

DATA SHEET

**MFE VII (Code 6465)
 MFE VII.1 (Code 6466)
 MFE VII.2 (Code 6467)**

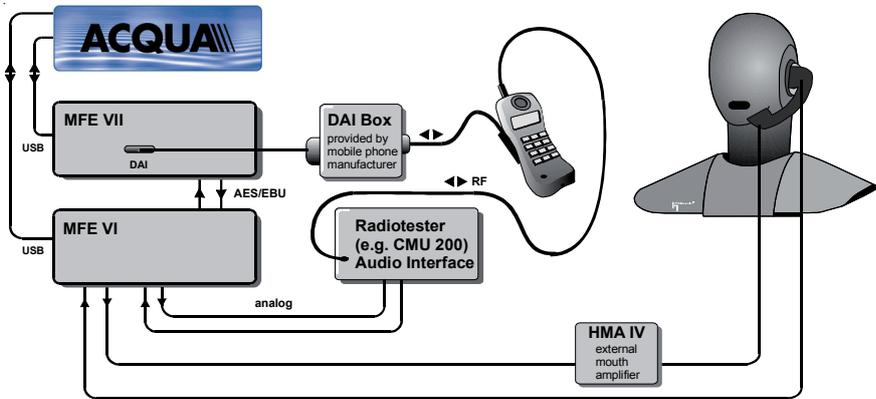
Digital Measurement Front End
 Measurement of digital communication devices and transmission systems



MFE VII front view



MFE VII rear view



Setup example: Cell phone measurements according to GSM 11.10 with analysis system ACQUA, mouth amplifier HMA IV, head and torso simulator HMS II.3, front ends MFE VI and MFE VII

Overview
 MFE VII is a cost-effective compact front end equipped with DAI interface and dual TTL/V.11 interfaces (MFE VII.1: only V.11; MFE VII.2: only DAI). It is used for digital data acquisition 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 VII, ACQUA performs automated measurements according to international, HEAD acoustics or user-defined standards. In conjunction with MFE VI combined electrical/acoustical measurements are possible. MFE VII thus serves for problem solving, quality control, benchmarking and product optimization in many areas where the voice quality of digital communication devices and transmission systems plays an important role.

DESCRIPTION

The encoder and decoder components of MFE VII are based on a digital signal processor. The front end is connected to the communication analysis system ACQUA via USB port for status information, data acquisition and control purposes. All parameters can be set by ACQUA. The selected settings are displayed on an LCD panel at the front end as well as on the ACQUA screen. The DAI, V.11 and TTL interfaces enable connection to different digital systems. The AES/EBU in- and outputs provide connection to the front ends MFE II, III.1 or VI. In- and outputs for pulse signals with TTL levels are also available.

Interfaces

- 1x DAI Digital Audio Interface according to ETSI GSM 11.10 for testing speech codecs and SLR/RLR of GSM devices
- 2x Interface according to ITU-T V.11 (RS 422 electrical standard) for digital coupling of protocol simulators (e.g. AETHRA D2000 Pro, Wandel & Goltermann PCM4 etc.)
- 2x TTL interface (via TTL Break-out Box connected to combined V.11/TTL sockets); Supported Bit Rates: 64 kbit/s (Standard) 8 kHz (Word length 8/16 Bit) 16 kHz (Word length 8/16 Bit) 48 kHz (Word length 16 Bit)
- AES/EBU in- and output
- Pulse in- and output with TTL levels

