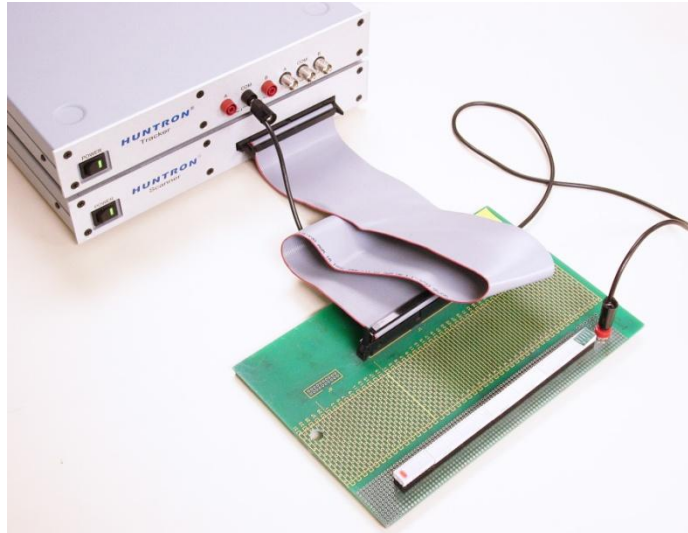


Cable Testing with the Huntron Tracker Model 30 and Scanners



Huntron Tracker Model 30 with Scanner 31S – Testing 64 pin ribbon cable with LED array fixture

Introduction

The combination of Huntron Tracker Model 30 and Scanner can be an effective cable testing system. This testing technique can effectively find construction issues with cables. It does offer the unique ability to test cables single ended, if they are attached to electronic equipment at the far end. This facilitates cable testing in large vehicles where the far end of the cable is inaccessible, or cannot be easily connected to the tester. Comparative testing solutions require connection to both ends of the cable.

Test Technique

The Huntron Tracker Model 30 with Scanner uses the Huntron Workstation software for test development and execution. The pins of the Scanner are used to route the Tracker Model 30 signal to each of the pins of the cable. The Tracker Model 30 signal consists of a current limited sine wave that is applied across devices. The Tracker Model 30 monitors change made to the sine wave by the device. The source and result sine waves are used to create voltage versus current waveforms called analog signatures. Analog signatures are stored for each cable pin on a good cable. These signatures are compared to signatures from pins on suspect cables.

