ETH-T1L

Long Distance Ethernet Module

Overview

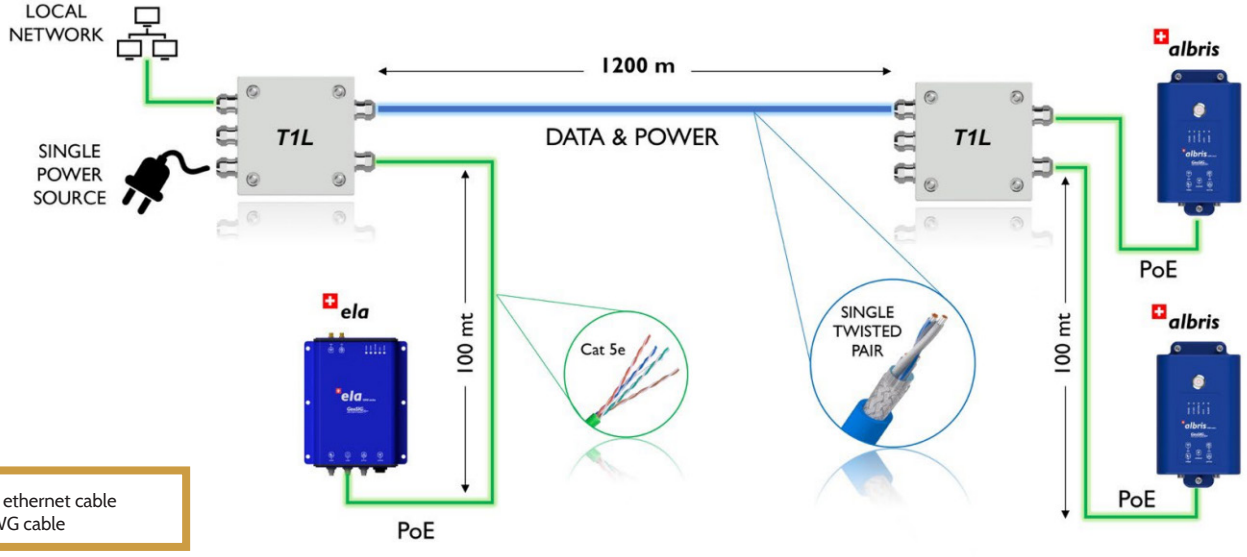
Based on the new 10BASE-T1L standard, the ETH-T1L module is an innovative technology and ethernet switch for fast data communication over a long distance.

This ground-breaking solution provides a single-pair cable-based Ethernet infrastructure for data and power over 1200 meters.

It is an ideal solution for connecting accelerographs, recorders, and other data-intensive devices in vast installation settings, allowing data transmission at speeds up to 10 MBps. The cost-effective cable and the simplicity of the wiring are the highlights of ETH-T1L, which empowers and extends the capabilities of GeoSIG products, such as *ela* and *albris*.

Key Features*

- 2 ports 10BASE-T1L
- 2 ports 10/100BASE
- Standard TCP/IP network
- Power over Ethernet (PoE); no need to power any device separately
- Up to 1200 m of cable between modules
- Simple installation with screw-terminals
- Cost-effective cable
- Reduced installation time
- Unlimited possibility of extending the network to cover any distance
- Fully compatible with GeoSIG products



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ETH-T1L Long Distance Ethernet Module

Specifications

Long Distance Link

Number of ports:	2, both can be used as power source (PoE)
Standard:	10BASE-T1L, (IEEE 802.3cg-2019)
Comm. speed:	10 MBps
Link length:	Up to 1500 m (data only), 1200 m (data + power)
Max delivered power:	30 W per port (IEEE 802.3at, Type 2)

Standard Ethernet Link

Number of ports:	2, both can be used as power source (PoE)
Comm. speed:	100 MBps or 10 MBps
Link length:	up to 100 m, PoE
Max delivered power:	30 W per port (IEEE 802.3at, Type 2)

1) Optional

2) Actual number of connected devices depends on the device, wiring configuration and cable length

