

# The Importance of a Structured Cabling Tester

Identifying a fault and its  
location at the same time

Wire protocol



# The Importance of a Structured Cabling Tester

## Identifying a fault and its location at the same time

The growth in both network and communication systems has increased the demand for organizations to implement a detailed, well organized, structured cabling infrastructure.

As the demand for higher frequencies increases, the demands on the structured cable increases for both old and new installations.

The integrity of the twisted pair for instance, requires a tool to certify that it complies with the structural specifications. This is one test tool, and it is expensive.

There is also need for quickly, inexpensively, and easily testing the installation of such a system for faults, incorrect connections or terminations as well as locating the fault. This tool is called a **Fault Mapper**. This can be used to verify that the conductors are continuous and the 'trim-out' connections are made correctly on the initial installation. This tool is also used as a troubleshooting tool to locate specifically where a fault is located.

Picking the best instrument from the variety of 'fault indicators' out in the market place is a challenge. Some questions that may come to mind:

- Can the display be easily read and interpreted?
- Can the display easily locate the distance to the fault?
- Can the display describe the fault?
- Can I afford this kind of equipment?

### The AEMC® Fault Mapper will do all these things.

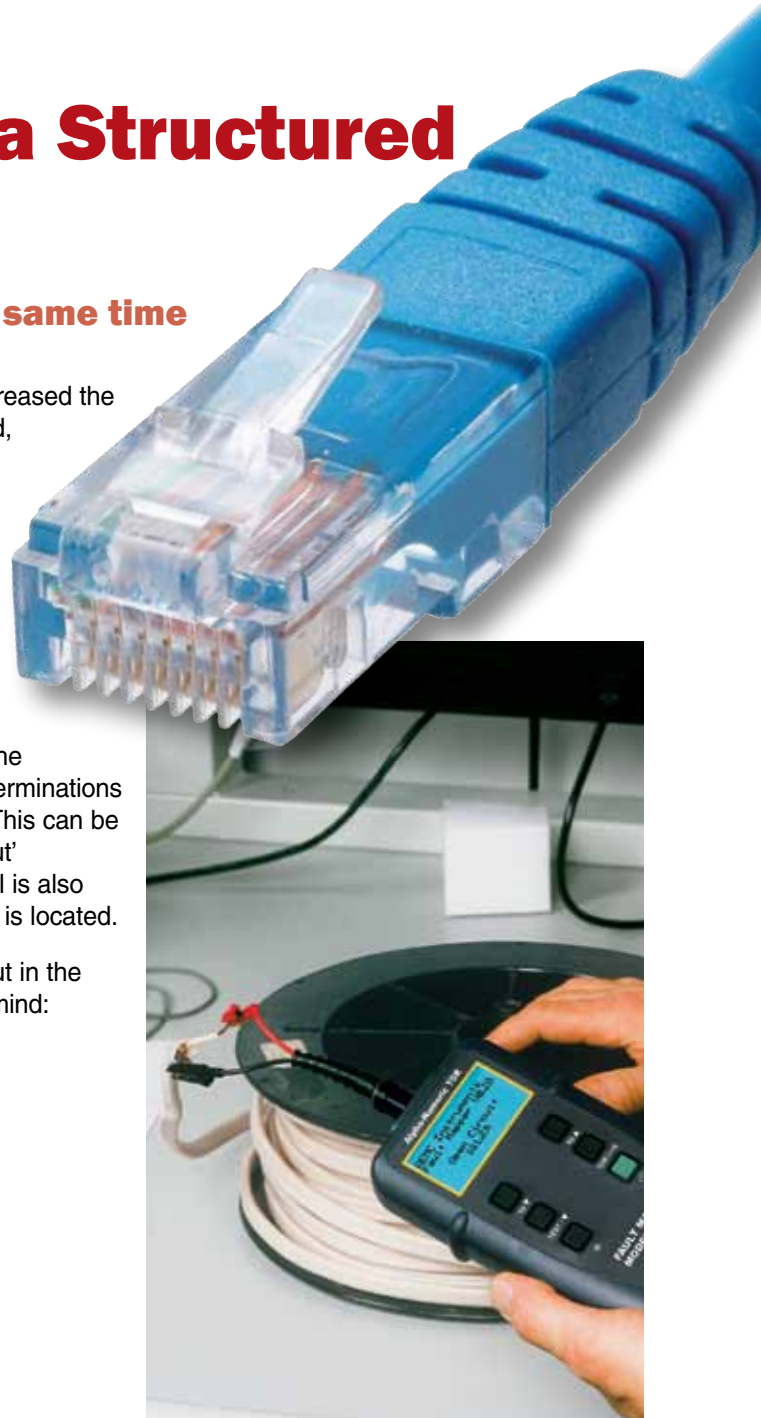
- It has back-lit display is graphical, digital and easy to read.
- It also uses 'Time Domain Reflectometry' to determine the distance to the fault.

