



# Macrotel X1/X2 Multimode

## Multimode Telephone Hybrid

### >> Manage Your Calls with Any Technology Combination

Macrotel X1 Multimode and Macrotel X2 Multimode can manage one or two POTS (Plain Old Telephone Service) landline, VoIP, Bluetooth or GSM (with optional interface) telephone connections. Audio enhancement features are custom designed to guarantee the best quality in phone calls, the internal framework based on DSP (Digital Signal Processor) works in real time taking care of the telephone signal process delivering the best possible audio performance. Macrotel X1/X2 Multimode it's a Telephone Audio Processor able to shape the sound to optimize the yield of every single phone call.



# /// Overview

Macrotel X1/X2 Multimode manages calls from POTS (Plain Old Telephone Service), VoIP, Bluetooth or GSM (optional) telephone connections and it embeds a web server and a simple and intuitive GUI accessible from any device and browser. For services synchronisation and logs Macrotel X1/X2 Multimode connects to a NTP server. The main XLR input and output connectors can manage analogue or AES/EBU signals according to the device settings (AES/EBU input/output is optional) while a second XLR analogue output is also available. When in Bluetooth mode the two outputs act like a stereo balanced output.

Macrotel X1/X2 Multimode records telephone calls on a USB flash memory plugged in the USB front panel slot. Audio will be recorded in PCM format with a self-explaining filename based on date/time and can include the RX audio only or both RX and TX signals. It is also possible to send an RTP-PCM audio stream to an external PC to record the call, in this case the recording will include the RX audio only or both RX and TX signals.

Customers using any digital console of the Oxygen series can control Macrotel X1/X2 Multimode through the network, just adding its IP address. In this way there is no need to use a GPIO but you should only connect the Macrotel X1/X2 Multimode to the Oxygen Console through the Telco module.

A multiple GPIO port allows to manage the device from external equipment, like audio console or PC. System sends "Ring", "Hold", "Hook" and "REC" status and manages "Hook", "Rec", "Mode" and "Hold" functions. On the front panel an audio meters with 18 LEDs shows the RX and TX audio level of each channel. Additional LEDs show working Mode and Power on. Power supply can be used between 90 and 260 V AC - 47-63 Hz: this allows to use it worldwide.

- Multi-line digital telephone hybrid POTS/GSM/VOIP
- Automatic gain control (AGC);
- Digital echo canceller;
- Hold caller/attenuator;
- Expander and compressor;
- Audio limiter;
- Digital AGC processor with 3 bands fully parametric EQ;
- Analog and AES/EBU digital inputs and outputs (optional);
- 1 line and 2 lines models;
- POTS/PSTN;
- GSM Quad Band (optional);
- Integrated web server for remote control;
- Separate send and receive;
- LAN and USB ports;
- Auto-answer and disconnection;
- Balanced XLR I/O;
- Remote control software and dialer;
- Echo cancellation through a digital process on DSP (POTS);
- Advanced audio processing functions: AGC, parametric EQ, audio filters, compressor, expander and limiter;
- Internal Web Server allows device configuration;
- Automatic setup;
- 1 selectable XLR input: Analogue or AES/EBU (AES/EBU is optional);
- 1 selectable XLR output: Analogue or AES/EBU (AES/EBU is optional);
- 1 balanced XLR analogue output;
- Phone call recording in PCM format on USB support (RX only or RX+TX);
- Front panel led meters displaying RX/TX levels;
- Audio stream generation in RTP/PCM format (RX only or RX+TX);
- Front panel LED: Gain RX, Gain TX, Mode;
- "Hook" and "Hold line" lighted buttons;
- 4 GPI interfaces, 4 GPO interfaces;
- Integrated Caller Identifier (CID) – only for VOIP;
- Input and output call logs;
- G711-G722 VOIP audio codecs;
- Local telephone output (POTS).