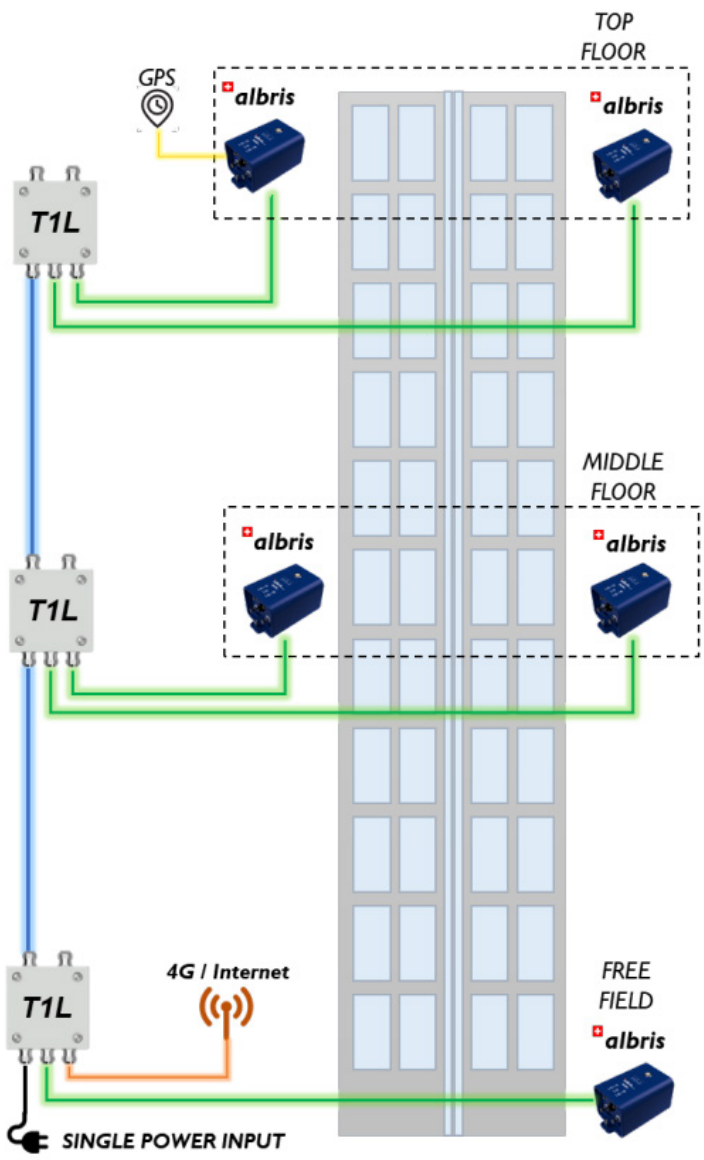
Cables & Connectivity

10BASE-T1L Cables:	1x2xAWG18 (Data + Power), max 8 devices [2] 1x2xAWG22 (Data + Power), max one device < 5W 1x2xAWG24 (Data Only)
Recommended cable type:	Compliant with IEC 61156-13 or IEC 61156-14
Recommended cable impedance:	100 Ω
Ethernet link cable:	Min 2x2xAWG24, Cat5e or better
Connector:	Internal screw terminals or external connectors[1]

Physical & Environmental

Type and IP rating:	Steel or stainless steel[1] housing, IP66
Size and weight:	205 x 150 x 80 mm, < 2 kg
Input voltage:	54 V or AC/DC adaptor[1]
Power consumption:	< 1.5 W, excluding cable losses

Installation Example Topologies



Example - High-rise Building 1

Centrally powered from a single source, forming a standard TCP/IP network (LAN).

High dynamic accelerographs (*albris*) with complete data recording and storage redundancy at each measurement point.
A single GPS module provides nanosecond timing accuracy among all recorders.

A landline or 4G router provides Internet access for remote data acquisition and configuration, as well as for any notifications.

Any other TCP/IP device, such as computers, printers, etc, can as well be connected.

