CSI16T User Manual

Smart Passive
Wideband Combiner

SN: _____

Rev.05

Date: 17 January 2022

INTRODUCTION

CSI16T is a passive wideband combiner designed to work up to 3W of power.

CSI16T communicates with Wisycom transmitter (i.e. **MTK952N**) through coaxial inputs and allows a smart power management: combiner loss are automatically compensate on Tx side!

FEATURES

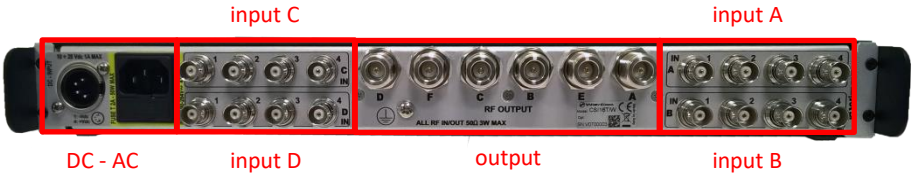
- ✓ RF combiner able to combine 16 inputs into 4/2/1 outputs
- ✓ Selectable combination thru a 3 positions selector on front panel

  [16:1] or **2x [8:1]** or **4x [4:1]**
- ✓ Used with MTK952N permits to recover the combiner loss
- ✓ Wide band operation 470÷800MHz
- ✓ High input power up to 3W
- ✓ Selectable extra compensation in the [16:1] configuration: connected to another combiner CSA121T, it is able to recover up to 15dB of loss

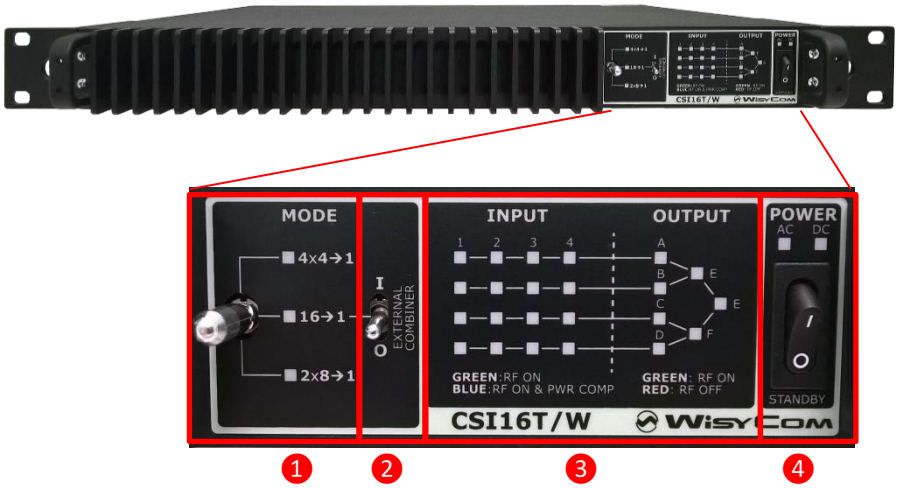
SAFETY INSTRUCTION

- 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 technician are enabled 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.

REAR AND FRONT PANEL



WARNING: ALL THE UNUSED PORTS related to the selected combination SHOULD TO BE TERMINATED AT 50Ω (see example 4).



1 Combiner mode

Three position selector allows to select one of the following combiner mode

- 4x4->1
- 16->1
- 2x8->1

2 External combiner

External combiner selector set to on (I) activates the extra compensation (only if combiner mode is set to [16:1] configuration): connected to another combiner CSA121T, it is able to recover up to 15dB of loss (see example 3).

3 LED indication

Thanks to an RF meter present in the input/output ports, each port is able to detect the presence of RF level more than 8dBm. Moreover, a special circuit is able to detect if the external compensation is activated or not from the transmitter side.

According to the RF power level and the compensation, led can be green, blue or red.

