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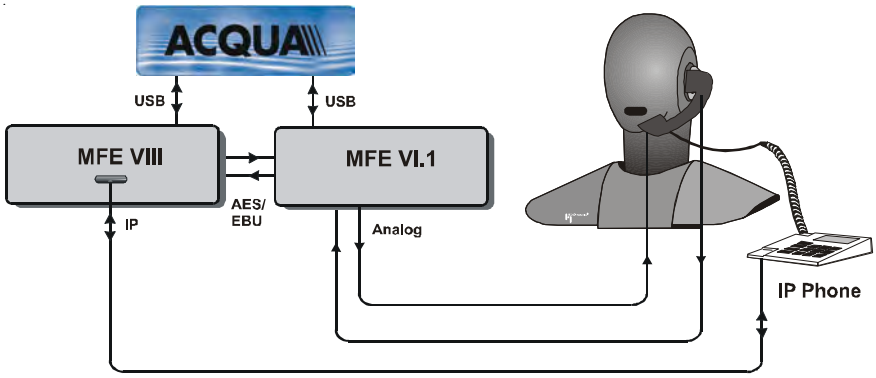
DATA SHEET

MFE VIII (Code 6468)

VoIP Reference Gateway with Ethernet Interfaces and SIP-VoIP Client

MFE VIII front view

MFE VIII rear view



Configuration example: IP Phone voice quality measurement with analysis system ACQUA, head and torso simulator HMS II.3, front ends MFE VI.1 and MFE VIII

Overview

MFE VIII is a light-weight and compact front end equipped with Ethernet, AES/EBU and USB interface. It supports the core features according to RFC 3261 and offers an integrated SIP-VoIP client with voice codecs G.711 (a-law, μ-law), G.722, G.723.1, G.726-32, G.729 A/B and L16-256.

MFE VIII is used as reference gateway in conjunction with the communication quality analysis system ACQUA* and other HEAD acoustics front ends. Connected to a notebook or PC via USB (Plug & Play), it is configured and controlled by ACQUA.

Via MFE VIII, ACQUA performs automated measurements according to international, HEAD acoustics or user-defined standards. In conjunction with MFE VI/VI.1, combined electrical/acoustical measurements are possible.

MFE VIII thus serves for system optimization and development as well as quality control and benchmark testing in all areas where excellent voice quality of VoIP devices and IP-based transmission systems plays a decisive role.

DESCRIPTION

Equipped with USB and Ethernet connectors, MFE VIII serves as reference gateway for voice quality measurements of digital communication devices and transmission systems.

The encoder and decoder components of MFE VIII are based on a digital signal processor. The front end is connected to the communication analysis system ACQUA* via USB for status information, data acquisition and control purposes. The AES/EBU in- and outputs provide connection to the front ends MFE II, III.1 or VI/VI.1. Pulse in- and outputs with TTL levels are also available. Optionally, MFE VIII allows automatic clock adjustment to the device under test (DUT).

The front end settings can be easily controlled via the intuitive ACQUA* settings manager. They can be stored and assigned to selectable measurement sequences.

The following protocols and codecs are currently implemented in MFE VIII:

- SIP (according to RFC 3261)
- G.711 (a-law, μ-law)
- G.722
- G.723.1
- G.726-32
- G.729 A/B
- L16-256

APPLICATIONS

- Measurements of digital communication terminals
- Measurements of digital transmission systems
- Direct connection of ACQUA* analysis system to external protocol simulators and digital exchanges

FEATURES

- Digital signal processor for real-time implementation of codecs (encoding, decoding)
- Digital interface (AES/EBU) for audio data exchange with MFE II, MFE III.1, MFE VI/VI.1
- User-friendly software control via ACQUA* (Advanced Communication Quality Analysis System)

* ACQUA Version 2.3.400 or later required

STANDARD DELIVERY ITEMS

- **MFE VIII (Code 6468)**: USB Measurement Front End, Digital, with VoIP Interface
- **PSH I.1 (Code 1364):** External power supply 110-250 V AC -> 15 V DC
- **PCC I.9x (Code 997x)**: Mains cable (to local specification)
- **2x CXX II.03 (Code 5177-03)**: AES/EBU cable XLR male 3-pin ↔ XLR female 3-pin, 0.3 m
- **2x Ethernet Cable:** 1x crosslink (red), 1x normal, 3 m
- **1x CUSB II.15 (Code 5478-15):** USB 2.0 cable, with ferrite, 1.5 m
- **Manual**

ACCESSORIES

- **Additional cables,** only required for use in conjunction with MFE II/III:
  - 6332 CMX II.1, Cable XLR male 3-pin ↔ LEMO 3-pin, 3m
  - 6333 CMX II.2, Cable XLR female 3-pin ↔ LEMO 3-pin, 3m