Can be added into an existing LAN.

- Standard ethernet cable
- 2 wire AWG cable

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Installation Example Topologies

Example - High-rise Building 2

Centrally powered from a single source, forming a standard TCP/IP network (LAN), this time with a slightly different distribution.

Low dynamic accelerographs (*ela*) with complete data recording and storage redundancy at each measurement point. Possibility of generating alarms on dry contact relays of the accelerograph (*ela*), with a logic based upon all devices on the network.

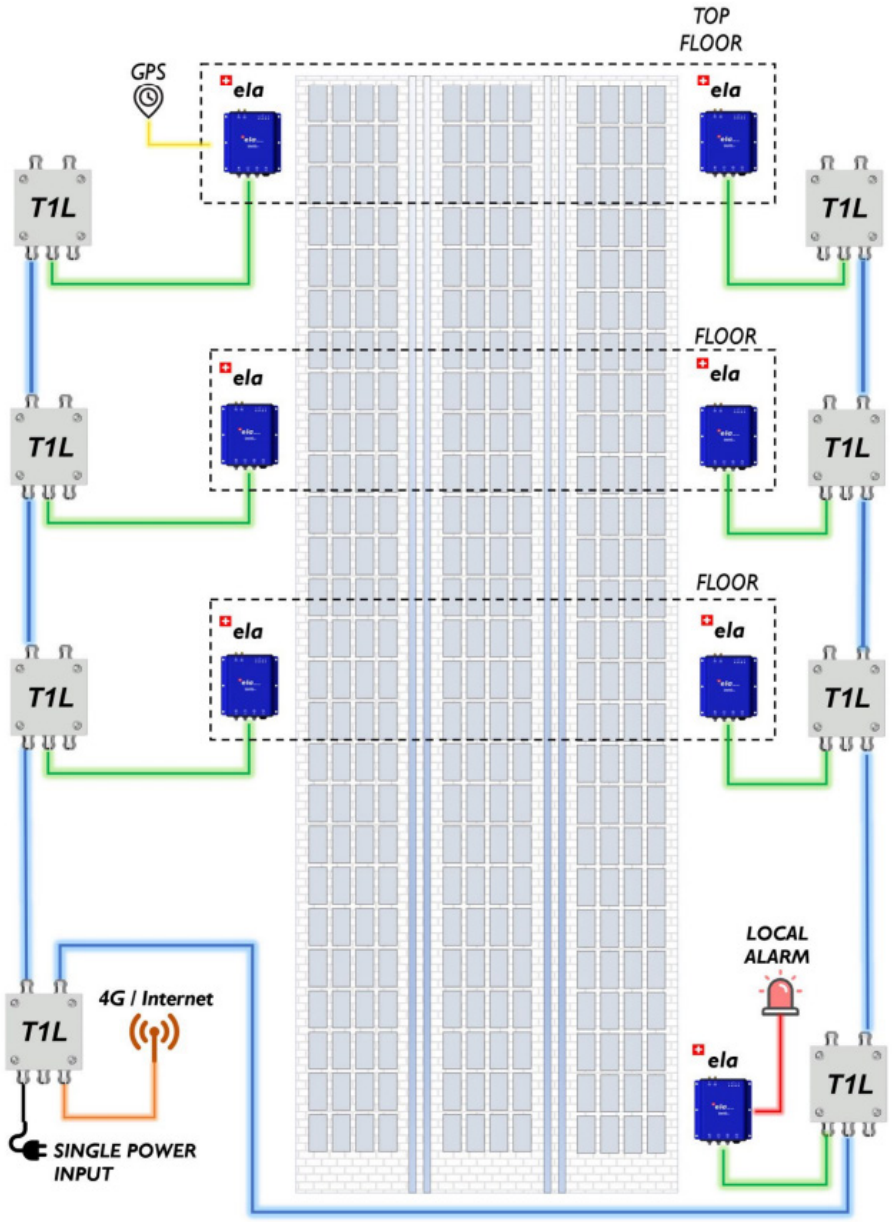
A single GPS module provides nanosecond timing accuracy among all recorders.

