

Datasheet – MENURA DAS

New digital platform for critical communication solutions



- ❖ **Combined frequency ranges** for TETRA, Tetrapol & TETRA private
- ❖ **Flexible SDR platform** expandable to other frequencies (e.g. DMR, GSM-R, FRMCS)
- ❖ **Embedded web-application** (Operation, Administration, and Maintenance) with full signal redundancy
- ❖ **Comprehensive Redundancy Features**
 - Management Redundancy
 - Fiber / Link Redundancy
 - Source & Donor Redundancy
 - Network Redundancy
- ❖ **Digital optical signal transmission**
- ❖ **Efficient energy management** & redundant power supply
- ❖ **Cost-optimized system planning** with high user-friendliness and efficient repair & service processes

Introduction

Menura DAS is the first product based on the new Syrinx technology platform. This data sheet describes system and unit parameters. The following units constitute the system's base setup. Other unit configurations are possible. The greyed-out units (XU, XRU, MRU, OAR & DU) are planned for the next extensions; currently, the MU and RU are available.

UNIT	DESCRIPTION
MU	Master Unit - optionally with amplifier in the UL
RU	Remote Unit - amplifier in the DL
XU	eXtender Unit - optionally with amplifier in the UL
XRU	eXtender Unit with RU - amplifier in DL + optional amplifier in UL
MRU	Master Repeating Unit - amplifier in DL + optional amplifier in UL
OAR	Off-Air Repeater - amplifier in DL + UL
DU	Distribution Unit

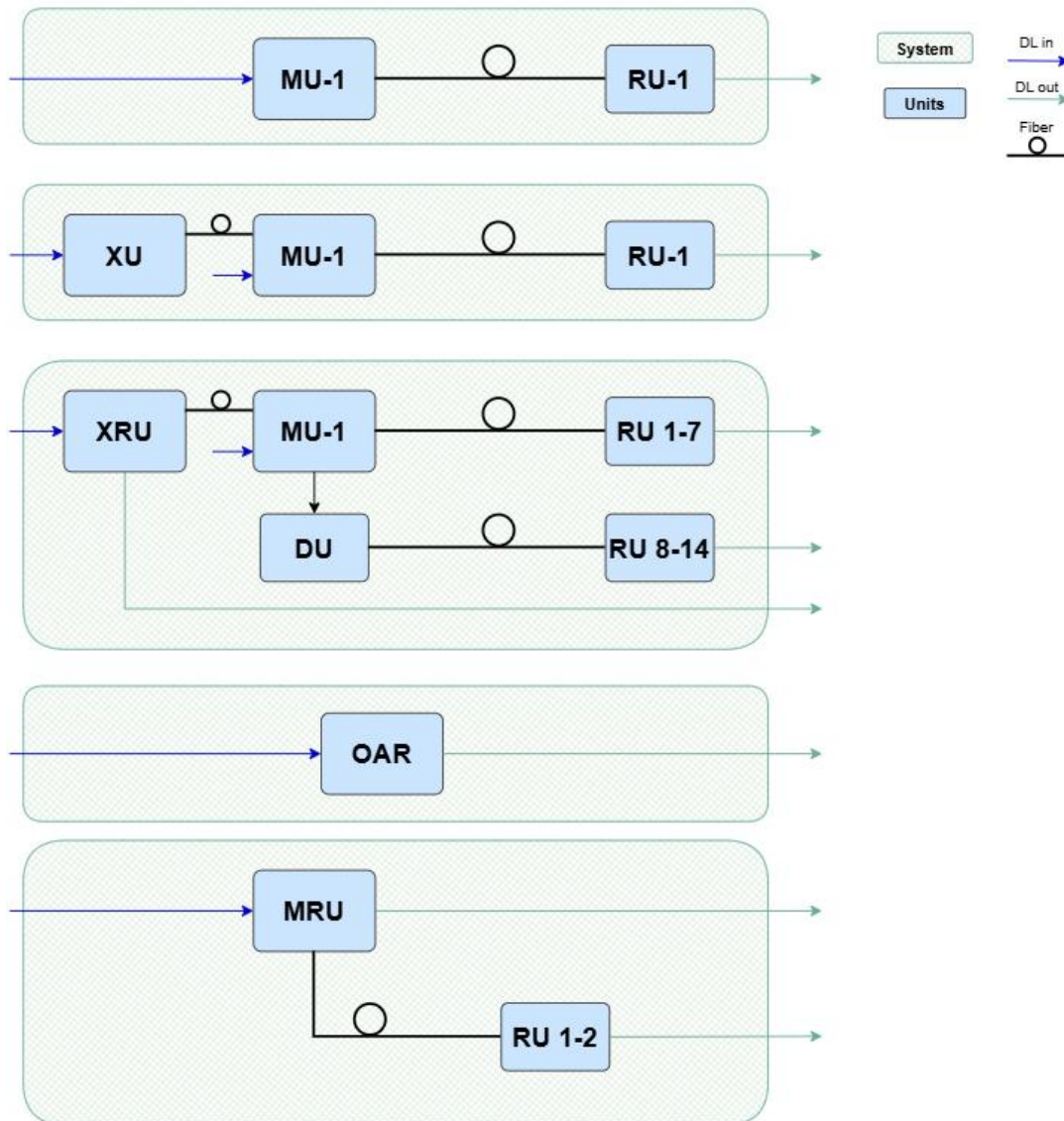


Figure 1: System Overview – Topology

System Specifications

Frequency Ranges (PMR)	Uplink	Downlink
TETRA/Tetrapol	380 ... 386.5 MHz	390 ... 396.5 MHz
TETRA private 1	410 ... 415 MHz	420 ... 425 MHz
TETRA private 2*	415 ... 420 MHz	425 ... 430 MHz