## Why waste time?

If using a **Structured Cabling Tester** which only indicates a fault, but not its location can be costly. For example, if there is a short between wires 1 and 2, the operator sets about examining the termination at one end to find out if it is the faulty end. What are the chances of the fault being located the first time? Fifty percent. The fault is just as likely to be at the other end of the installed link. Both time and money have now been wasted.

## Solution

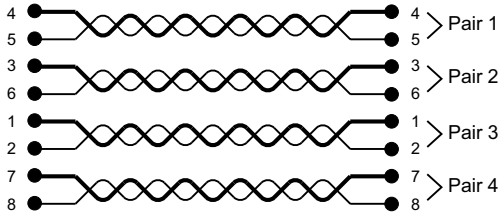
The operator should use a tester, which has the ability to measure and indicate the length of the cable under test, using a Vp (Velocity of Propagation) set by the user, as well as the ability to identify the nature of a fault and its location. This type of tester will reduce the time taken to locate and rectify the fault, and thus provides significant installation cost savings. Knowing where the fault is enables the operator to go straight to it, saving vast amounts of time, increasing productivity, and reducing installation costs.



## Wire protocol

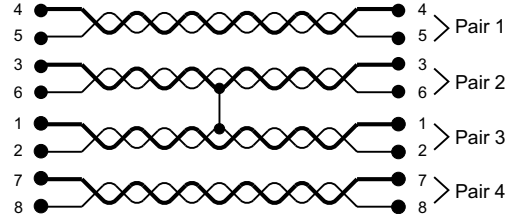
The following drawings are examples depicting cable faults:

### CABLE OK (OK)



Cable is good.

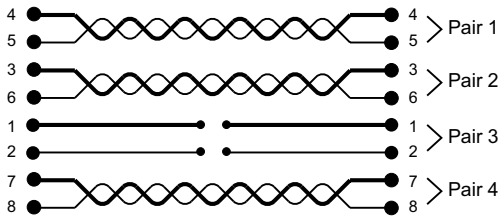
### SHORTED WIRES (SW)



Two wires from different pairs are shorted.

Two or more wires and pairs may be affected in the same cable.

### OPEN PAIR (OP)

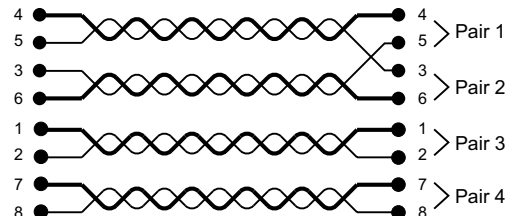


One specific pair is open.

It may be one or two wires in the same pair.

One or more pairs may also be opened in the same cable.

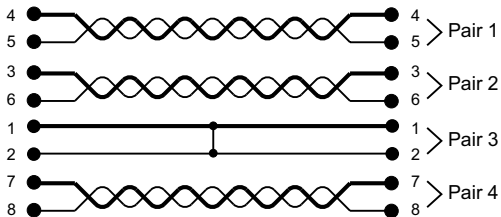
### CROSSED WIRES (CW)



Two wires from different pairs are crossed at one end.

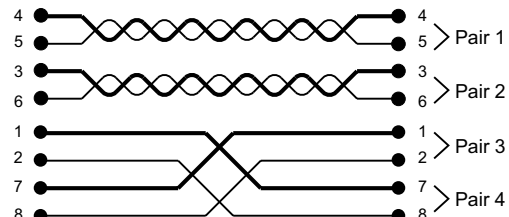
Two or more pairs may have wires crossed with another pair.

### SHORTED PAIR (SH)



One specific pair is shorted.

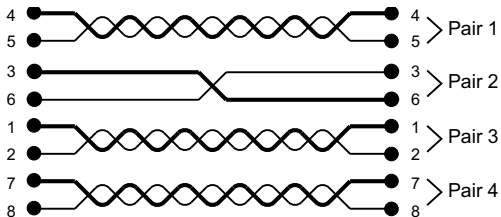
### CROSSED PAIRS (CP)



Two pairs are crossed at one end.

Two or more pairs may be crossed in the same cable.

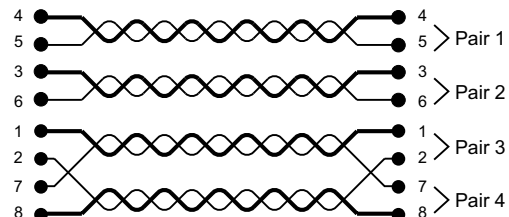
### REVERSED PAIR (RP)



The wires in one specific pair are reversed at one end.

One or more pairs may be reversed in the same cable.

### SPLIT PAIRS (SP)



One pair uses one wire from another pair.

The cable will work, but cross-talk may occur.

Two or more pairs in the same cable may be split.



**We have a solution! Contact us with any technical or product application questions...**



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