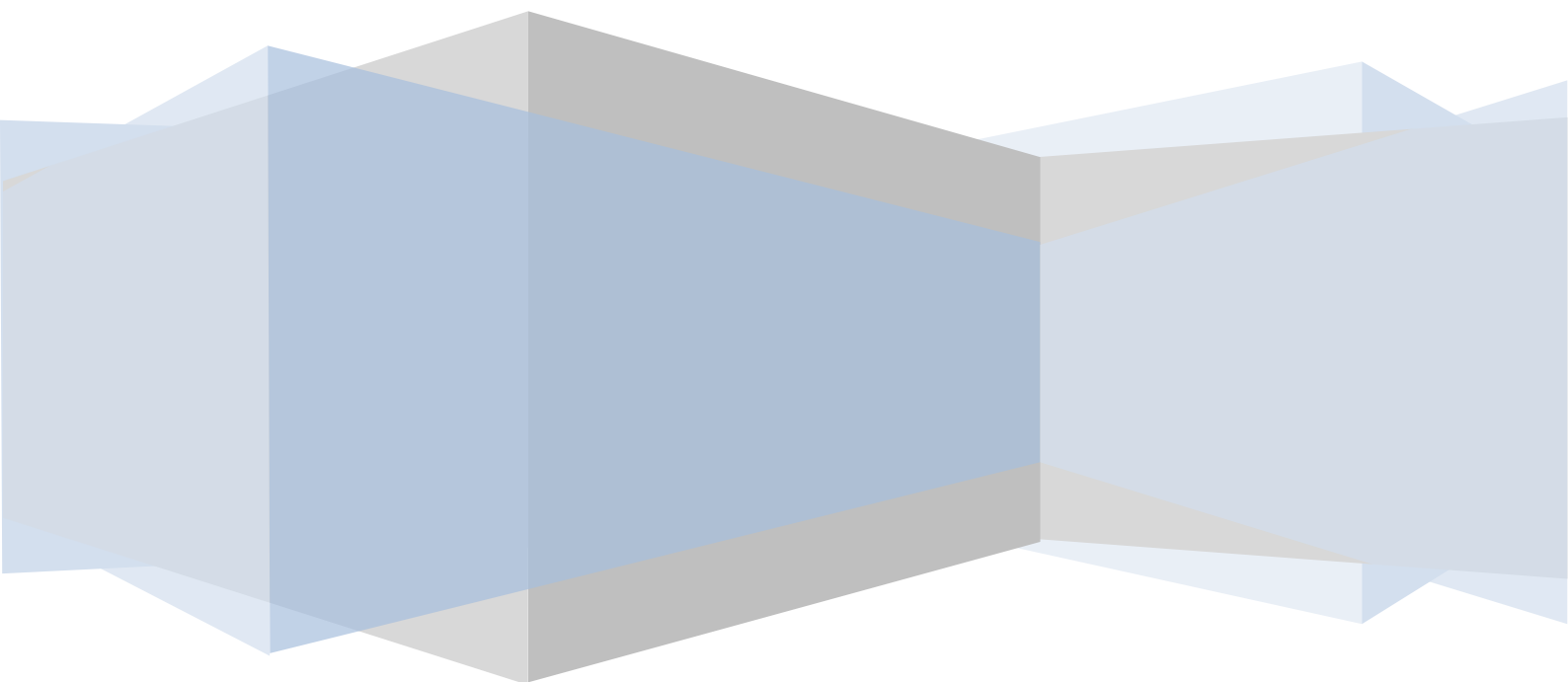


Institute of Computational Intelligence  
Częstochowa University of Technology

# The use of cable testers

Foundations of computer networks laboratory



# The use of cable testers

---

## The objective of the exercises

---

The aim of the exercise is to familiarize with the operation of the LAN cabling testers and to examine the samples of station cables.

## Introduction

---

Nowadays, in local area networks using Ethernet technology the most popular type of cable are four twisted pairs, mainly unshielded UTP, but also shielded with foil FTP and braided shielded STP. The individual twisted pairs are color-coded insulation as follows:

- orange – white/orange,
- green – white/green,
- blue – white/blue,
- brown – white/brown.

It is important to transmit the data using cables belonging to the one couple.

The connection between network elements is realising using RJ-45 sockets and plugs. The plug has eight pins, as shown on the picture:



In commonly used standard EIA/TIA-568 the subsequent contacts are connected with the following cables:

- 1 – white/orange,
- 2 – orange,
- 3 – white/green,
- 4 – blue,
- 5 – white/blue,
- 6 – green,
- 7 – white/brown,
- 8 – brown.

As a consequence we have the pairs in following contacts 1-2, 3-6, 4-5, and 7-8. In the case of Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps) the pairs 1-2 and 3-6 are applied. In telephone PSTN network – pair 4-5. Fastes Ethernet network (1 Gbps and more) applies all pairs. RJ-45 plug is also equipped with the latch maintaining it in the socked.



# The use of cable testers

## Course of exercise

During the classes students will be examined prepared patchcords with various defects. They are marked with symbols 01, 02, and so on, with each tip marked additional letters (A) and (B), e.g. 01 and 01-B.



The aim is to identify, using available cable testers, the defects and its position.



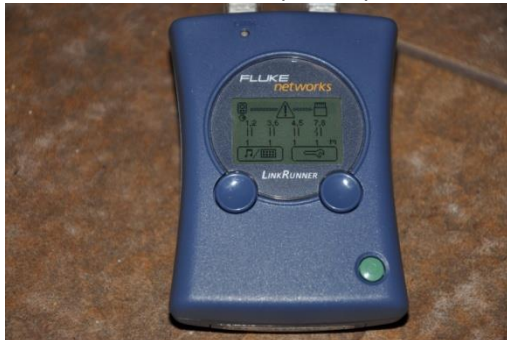
## The use of cable testers

---

The following images show the correct connection of the cable under test to the tester.



Example of indication by the tester with an interrupted a pair of 7-8:



Example, indicate the case when which the wires in a pair of 7-8 are swapped:



Example, indicate for cable made correctly:

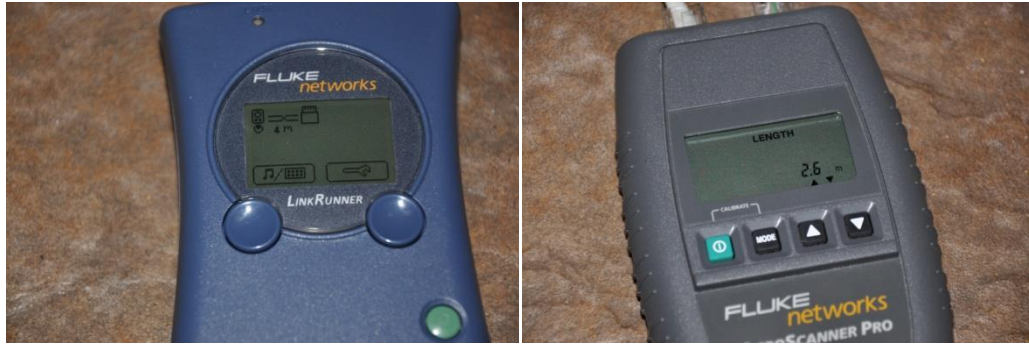




## The use of cable testers

---

Example of length measurement:



Example of length measurement for selected pair (1-2):



Cable detection using the probe:



### The report

---

Students work in small group. Each group test the patchcords and prepared protocol of results. For each patchcord it should be noted its length, type of defect and place of the defect. The protocol is the basis for the implementation of the report.