Composite output power		
Donor UL (without amplifier)	MU (XU, XRU, MRU, OAR)	-8 dBm
Donor UL (with amplifier)	MU (XU, XRU, MRU, OAR)	25 dBm
Service DL (with amplifier)	RU (XRU, MRU, OAR)	37 dBm

RF-Parameter		
Systemgain	Adjustment Range	45 ... 87 dB**
	Accuracy Range	+/- 1.5 dB
Noise Figure (max. amplification)		4.5 dB
System impedance		50 Ω
Return Loss		>15 dB
Max. Input power RX ports		-10 dBm
Max. Input power without destruction on HF interfaces		10 dBm
Min. receive sensitivity (TETRA, 25 kHz, max. gain, C/I=19 dB)		-106 dBm
Min. receive sensitivity (TETRAPOL, 12.5 kHz, max. amplification, C/I=12 dB)		-116 dBm
Max. Input power without limiting the sensitivity		-43 dBm
UL Muting threshold configurable per channel		-100... -10 dBm

Digital filter (2-band system)	
Max. number of subband filters per unit	8
Max. number of fullband filters per unit	2
End-to-end propagation delay (OAR) + 5/6.5 MHz filter	5.9 μ s
End-to-end propagation delay (MU+RU) + 5/6.5 MHz filter	8.3 μ s
End-to-end propagation delay (MU+DU+RU) + 5/6.5 MHz filter	11 μ s
End-to-end propagation delay (MU+RU) + 25 kHz filter	58.5 μ s
Additional propagation delay with DU	2.7 μ s

* TETRA private 2 will be available in the extension.

