

CAMBRIDGE ELECTRONICS LABORATORIES  
20 Chester Street  
Somerville MA 02144-3005 USA  
Telephone +1 617 629-2805  
Telefax +1 617 623-1882

<www.camblab.com>

<camblab@attglobal.net>

Analog Telephone Ringing Accessory  
(for ISDN Terminal Adapters or other devices)

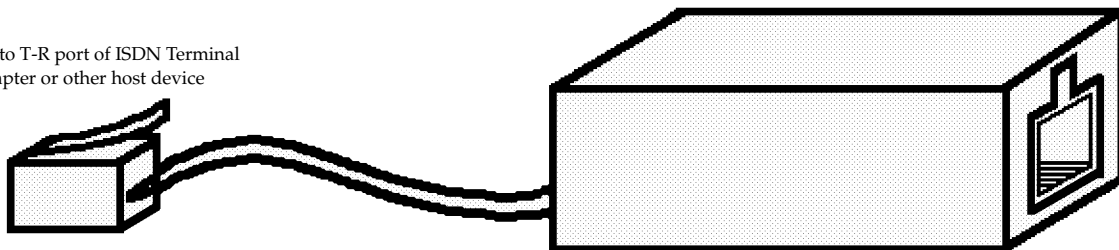
Though ISDN was originally conceived as totally digital, practice has shown many users to want an interface enabling an analog telset, answering machine, or facsimile machine. CEL's Model ATRA-1 Analog Telephone Ringing Accessory speeds and simplifies the addition of an analog port to an ISDN Terminal Adapter design by packaging analog ringing circuitry in an external module. It may also be used to add analog ringing to any other type of device providing a standard tip-ring interface but lacking ringing capability.

The module, sized at only 38 x 60 x 18 mm, terminates at one end in an RJ-11 jack and at the other in a short modular cord. In use it is connected in series with the analog telset's modular cord and plugged into the host's tip-ring interface. The module integrates a tiny ringing generator with hook-status detection and latching circuitry. The designer need provide only 12 V on the outer pins of the Adapter's RJ-11 jack to inject standard analog ringing into the connected instrument. The ATRA-1 itself will generate ringing, detect the phone's change in hook status, latch ringing off, and complete the tip-ring path for subsequent recognition by the host.

Technically the ATRA-1 speeds the designer's task by eliminating the need to design a ringing generator and ancillary circuitry and locate same on a crowded board. Commercially its use cuts cost by making the ringing function an inexpensive option for those customers who need it. Market studies reveal that not every user requires analog ringing but those who do need support for a full 5 REN and will pay well for it.

Cambridge Electronics Laboratories, a specialist telecom power supply firm, also provides technical assistance in analog interface design.

Plugs into T-R port of ISDN Terminal  
Adapter or other host device



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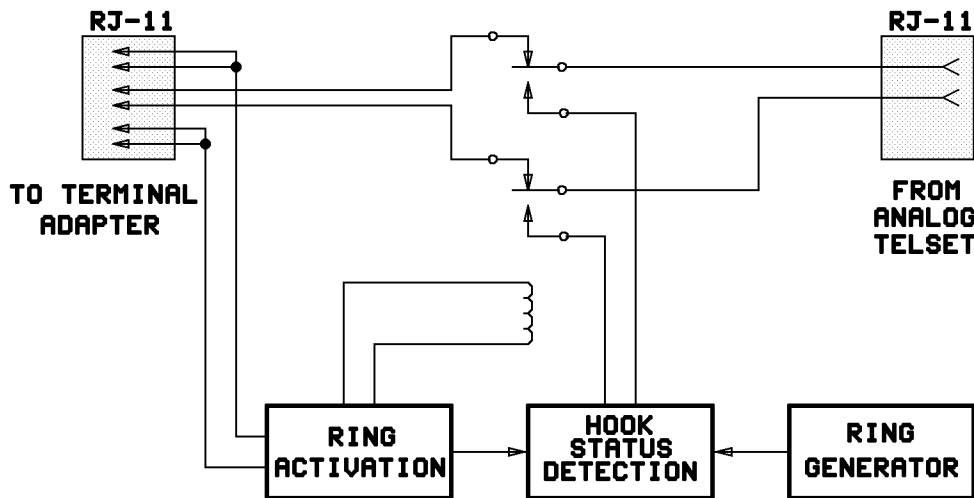
ATRA-1 Technical Notes

1. For proper ATRA-1 operation, the host device must be designed (or modified) to place 12 V on pins 1+2 and 5+6 of its RJ-11 connector when ringing is to be called. When the module senses this voltage, it switches the connected telset from pins 3+4 to its internal ringing generator and ring-trip circuit until the removal of the 12 V, or until the telset goes off hook, whichever occurs first. Upon either occurrence, the connected telset is returned to the normal-through connection. Ringing is therefore cadenced by cadencing the 12 V input to the module.

2. The module requires about 200 mA during the ringing period and 600 mA for 200 ms from the time the called device goes off hook until ringing is latched off. This peak current may be supported by either a sufficient power source or a reservoir capacitor or an appropriate combination of the two.

3. The module is furnished with a 6-conductor cord and plug to reduce the series resistance and voltage drop. Its bridging of leads 1+2 and 5+6 could also, if desired, signal the host device no longer to sound an internal piezo-electric annunciator.

4. Users not employing the module continue to plug their analog telset directly into the host device. They continue to obtain the host's functionality but do not receive the analog ringing signal optionally implemented by the addition of the module.

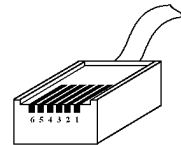


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ATRA-1 Functional Diagram

ATRA-1 Electrical and Mechanical Specifications

<u>Specification</u>	<u>u/m</u>	<u>Value</u>	<u>Remark</u>
Input voltage:	Vdc	11.4-13	+ applied to pins 1,2 - applied to pins 5,6
Current drain:	mA	150	Load 1 REN
	mA	300	Load 5 REN
	mA	600	Off-hook transition ~ 200 ms
Output voltage:	Vrms	75	
Output frequency	Hz	20	Square wave
Load supported	REN	5.0	
Dimensions	cm	3.8x6.0x1.8	
Length of modular cord:	cm	15	Terminated with RJ-11 plug
Weight:	gr	100	
Operating temperature:	° C	-10-->+70	
Storage temperature:	° C	-10-->+85	
Assembly method:	Electronics encapsulated in five-sided mild-steel case with UL 94 V0-rated silicone rubber		
Labelling options:	(1) None (2) Cambridge Electronics Laboratories (3) Customer-supplied		
Warranty:	Five years (refer to CEL's detailed warranty policy)		



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Custom electrical and mechanical specifications available on special order.