Macrotel X1 front



Macrotel X1 rear



Macrotel X2 front



Macrotel X2 rear



Web Interface Control Panel



For more information  
about Macrotel X1/X2  
Multimode, visit our website



# /// Features

## GENERAL FUNCTIONS

Macrotel X1/X2 Multimode parameters can be configured through a web interface and its web user friendly GUI is available from any kind of device: PC, notebook, tablet, smartphone.

Macrotel X1/X2 Multimode supports TCP/IP standards such as HTTP for web GUI and UDP for streaming. Connection to external NTP server (Internal RTC with buffer) for time synch and ethernet/GPIO connection are available. Macrotel X1/X2 Multimode has stainless steel enclosure and a front panel with 22 levels and status LEDs. Power supply: 90-260V AC 47-63 Hz - 10 W (green approach).

## POTS MODULE

Macrotel X1/X2 Multimode embeds standard RJ11 sockets for connecting to the telephone line and to an external telephone set. Internal DIAL system via DTMF for direct call is also available (so the external telephone set is not mandatory). It is possible to export logs phone numbers of incoming and outgoing calls and save them on a USB key (date, call time start, call time end). It is possible to set the automatic telephone line hooking after a settable number of rings and automatic telephone line release based on the "dropped line" tone (this feature can be disabled). Among the many customizable parameters Macrotel X1/X2 Multimode also has adjustable AGC, compressor/limiter and equalizer parameters and adjustable telephone band (with low or hi-cut).

## BLUETOOTH MODULE

Macrotel X1/X2 Multimode has a fully certified Bluetooth version 3.0 audio module, compatible with Bluetooth version 2.1+EDR, 1.2 and 1.1. SIP version 2.0 (RFC 3261) is also on, together with adjustable AGC, compressor/limiter and equalizer parameters.

Embedded Bluetooth stack profiles: A2DP and HFP/HSP. Supports iAP profile discovery for iPhone® and iPod® Bluetooth accessories G.711u. Dual-channels differential audio input and output for highest quality audio. Certifications: FCC, IC, CE.

## VoIP MODULE

The VoIP is available through a standard network RJ45 connector. Macrotel X1/X2 Multimode embeds SIP version 2.0 (RFC 3261). Authentication methods: SIP/IAX Dynamic Registration (Register) and SIP Static IP authentication. Supported audio codecs: G.711u (PCM u) | G.711a (PCM a) | G.722 | G.722.1 24/32. Automatic telephone line hooking (after a settable number of rings) and automatic telephone line release based on the "dropped line" tone (this feature can be disabled). Logs of phone numbers of incoming and outgoing calls (date, call time start, call time end) are available and can get exported, as all the other logs, on USB key. Adjustable AGC, compressor/limiter and equalizer parameters are on as well as for the others connections mode.

Please note that supported PBXs and phone service providers require interoperability with established VoIP providers. Such services are delivered via either a SIP-based IP PBX or through a cloud-based telephone service provider. These are complex services, therefore sometimes configuring AxelTech products to

interact with them can be difficult or not possible. AxelTech constantly updates its products to reach compatibility with these services, nevertheless incompatibilities are still possible and any change or update made by the service providers or by the PBXs themselves can cause problems with Macrotel X1/X2 Multimode in VoIP mode.

Here below you can find the list of the PBXs and VoIP service providers that have been used successfully by our customers with our products: these services are not fully compatible 100% of the time, as one update can interfere with the compatibility and of course we cannot guarantee to test them. We would suggest to customers who are considering using Macrotel X1/X2 Multimode with services other than those listed below, to contact our technical support team before purchasing this service.

We will allow the customer to return the AxelTech product and obtain a refund if the device is not compatible with the service he has selected. The following services are currently reported as compatible with AxelTech Products: Supported PBXs: Asterix Supported VoIP Providers: Olimon Tel.



**For more information  
about Macrotel X1/X2  
Multimode, visit our website**