A landline or 4G router provides Internet access for remote data acquisition and configuration, as well as for any notifications.

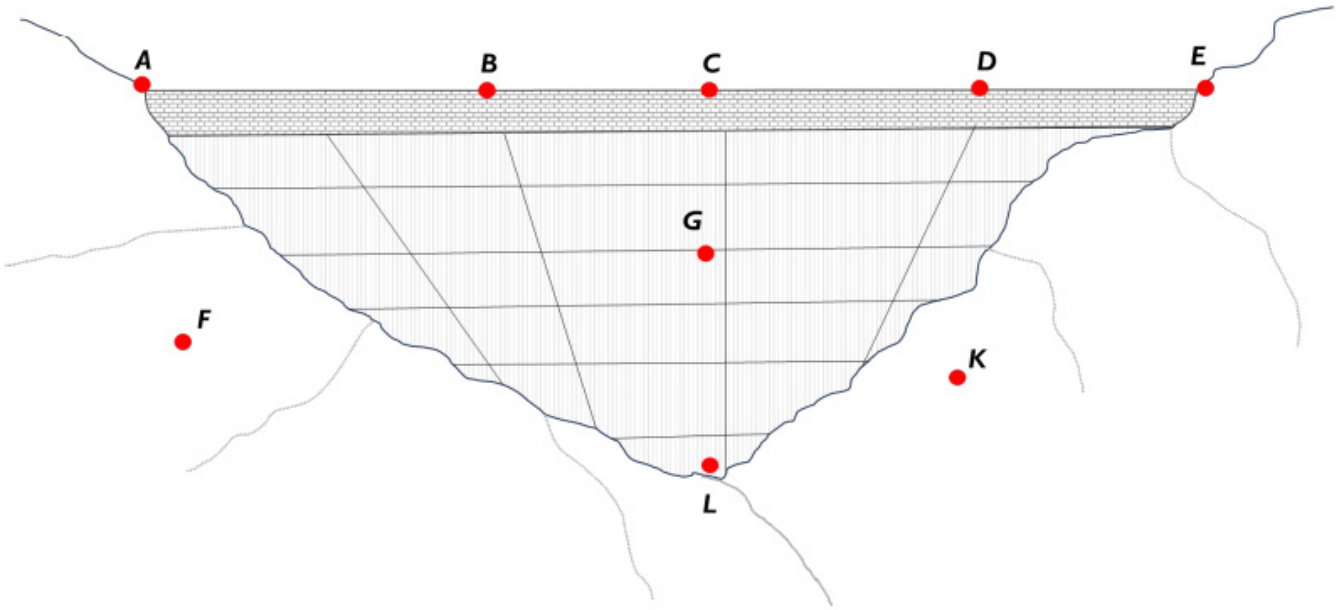
Any other TCP/IP device, such as computers, printers, etc, can as well be connected.

