

## Automatic Telephone Hybrids

# HL203 & HL202

**The new advanced technology for restoring  
the original audio quality of the human voice,  
lost during a phone transmission.**



*HL203-VQ Hybrid with the new VQR technology for  
telephone or cellular communications.*

A new  
landmark in  
high quality  
FM radio



*HL202 Telephone Hybrid for 2, 4 & 6 lines  
operates with only 3 buttons.*

# HL203-VQ The new advanced technology for restoring the original audio quality of the voice on phone transmission.

This new technology, developed at Solidyne Labs, allows reconstructing the original human voice quality transmitted over telephone lines or Cellular Phone systems. This new invention, based on the Psychoacoustics science, uses the informa-

tion contained into the 300 - 3.000 Hz band to decode it and restore to the near-original audio quality.

The Voice, once restored, has a 50-10.000Hz bandwidth.

Telephone Hybrid HL203-VQ



## HL203-VQ Facilities

The HL203 connects wirelessly to a cell phone through a Bluetooth microwave digital link, that almost all cell phones possess. Then, it would not need to perform tedious cable connections. You do not even need to touch the cell phone, because the calls are attended by pressing a button at the HL203. You can keep the conversation in private (**Hold mode with Cue**) and sent into the air by pressing **ON-AIR**

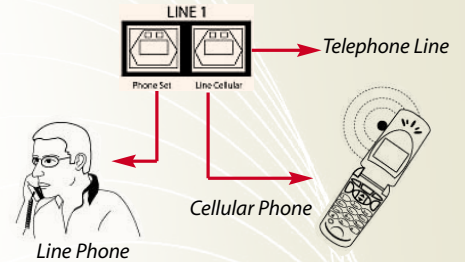


VQR technology is an invention of Solidyne allowing reconstruct the original sound, lost on phone transmission.

The HL203 includes a 3 lines hybrid, prior to VQR system, to enable the handling of two telephone lines and a one cell phone connected wirelessly by a digital microwave link named Bluetooth.

All 3 lines can be placed in conference, with a cross gain between them, to allow for a com-

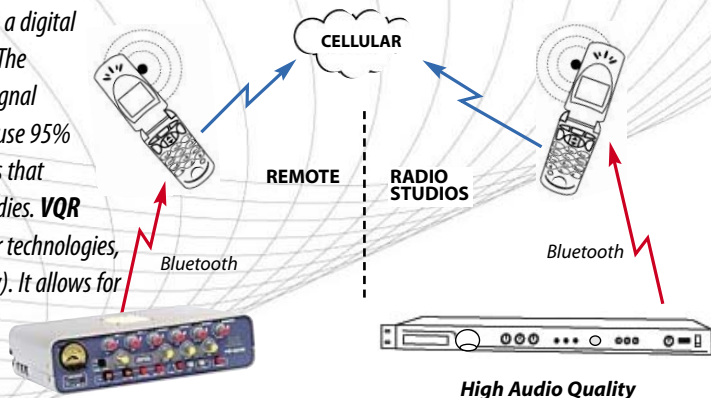
fortable and excellent communication level. It also allows the direct entry of cell phones instead of phone lines. This way saves a lot of money on telephone fares by taking advantage of the promotions of communication at low fee, using Corporate cell phones.



But if you need to connect more cell phones, you can also do this using the wires of hands-free kit. HL203 accepts cell phones instead of telephone sets. You may then have up to 3 cell phones in the air in conference.

## Replaces in your Radio Station the conventional hybrids

Cell phones are connected via a digital microwave link, Bluetooth. The reconstruction of the audio signal quality is good enough, because 95% of the radio audience believes that the sound is generated in studios. VQR reconstruction, unlike other technologies, it has very low latency (Delay). It allows for comfortable interviews from studio to remote.



Three controls to adjust the level of quality desired.

**NOISE:** improvement of dynamic range from 45 dB typical phone line to 70 / 80 dBA high quality Studio Microphone.

**BASS:** restoration of the 50 - 300 Hz band. It is based on the vocal cord formant theory that allows to restore the low frequency information lost during the phone transmission.

**TREBLE:** restoration of the 3.000 to 10.000 Hz band. It uses the fundamental pitch of the fricative voice sound to restore the high harmonics.