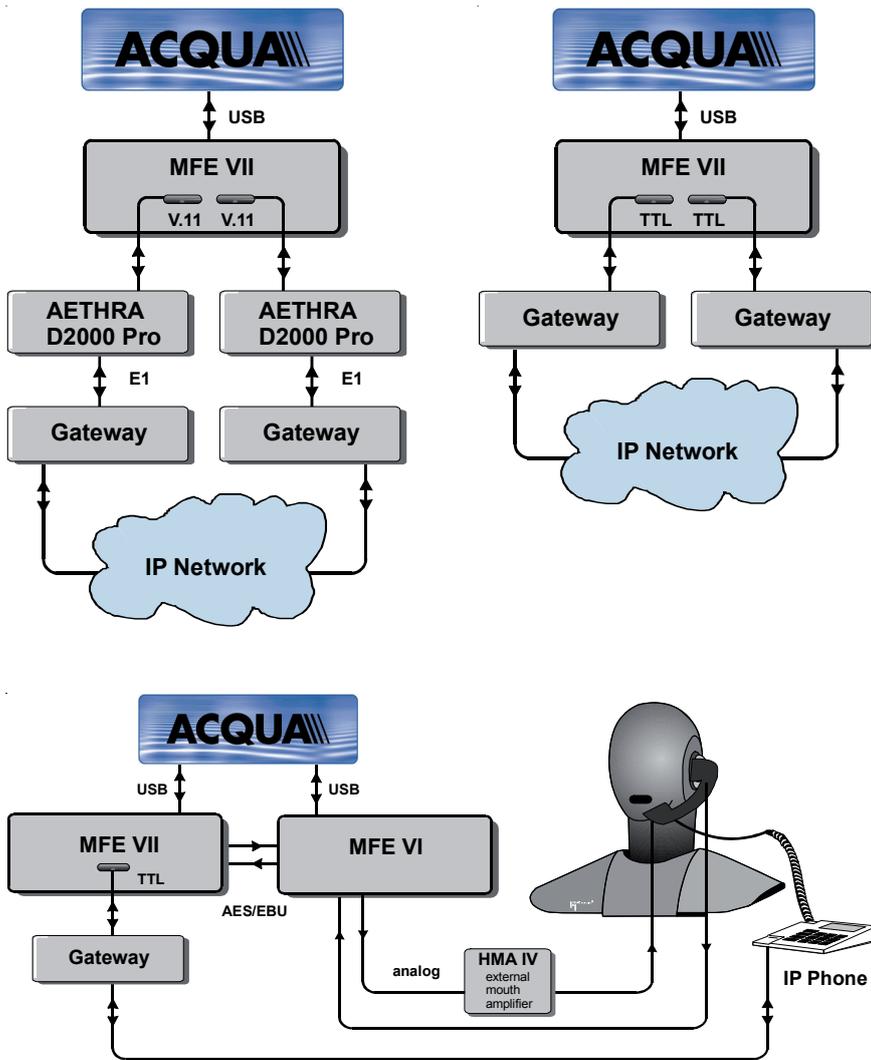
Note: MFE VII.1 is equipped with V.11 interface (DAI and TTL are deactivated); MFE VII.2 is equipped with DAI interface (V.11 and TTL are deactivated)

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 or MFE VI
- Various optional combinations of V.11, TTL and DAI interfaces
- Internal or external synchronization (V.11 and TTL)
- Supports various TTL data formats
- Controllable via software (Advanced Communication Quality Analysis System ACQUA)



Configuration examples for V.11 and TTL

Technical data – MFE VII	
Measurement unit	
Operation:	Remote control via ACQUA software
System check:	Automatic hardware check at bootup
Display:	2 x 16 LCD with LED background lighting for display of active in- and outputs on both channels (parallel 4/8 bit interface)
Power supply:	External power supply PSH I.1, 110-250 V AC -> 15 V DC, 8 W Max.
Signal processor:	Motorola DSP56311 (120 Mips), 24 bit data processing
Synchronization:	V.11/TTL: internal or external; DAI: external
Interfaces	
DAI	1 x at front, digital audio interface according to ETSI GSM 11.10, 25 pin D-Sub female
V.11	2 x at front (combined with TTL), interface according to ITU-T V.11 (RS 422 electrical standard), 15 pin D-Sub female
TTL	2 x at front (combined with V.11), TTL interface via break-out box, BNC, electrical polarity and data formats selectable via ACQUA software
AES EBU In/Out	2 x at rear, XLR socket, digital audio input/output, 48 kHz sampling rate (for MFE VI), IEC II-subcode adjustable; 24 bit or 16 bit format with noise shaping selectable
Pulse In/Out	2 x at rear, BNC, TTL level, pulse inputs not galvanically separated
USB In/Out	1 x at rear, universal serial bus for control and data exchange with ACQUA software
DC In/Out	2 x 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

STANDARD DELIVERY ITEMS

- **MFE VII (Code 6465):**
Digital Measurement Front End with DAI, TTL and V.11 interfaces
or:
- **MFE VII.1 (Code 6466):**
Digital Measurement Front End with V.11 interface
or:
- **MFE VII.2 (Code 6467):**
Digital Measurement Front End with DAI 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, 0.3m
- **CAI I (Code 6344):**
DAI cable D-Sub 25-pin, 0.75 m (not for MFE VII.1)
- **CVS I.1 (Code 6334):**
V.11 cable D-Sub 15-pin, 0.75 m (not for MFE VII.2)
- **2x TTL Break-out Box:**
each box provides 6x BNC sockets for connection to TTL interface via dual V.11/TTL connectors (not for MFE VII.1 and MFE VII.2)
- USB cable
- Manual

ACCESSORIES

- **CXX III.03 (Code 5179-03):**
Power supply cable XLR male 4-pin ↔ XLR female 4-pin, 0.3m

OPTIONS

- **ACQUA (Code 6810 etc.):**
Advanced Communication Quality Analysis, Software for Windows 2000/XP (cf. ACQUA datasheet)

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