** 45-80 dB system gain, with full-band filter active; up to 87 dB with sub-band filter active

Interfaces & Unit Specifications

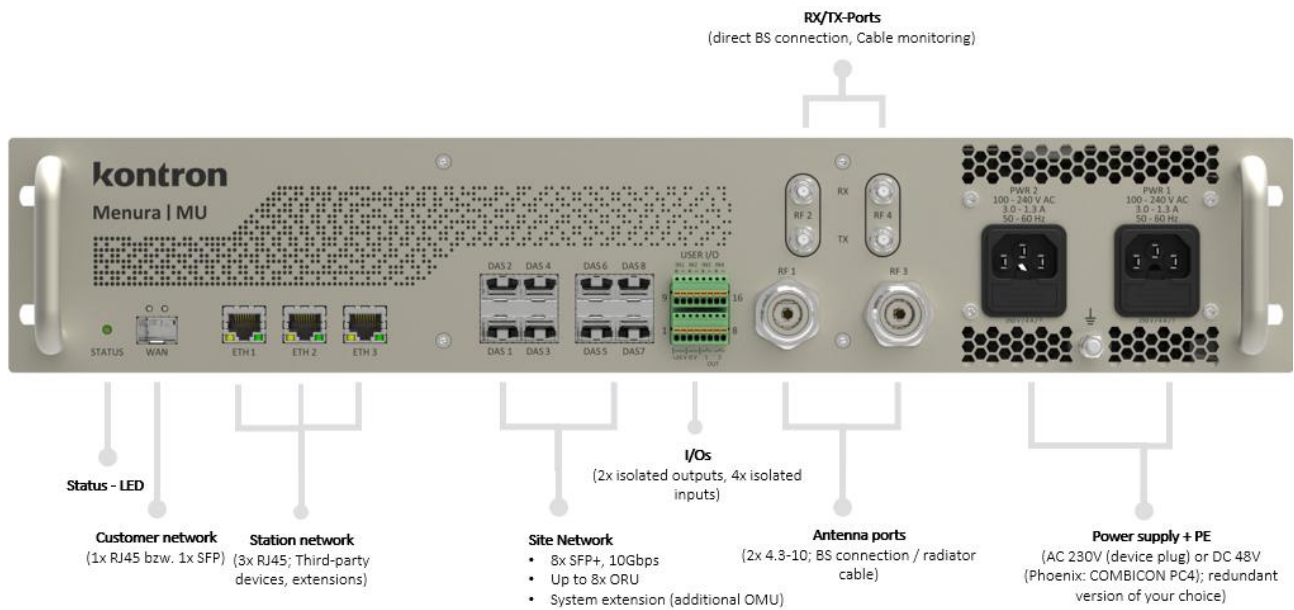


Figure 2: Menura – Interfaces

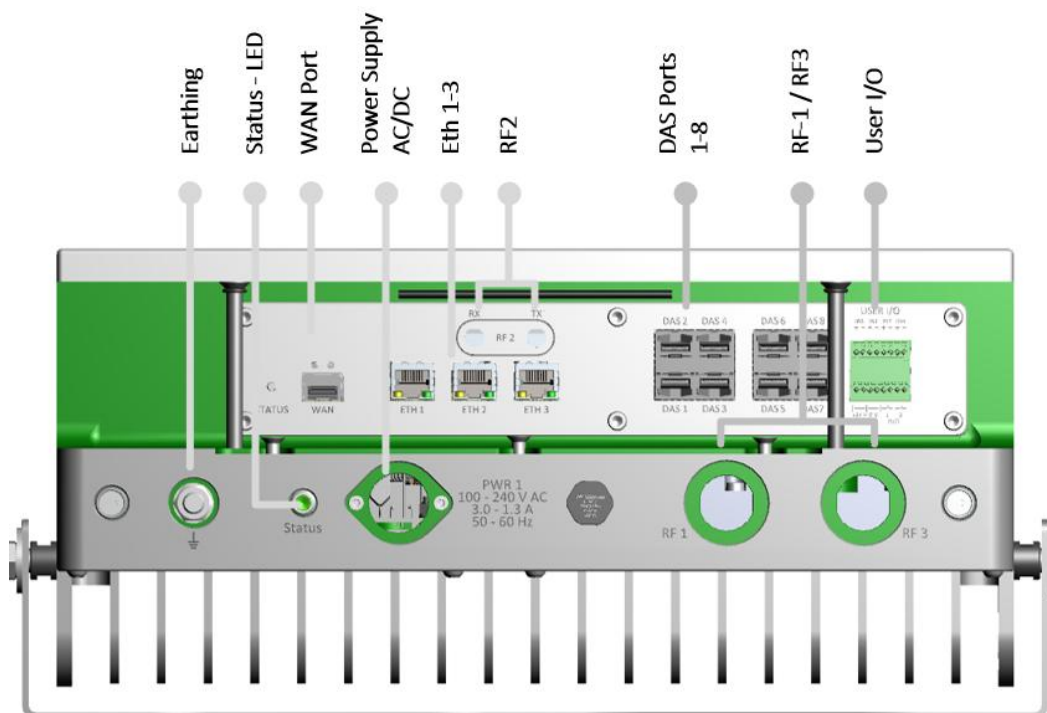


Figure 3: Outdoor housing connection panel (weatherproof panel removed)

Interfaces		
Ethernet		1x 1000 BASE-T/LX/SX (SFP) 3x 10/100/1000 BASE-T (RJ45)
Digital interfaces	MU	8x SFP+, 10Gbps
	RU	2x SFP+, 10Gbps
HF interfaces	RF1 / 3	max. 2x 4.3-10f
	RF2 / 4	max. 4x QMAf
User I/O	Inputs	4 (24 VDC, EN61131-2)
	Outputs	2 (Relay contact)

Electrical Specifications		
Power supply*	AC (Standard C13)	110 ... 240 VAC
*All types available for all units	DC (Phoenix 1777992)	41 ... 57 VDC
Power consumption	MU without amplifier / DU	35 W
	MU with amplifier	50 W
	RU with amplifier	115 W
	XRU/OAR/MRU with two amplifiers	130 W

Specifications (Mechanical / Environmental)	
19-inch Unit	
Dimensions W x H x D	482 mm / 89 mm (2 HE) / 450 mm
Weight	Approx. 12 kg
Protection class	IP 20
Operating temperature range	-5 ... 55 °C
Cooling	active
Outdoor-Housing	
Dimensions W x H x D	440 mm / 350 mm / 150 mm
Weight	Approx. 18 kg
Protection class	IP65
Operating temperature range	-25 ... 55 °C
Cooling	passive

Applicable Standards		
Safety		EN IEC 62368-1 (Class 1)
EMV	commercial/industrial environments	EN IEC 61000-6-1...4
	railway applications	EN 50121-1/-4
	for PMR/TETRA	EN 301 489-1/-5
Radio	PMR	EN 302 561
	PMR TETRA	EN 300 758
	PMR*	NT-3002*)

* Valid in Switzerland only.



About Kontron Transportation

Kontron Transportation GmbH is a leading global supplier of dedicated end-to-end communication solutions for mission-critical networks, offering tailor-made solutions to support its customers with their communication challenges.

The company's focus is to produce, transport, and process voice, data, and video information reliably and securely, efficiently, and sustainably. The core product portfolio includes GSM-Railways, FRMCS (future railway mobile communication system), MCx (mission-critical over public networks), 4G/5G public network solutions, and IIoT solutions focusing on data processing.

Main customers are railways and public transport operators all over Europe.

Kontron Transportation drives the evolution into the next generation of broadband solutions for mission-critical networks, for instance, as an associated member of the European research initiative Shift2Rail.

The company has more than 550 employees, 11 sites all over Europe, and is headquartered in Vienna.

For more information, please visit: www.kontron.com

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