SYSTEM REQUIREMENTS

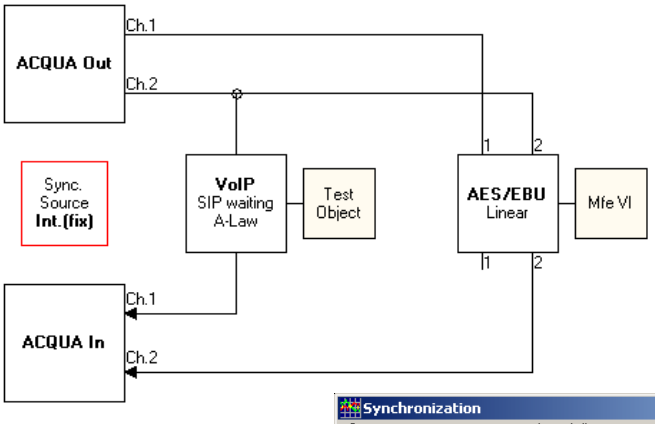
- **ACQUA (Code 6810 etc.):** Advanced Communication Quality Analysis, Software for Windows 2000/XP (cf. ACQUA datasheet), Version 2.3.400 or later
- **PC with Windows(R) 2000/XP, USB Port, Ethernet Port**

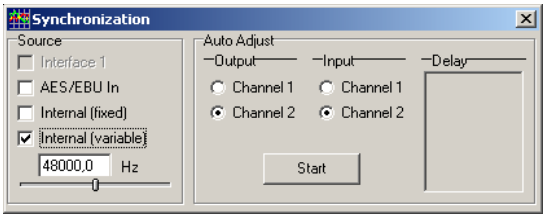
OPTIONS

- **UG-MFEVIII-CLC (Code 6403):** Upgrade Option Clock Control for MFE VIII up to S/N 64680047. ***Note: Front ends up to this serial number must be sent to the HEAD acoustics service department, because they require a hardware modification.***
- **MFEVIII-CLC (Code 6469):** Option Clock Control for MFE VIII with S/N 64680048 and higher.

Short description: If MFE VIII-CLC is activated, the MFE VIII settings window offers the block „Sync. Source" which upon mouse click opens the synchronization window. If the box "Internal (variable)" is activated, the sampling rate can be changed by approx. max. 15 Hz up or down, in steps of 0.5 Hz. The sampling rate of the MFE can be adjusted to that of the measurement object with Auto Adjust. For this purpose a connection including signal path via the measurement object must have been established before, e.g. MFE VI - artificial mouth - DUT - MFE VIII. In the group Auto Adjust the correct input and output channel has to be selected. In order to determine the correct sampling rate, a Delay measurement is carried out every 10s (Cross Correlation, Pseudo-Noise). The delay change is used to correct the sampling rate. This procedure is repeated until the correction value is < 0.5 Hz.

Technical data – MFE VIII	
Measurement Unit	
Operation:	Remote control via ACQUA software (version 2.3.400 or later)
System check:	Automatic hardware check at switch-on
Power supply:	External power supply PSH I.1, 110-250 V AC -> 15 V DC, 8 W max.
IP Features	
Protocol:	Session Initiation Protocol (SIP) core features according to RFC 3261
Codecs:	G.711 (a-law, μ-law), G.722, G.723.1, G.726-32, G.729 A/B, L16-256
Silence Compression	Can be activated, if supported by selected Codec
Packet Size	10-60 ms selectable depending on selected Codec
SIP Registration	Registration with Registrar supported
Interfaces & Connectors	
Ethernet	2x at front, RJ45, 10 or 100 Mbit/s
AES EBU In/Out	2x at rear, XLR, digital audio input/output, 48 kHz sampling rate (for MFE VI/VI.1), IEC II subcode adjustable; 24 bit or 16 bit format with noise shaping selectable
Pulse In/Out	2x at rear, BNC, TTL level, pulse inputs not galvanically separated
USB In/Out	1x at rear, USB 2.0, control and data exchange via ACQUA
DC In/Out	2x at rear, XLR 4 pin, DC-In: 5 W max., DC-Out: 3 A max.
Environmental Conditions	
Operating temperature range:	0°C - 50°C, 32°F - 122°F
Storage temperature range:	-20°C - 70°C, -4°F - 158°F
Air Humidity:	35 – 70 % (non-condensatory environment)
Housing	
Overall dimensions (WxHxD):	327 mm x 44 mm x 230 mm
Weight:	ca. 2 kg





Settings window (top left) and synchronization window (right) for MFE VIII with option MFEVIII-CLC, allowing automatic sampling rate adjustment

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