# HL202 Telephone Hybrid for 2, 4 & 6 lines. Automatic phone hybrid operates with only three buttons.

*These hybrids synthesize our 45 years experience in developing telephone hybrids for broadcasting. This is a system where the excellence was applied to the design facilitating the operator's work. The audio send and the reception have band pass filters and limiters / compressors to control the audio levels. HL202 can operate with all console models. Is able to accept terrestrial*

*phone lines or cellular phones. The cabinet has detachable lateral supports to be mounted in rack or to operate on a table. The local sound rejection surpasses 40dB and the quality of audio signal on air is so good that it will surprise your audience. It is not easy to realize that the sound comes from a telephone line.*



Telephone Hybrid HL202 - 2 Lines.

## Permanent monitoring of lines on HOLD

You can listen the telephone or cellular lines when they are on **HOLD**. Connect a set of active speakers (i.e. PC multimedia kit) to the **CUE** monitor output. For example, if you have lines 3 and 4 on the Air; the journalists of lines 1 and 2 are listening to the air program. But, if an important event takes place, journalists can speak to the operator or producer, and they are immediately attended.



### MAIN FEATURES

- 2, 4 or 6 phone or cellular lines** in conference.
- 40 dB** local signal reject.
- Three buttons** easy operation.
- +4 dBm balanced output** with audio compression & gain control.
- Automatic phone sending level** at 0 dBu
- Band-pass filters** on the send, to improve rejection of local signal
- 8 dB gain between lines** to obtain comfortable

- levels on a conference.
- Robust buttons** with reflective illumination.
- Balanced telephone connection** using NI-Ferrite transformers.
- Protection against lightning discharges** using SIOV technology.
- High quality on the air**, without coloration of the local voice.

 **Listen audio demos on menu:**  
ENGLISH/Demos/Audio demo VQR.

**The HL203 is expandable like a Meccano. HL202 units can be added to bring 5 lines and up to 7 lines, all with VQR.**

HL203 can connect to one or two units HL202 to expand the number of lines.



A flat cable **LINK** at the rear panel allows future enhancements.



**Rear side of HL203.** See at the left the microwave antenna **Bluetooth**.



**If you use a Solidyne 2300 console,** it is possible to add a **2330 VQR module**. This allows you to have this advanced technology inside the console, with the

three **VQR** controls near your hands. A complete **LED display** allows the operator to have a visual picture of the audio restoration.

# Technical Specifications



## Telephone Hybrids

### LINES

2, 4 & 6 phone or cellular lines.  
Full conference with 8dB cross gain.

### TECNOLOGY

Active Hybrid with send and return gain, auto-adjusted by audio limiter and AGC. Balanced telephone lines floating with ground isolation by Nickel-Ferrite transformers.

### AGC OUTPUT LEVEL

Constant level to console, independent from line level due to the action of the internal AGC. A 15dB phone level change causes less than 3 dB change at the Output.  
Output level control on the front panel. Nominal level +4 dBu, variable between -60 / +8 dBu.

### INPUT LEVEL:

Audio limiter to operate with signals from -5 to + 8 dBu.

### PRIORITY SYSTEM:

The speaker have priority to interrupt, causing an attenuation of 12 dB on the caller.

### AUDIO SEND FILTERS

Band-Pass filters in send channel, limits response to 400 – 2.200 Hz to eliminat on-air sound coloration.  
Send Level at phone line: 0 dBm (2 Vpp)

### HYBRID OUTPUT RESPONSE

300 - 3.400 hz +/- 1 dB IMPEDANCE: 600 Ohms.

### HYBRID GAIN

Self-adjusted between 12 and 30 dB, according to the line level.

### DISTORTION, THD

Below 0,2 % at the balanced output @ 1 Khz, + 4 dBm level.

### NOISE LEVEL

S/N better than 70 dBA, measured with artificial phone line of 2 Km.

### HYBRID REJECT

More than 40 dB at 1 Khz. Measured with 2 K m artificial phone line.

### REJECT ADJUSTMENT

15 Multi-turns preset on each line. It adjusts only when installing.

### LINES ISOLATION

Independents inputs, balanced and floating with transformer Isolation 250 V/CA.

### OVERLOAD SAFETY

2 KVolt protection against lightning discharge using *SIOV technology*.

### POWER

200-240 V/100- 130 V.  
50/60 Hz, 5 VA.

### DIMENSIONS

Rack mounting 19".  
1 U (44mm).