INPUT led:

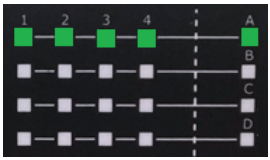
- GREEN: if RF level of input port is > 8dBm **and** RF level of the related output port is >8dBm
- BLUE: if external compensation is activated on input port

OUTPUT led:

- GREEN: if RF level of output port is > 8dBm
- BLUE: if extra compensation ❷ is activated and combiner mode is set to 16->1
- RED flashing: if there is a falty on the combiner path

NOTE: External compensation doesn't work if between MTK952N and CSI16T/CSA121T there are devices which keep out the DC.

example:



combiner mode: 4x4->1

on the first 4 input ports and on the output port "A" there are an RF level >8dBm, no external compensation is activated

example:

combiner mode: 2x8->1

on the first 8 input ports and on the output port "A" there are an RF level >8dBm, external compensation is activated in all the 8 input ports

❹ POWER indication

Redundant power supply AC and DC can be used. Related led can be

- GREEN: if power supply is present
- BLUE: if power supply is in use*

*if both DC and AC power supply are present, the combiner uses the one with higher voltage

NOTE: **CSI16T works without power supply!** It works according to the latest set combiner mode.

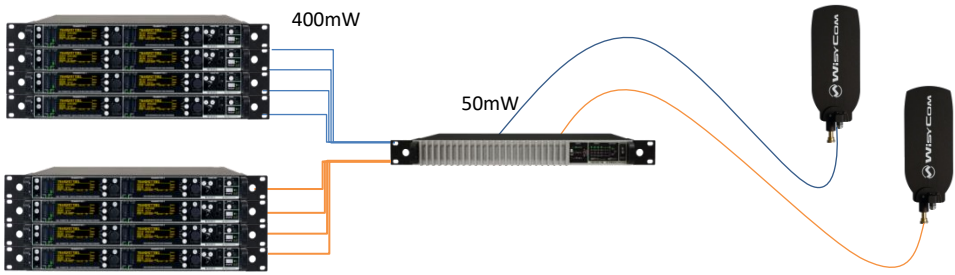
How to Use & Configuration Examples

Combiner loss can be automatically recovered from MTK952Ns connected to the smart combiner CSI16T: MTK952Ns raise power accordingly to the loss, while keeping the limit on output port (country based).

Example1: Combiner 2x [8:1] configuration with high power transmitters:

Country power limit:50mW

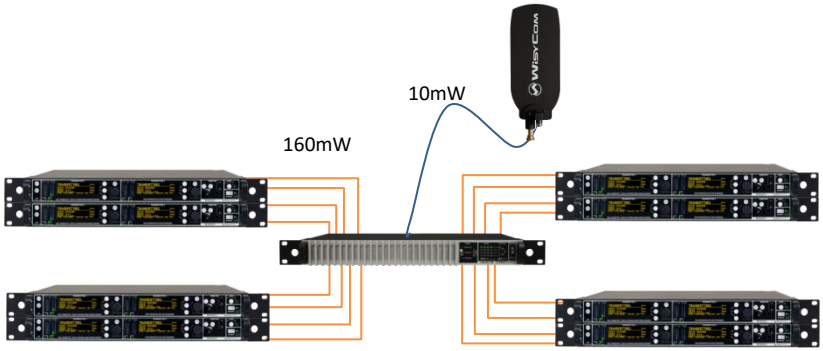
Enabling external compensation on MTK952Ns, the transmitters raise power of 9dB in order to limit to 50mW the maximum power at the output of CSI16T.



Example2: Combiner [16:1] configuration with high power transmitters:

Country power limit:10mW

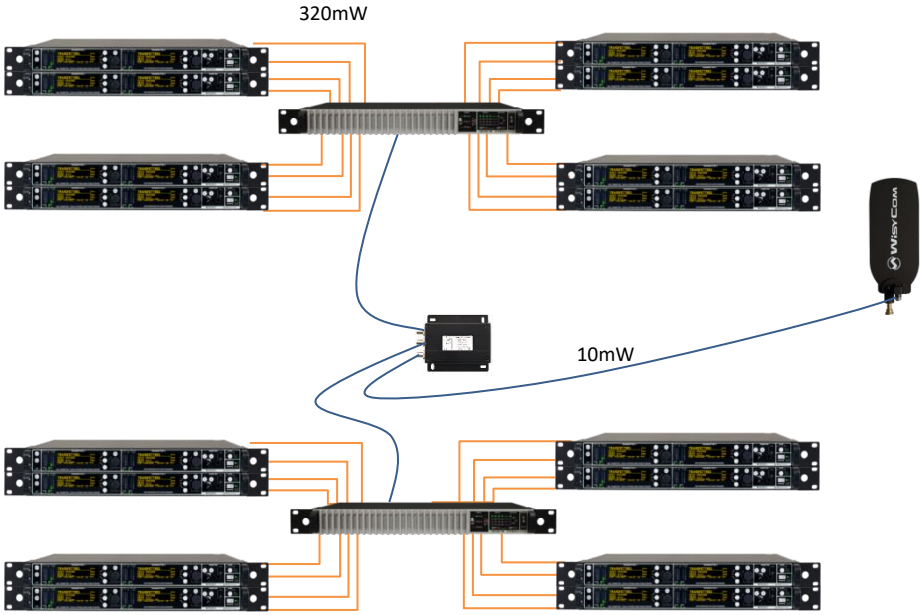
Enabling external compensation on MTK952Ns, the transmitters raise power of 12dB in order to limit to 10mW the maximum power at the output of CSI16T.