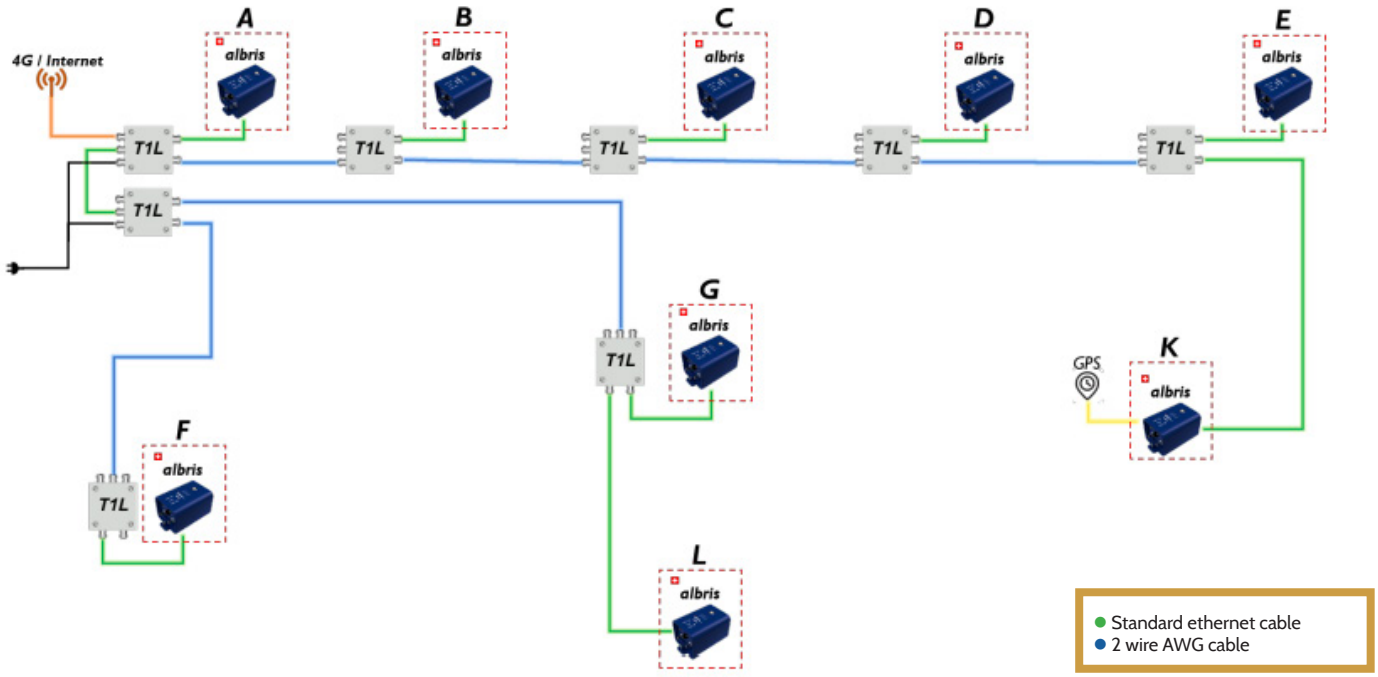
Can be added into an existing LAN.

- Standard ethernet cable
- 2 wire AWG cable



Installation Example Topologies





Dam Example

A true TREE topology with centrally powered high dynamic accelerographs (*albris*) with complete data recording and storage redundancy at each measurement point.

