

HARRIS

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Broadband Testing Products

TS[®]400 E1 Probe **TS[®]410 E1 Transceiver**

Alarm & Error

Transceiver and Monitor



TS400 E1 Probe

The TS400 E1Probe is a PCM Alarm and Error monitor; a versatile, battery powered probe, which can monitor, bridge or terminate 2Mbit/s PCM transmission systems to identify the error and alarm status on any section.

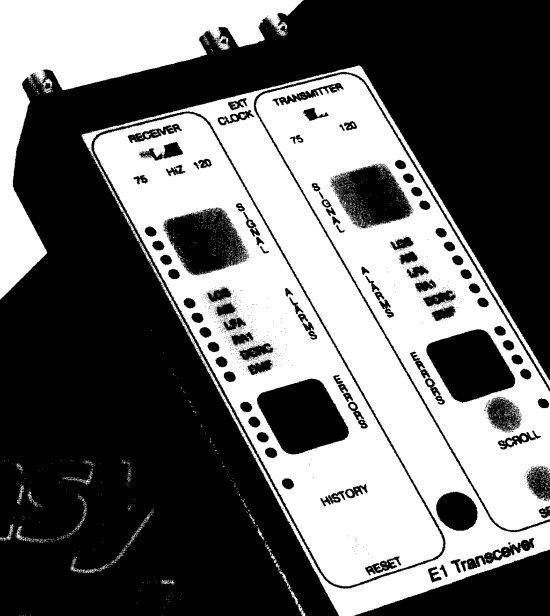
The TS400 requires no set up and is extremely easy to use. Its 14 LEDs provide clear identification of signal, alarm and error conditions. The unit is powered by a 9 volt battery giving up to 40 hours continuous operation. Alternatively, a plug top mains PSU can be used.

The TS400 is extremely versatile and ideal for transmission equipment commissioning and maintenance, and locating a fault in cable sections. It performs non intrusive error monitoring, end to end BER testing, and switch and multiplexer alarm testing.

TS410 E1 Transceiver

The TS410 E1 Transceiver is a 2Mbit/s PCM Signal, Alarm and Error transceiver and monitor. Primarily a PCM tester, the TS410 can monitor, bridge or terminate 2Mbit/s PCM transmission systems to identify and send signal, alarm and error conditions.

The TS410 is battery powered, and requires no configuration other than setting the impedance switch. It is extremely easy to use. Its LEDs provide clear identification of signal, alarm and error conditions. The transmitter is configured using the Scroll and Select keys. Any allowable combination of signal, alarm and error conditions can be transmitted. 2 AA alkaline batteries give up to 20 hours continuous operation. Alternatively, a plug top mains PSU may be used.



next level solutions

**easy
broadband**

TS400 Features & Specifications

Terminating modes

120ohm balanced; 75ohm unbalanced
monitor point or terminated; or hi Z bridged

Signal frame status indicators

G.704 frame sync; CRC4 detect;
CAS signaling; PRBS BERT pattern

Alarm indicators (real time and latched history)

LOS - loss of signal, AIS - all 1s,
LFA - loss of frame alignment,
DA - distant alarm,
DCRC - distant CRC4 alarm,
DMF - distant multi frame alarm

Error indicators (real time and latched history)

FAS-framing alignment word error; CRC-CRC4
coding error;
CODE - bipolar line code error;
PRBS unframed, BER > 1 in 10⁷ orange fast flash
or BER > 1 in 10³ red fast flash

Major Alarm sounder

9 volt battery or plug top 240VAC power supply

Test modes

2.048 Mbit/s G.704 error and alarm monitor.

Monitor High impedance bridge or
attenuated monitor point.

Receive Terminates a G.704 PCM
transmission line.

PRBS receive or monitor mode synchronising to a
2¹⁵-1 pseudo random binary sequence pattern.

Receive signal level

AGC in the range 0dB to -30dB flat loss

Audible Alarm

LOS, LFA, PRBS > 1 in 10³

Push buttons

ON/OFF toggle - powers the unit on and off

History - lights an appropriate LED if an alarm
or error has occurred

Reset - initializes unit and clears alarm/error
history latches

Battery - 9.0 VDC PP3

Mains PSU - 2.5mm 4.5VDC >100mA regulated

TS410 Features & Specifications

Terminating modes

120ohm balanced or 75ohm unbalanced
or Hi Z monitor

Signal Indicators

G.704 2Mbit/s framed signal;
CRC4 multi frame; CAS signalling multi frame;
PRBS fill pattern if G.704 ON; PRBS unframed
BERT pattern if G.704 is OFF

Alarms

LOS - loss of signal, AIS - all 1s,
LFA - loss of frame alignment (all 0s),
DA - distant alarm, DCRC - distant CRC4
alarm (E bits), DMF - distant multi frame alarm

Errors

FAS - framing word errors; CRC - CRC4
coding errors; CODE - bipolar line code errors;
PRBS unframed BER 1 in 10⁷ orange flash
or BER 1 in 10³ red flash

E1 PCM Interface

Transmitter - BNC connector.

Receiver - BNC connector

Transmit line frequency: 2.048MHz (25ppm)

Receiver phase locked loop

Line code - HDB3. Line code - HDB3

Unbalanced 75ohm 2.37v pk.

AGC 0 to -30 dB flat loss

Balanced 120ohm 3.0v pk

AGC 0 to -30dB flat loss

External Clock Input

BNC connector TTL or CMOS level input square
wave

Buttons

ON/OFF - Press > 1 second ON; press > 1 second OFF

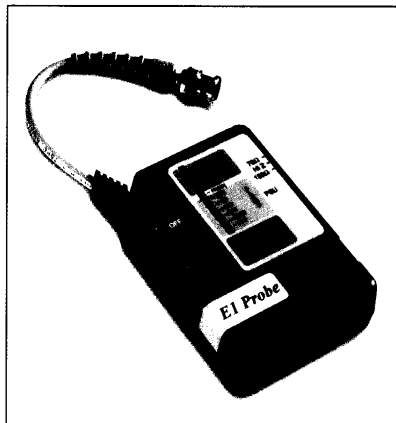
Scroll - Lights LED continuously on function to be
selected. Short press moves down one function

Select - Short press Selects continuous LED
highlighted function

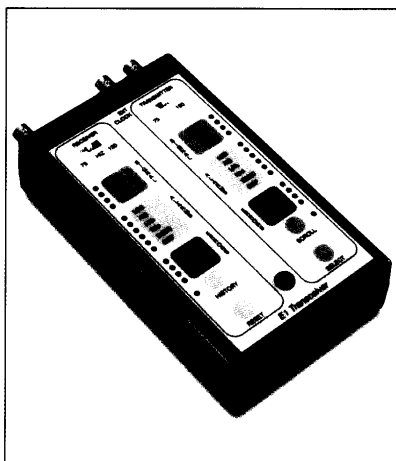
History - Press to display latched alarm and
error conditions

Reset - Press to reset latched alarm and error
conditions

Battery - 9.0 VDC PP3



The TS400 E1Probe is a PCM Alarm and Error monitor; a versatile, battery powered probe



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