Example3: Combiner [32:1] configuration with high power transmitters:

Country power limit:10mW

Enabling external compensation on MTK952Ns, the transmitters raise power of 15dB in order to limit to 10mW the maximum power at the output of CSA121T. Both CSI16Ts are configured at 16->1 with external combiner enabled.

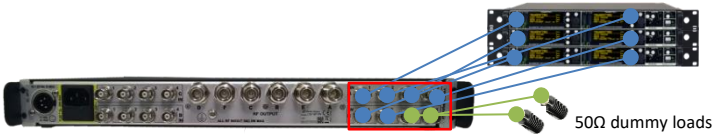


Example4: Ports unused and termination

To avoid wrong indications in the input led **it is necessary to terminate at 50Ω ALL THE UNUSED PORTS related to the selected combination.**
No dummy load is required for the outputs or for ports of unused combinations.

- example Combiner 4 x [4:1] with 1 unused port

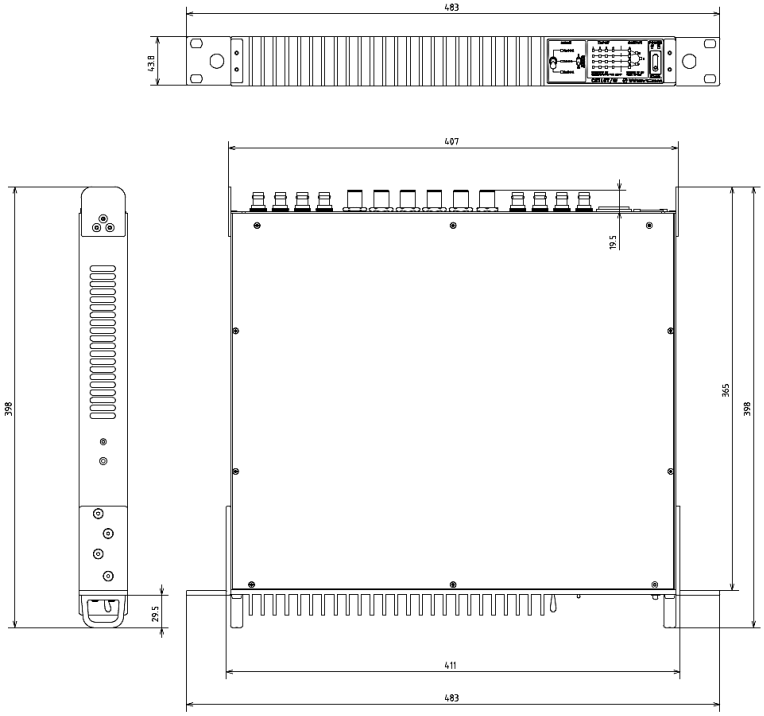
- Combiner 2 x [8:1] with 2 unused ports



TECHNICAL SPECIFICATIONS

Bandwidth	470 MHz – 800MHz
Input Connectors	16 BNC-F, 50 Ω of impedance
Input Connectors	6 N-F, 50 Ω of impedance
Max input power	3W (for each input connector)
Combiner loss	approx. 6 dB for 4x [4:1]*
	approx. 9 dB for 2x [8:1] *
	approx. 12dB for [16:1] *
Port separation	30 dB (typical)
Power supply	AC connector 90÷264Vac /47÷63Hz, (fuse protected) T2A-50W max
	DC connector 10÷ 28 Vdc
Temperature range	-25 ÷ +55 °C
Case	Aluminum, black varnish
Weight	4,75 Kg
Dimensions	19”/1U 483 x 398 x 44 mm (WxDxH) with brackets

* Ports terminated at 50Ω (2Watt)



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