Applications

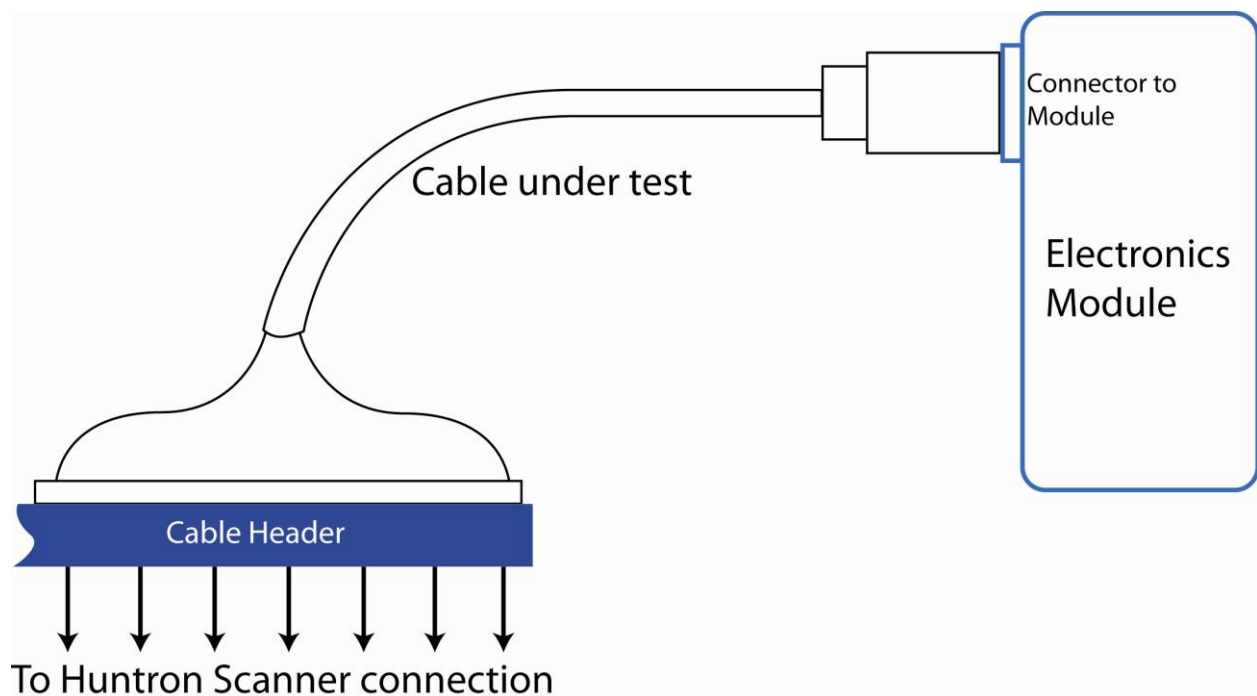
Terminated Cables

The Huntron cable testing combination can test cables with electronic components at the other end of the cable. The components can be shorts, resistance, lights, non-powered circuit cards, etc.

Examples of terminated cables:

- Cable harnesses in a vehicle with a sensors and/or lights at the other end
- Adapter cables with electronics
- Cables with terminating resistors

When testing terminated cables, the non-terminated end of the cable is connected to tester. The tester compares the signatures the pins of the cable to a known good sample. It may be necessary to make Common(s) connections to the UUT on the other end of the cable.