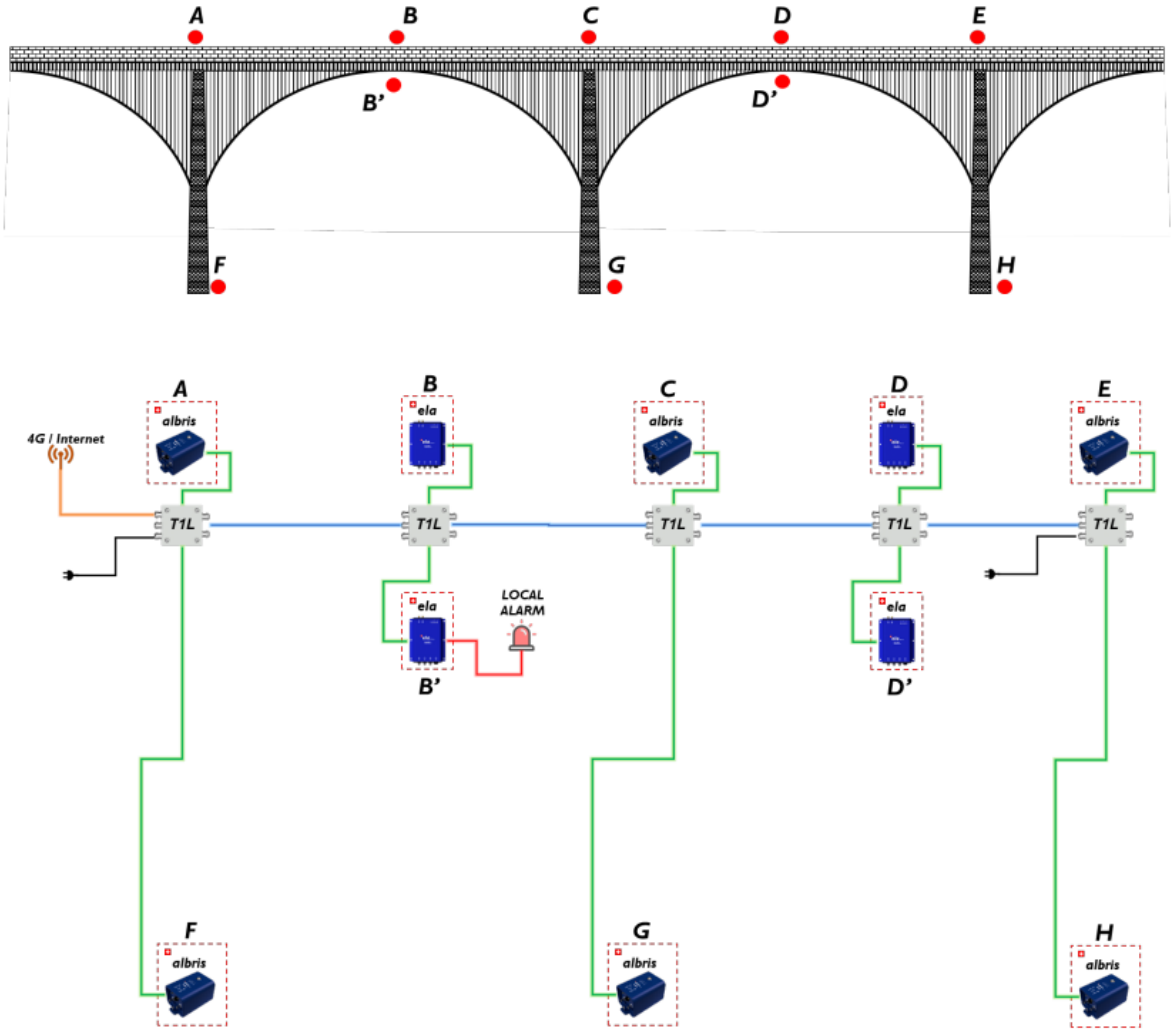
A single GPS module provides nanosecond timing accuracy among all recorders.

A landline or 4G router provides Internet access for remote data acquisition and configuration, as well as for any notifications.

Any other TCP/IP device, such as computers, printers, etc, can as well be connected.

Can be added into an existing LAN.

Installation Example Topologies



Example - Bridge 1

A true BUS topology with two sides powering sources and mixed dynamic accelerographs (*albris* and *ela*) with complete data recording and storage redundancy at each measurement point.

Possibility of generating alarms on dry contact relays of the accelerograph (*ela*), with a logic based upon all devices on the network.

A single GPS module provides nanosecond timing accuracy among all recorders.

A landline or 4G router provides Internet access for remote data acquisition and configuration, as well as for any notifications.

Any other TCP/IP device, such as computers, printers, etc, can as well be connected.

Can be added into an existing LAN.

