-Gen

ITALY ONLY

Obblighi di informazione agli utilizzatori

Modello di informazioni agli utenti dei prodotti di tipo "professionale"

INFORMAZIONE AGLI UTENTI

ai sensi dell'art. 13 del Decreto Legislativo 25 luglio 2005, n. 151 "Attuazione delle Direttive 2002/95/CE, 2002/96/CE e 2003/108/CE, relative alla riduzione dell'uso di sostanze pericolose nelle apparecchiature elettriche ed elettroniche, nonché allo smaltimento dei rifiuti"

Il simbolo del cassonetto barrato riportato sull'apparecchiatura o sulla sua confezione indica che il prodotto alla fine della propria vita utile deve essere raccolto separatamente dagli altri rifiuti.

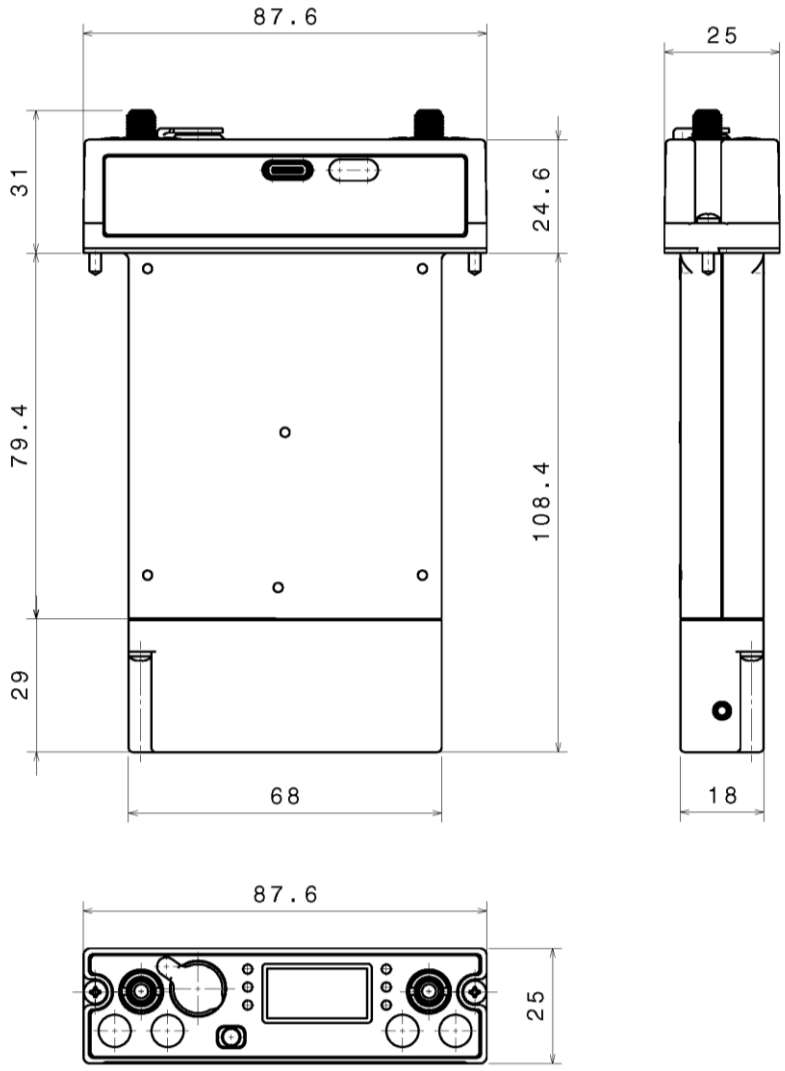
La raccolta differenziata della presente apparecchiatura giunta a fine vita e' organizzata e gestita dal produttore. L'utente che vorrà disfarsi della presente apparecchiatura dovrà quindi contattare il produttore e seguire il sistema che questo ha adottato per consentire la raccolta separata dell'apparecchiatura giunta a fine vita.

L'adeguata raccolta differenziata per l'avvio successivo dell'apparecchiatura dismessa al riciclaggio, al trattamento e allo smaltimento ambientalmente compatibile contribuisce ad evitare possibili effetti negativi sull'ambiente e sulla salute e favorisce il reimpiego e/o riciclo dei materiali di cui è composta l'apparecchiatura

Lo smaltimento abusivo del prodotto da parte del detentore comporta l'applicazione delle sanzioni amministrative previste dalla normativa vigente.

Iscr izione al Registro A.E.E. n. IT09100000006319

DRAWING



TECHNICAL SPECIFICATIONS

Frequency ranges	**MCR54 B1**: 470 ÷ 800 + 961÷1000 + 1045÷1075 MHz (UK) **MCR54 B2**: 470 ÷ 800 + 823÷832 + 940÷960 MHz (USA/EU) **MCR54 B3**: 470 ÷ 800 + 806÷809 + 1240÷1260 MHz (JP)
Switchable channels	2400 user programmable frequencies, organized in 40 groups of 60 channels
Switching-window	up 790 MHz
Frequencies	microprocessor controlled frequency synthesizer circuit, with 5 kHz minimum step. The frequencies can be easily PC reprogrammed with USB C, Bluetooth 5 (long range) or optional UPKmini Programming
Frequency error	< ± 2.5 ppm, in the rated temperature range
Modulation	FM mono, wideband or narrowband IFB (SW selectable)
Peak deviation	±54 kHz (wideband), ± 40 kHz (narrowband)
Antenna input impedance	50 ohm sma type (SWR < 1:2; typ. 1:1.4)
Sensitivity	2 µV (6 dBµV), for SND/N > 58 dB; 5 µV (14 dBµV), for SND/N > 98 dB in the whole switching-window*
Amplitude response	< 0.5 dB (for RF input signal:6 dBµV ÷ 100 dBµV)
Adjacent chan. selectivity	> 80 dB typical (for channel spacing ≥ 400 kHz)
Spurious emissions	< 2 nW (typical = 0.1 pW)
Noise Reduction system	ENR / ENR-1.2 (Wisycom Extended-NR) , noise optimized ENC / ENC-1.2 (Wisycom Extended-NC), voice optimized & with reduced pre-emphasis ENS (for live application) Others, compatible with most systems, thru an internal DSP emulation of SA572, SA575 and Rms envelope compander chip set, fully user programmable
AF bandwidth	30 Hz ÷ 20 kHz (wideband), 30 Hz ÷ 15 kHz (narrowband)
Frequency response	± 0.5 dB in the 30 Hz ÷ 19 kHz range (wideband), ± 0.5 dB in the 30 Hz ÷ 13 kHz (narrowband)
Distortion	0.3 % typical
SND/D ratio (Analog)	120 dB typical*
SND/D ratio (Digital)	> 125 dB typical
Audio output	Electronically balanced on 5 pin mini-XLR Female connector analog or digital (SW selectable)
Digital sample rate	AES3 @ 48 kHz
Monitor output	headphone 3.5 mm jack socket
Managing interface	USB C, Bluetooth 5 (long range) or optional UPKmini Programming
LEDs	2 multicolour RGB LEDs to easy indicates Power & Bluetooth 4 multicolour RGB LEDs to easy indicates the audio status of the 4 RX
Display	OLED 128x64 (white)
Powering	- External = 5 ÷ 18 Vdc (2.5 W max) - Autonomous. = with optional BCA 54 Battery Module
Power consumption	2.5 Watt max (with 4 active receivers)
Temperature range	-10 ÷ +55 °C
Dimensions	110,4 x 87,6 x 25 mm (H x W x D)
Weight	245g

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