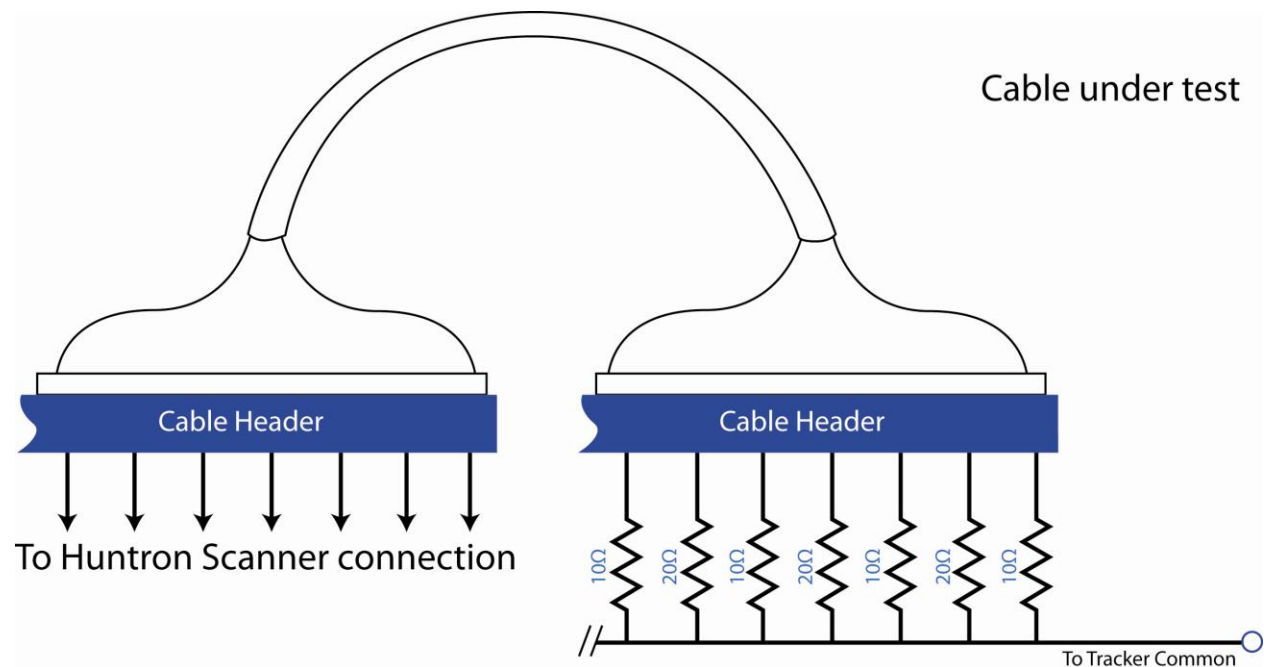
Un-terminated Cables

The Huntron cable testing combination can compare cables when both ends of the cable are available at the tester. If only one end of the cable is available at the tester testing is limited to pin to pin shorts.

Examples of un-terminated cables:

- Computer cables
- Wiring harnesses

When testing un-terminated cables and both ends are available, it is necessary to add bussed terminating resistors to each pin at the other end of the cables. The bussed node of the terminating resistors is connected to Common on the Tracker Model 30. A typical value for the bussed terminating resistors is 50 ohm. Others values may be used based on the construction of the cable and types of failures expected. Varying the resistance value from pin to pin allows checking for miss wired cables. LEDs can be connected between the cable and the terminating resistors. Combined with selecting the correct test range, this allows for visual verification of continuity of each wire in the cable. Shorting all the pins of the other end of the cable can allow for seeing variations in the cables wires down to 1 ohm or lower.

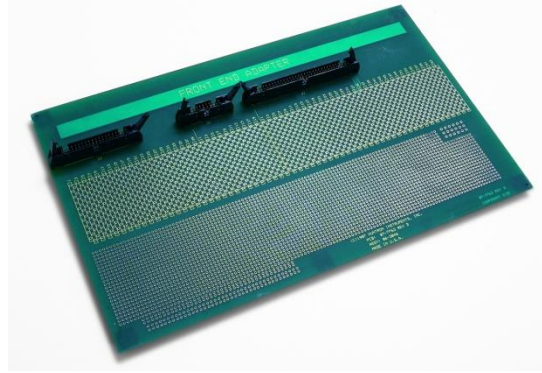


Adapters

The Huntron Scanner II has two front panel SCSIII style 68 pin high density connectors. The optional Scanner Adapter converts these to two 64 pin dual row 0.1" IDC style spaced headers. These connector(s) need to be connected to one end of the cables being tested by means of cables, adapters or interface boards.



Scanner Adapter for Scanner II



Sample Connector Adapter PCB

Adapters can be built with connectors for cabling from the Scanner and connectors for several different cable connectors. The connectors for one end of the cables are connected to the Scanner interface connectors. The connectors for the other end of un-terminated cables can be wired to the same bank of terminating resistors.

Current Huntron Products that Support Cable Scanning

- Tracker Model 30 with Scanner II – 128 pins per Scanner II; up to 1024 pins by daisy-chaining Scanner II units
- Tracker Model 30 with Scanner 31S – up to 64 pins
- Tracker 2800S – up to 40 pins

Tips

Huntron Workstation Component Package Types and Pin Names

The Workstation Software component package types allow selection of the order the pins of the Scanner II are scanned. Pin names can be used to identify cable wire names, signal names or to change the number of the pin to match the cable.

Huntron Workstation Short Check feature

The Workstation Software has a short check feature that uses the Scanner II to look for shorts between adjacent pins or all pins. This is usefully when testing cables for shorts when only one end of the cable is available.

Huntron Workstation Continuous Test with Stop on Difference feature

The Workstation Software has Continuous and Stop on Difference features while scanning a cable. These can be selected to allow flexing the cable during testing to find intermittent issues.

Huntron Workstation Pause feature

The Workstation Software has pause feature that stops a sequence scan at a component (Cable Test) and prompts with instructions. This allows testing of a group of cables by stopping and prompting to connect the next cable.