- Standard ethernet cable
- 2 wire AWG cable

Installation Example Topologies

Example - Bridge 2

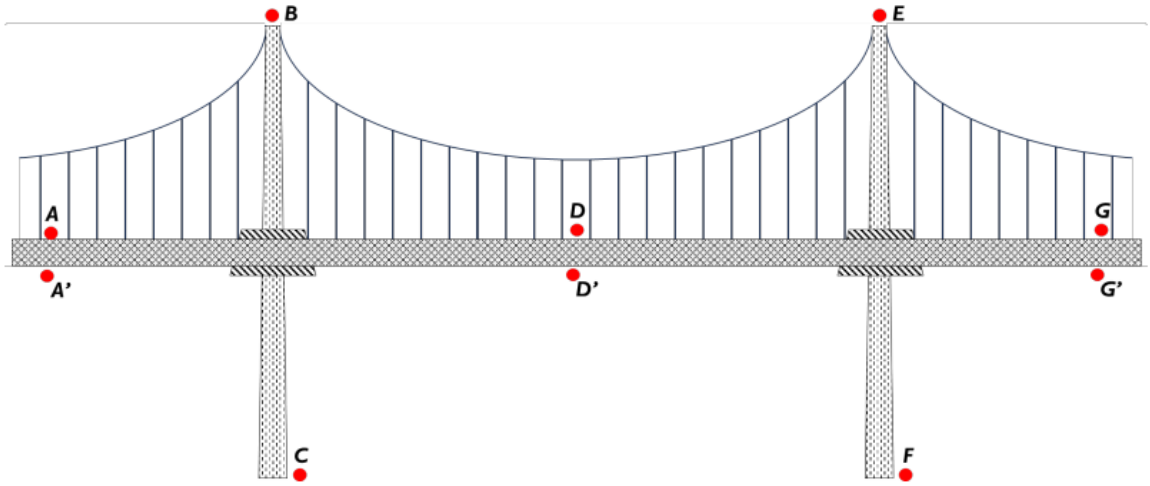
2.5 km long topology with centrally powered mixed dynamic accelerographs (*albris* and *ela*) with complete data recording and storage redundancy at each measurement point.

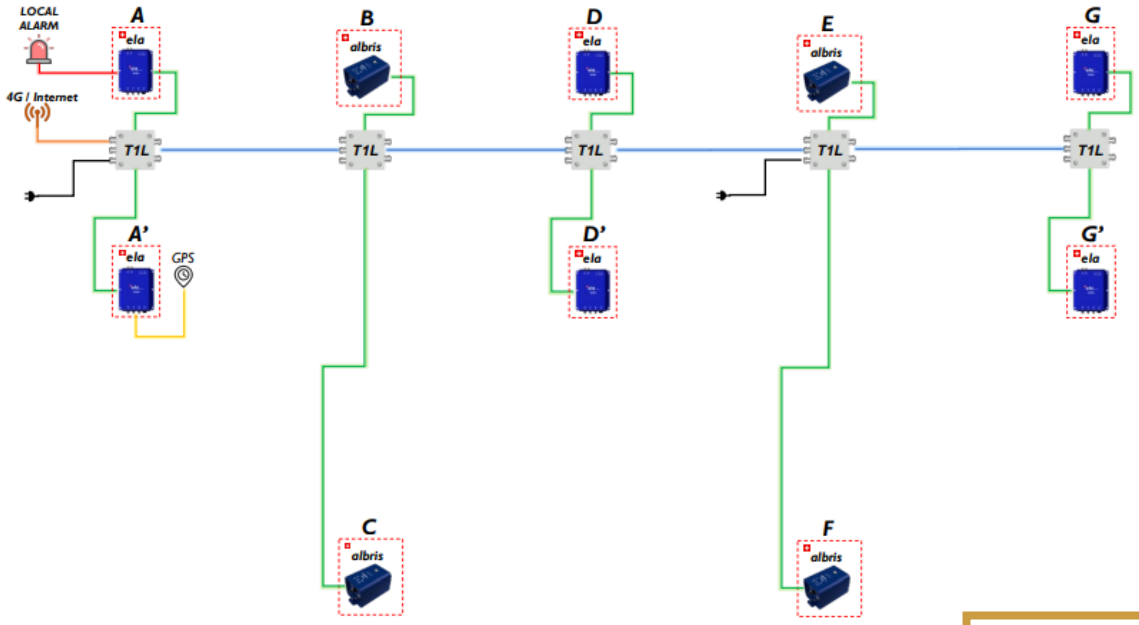
A single GPS module provides microsecond accuracy among all recorders.

A landline or 4G router provides Internet access for remote data acquisition and configuration, as well as for any notifications.

Any other TCP/IP device, such as computers, printers, etc, can as well be connected.

Can be added into an existing LAN.





- Standard ethernet cable
- 2 wire AWG cable