

< Track & Infrastructure

# TECHNO-ELEC

## Specialising in Responsive Relays

ECHNO-ELEC specialises in designing, manufacturing and selling measuring relays, known as 'responsive relays'. TECHNO-ELEC is a key partner of electrical traction (metros, tramways, trains, high-speed trains, substations).

We manufacture products for both on-board and trackside applications.

Services

#### **Studies**

- Measurement relay design, voltage, current, differential or for specific application, based on Servo-Contact technology
- Consulting and expertise on choice of features to size the product according to customer needs

#### **Production & Marketing**

Development, manufacture and sale

#### **Aftersales Service**

- Preventive maintenance (product functional checks)
- Curative maintenance (expertise and repair, change of worn parts)

Specific maintenance contracts

#### **Main Characteristics**

- Operation fields: from 1mA to 15,000A / from 10mV to 4,000V (AC/DC)
- Dielectric strength: up to 20,000V 50Hz- 1 min (primary circuit/secondary circuit)
- High overloads on measuring circuit
- Fire resistance according to standards NF F16-101-102 & EN 45545
- Fully operational whatever the direction

#### **Relay Categories**

- Current relays: they are used in applications such as current detection, threshold control, overload detection, ground fault detection, engine start, etc.
- Voltage relays: they are used in applications such as voltage detection, catenary voltage

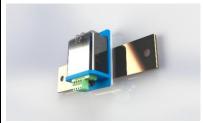
- detection, threshold control, voltage monitoring of battery chargers, etc.
- Differential relays: they are used in applications such as DC or AC current differential protection, AC or DC voltage differential protection, etc.
- Custom relays: associated to electronics, we can create more specific relays, such as timerelays on closing or tripping, flashing relays, clipper time relays, etc.







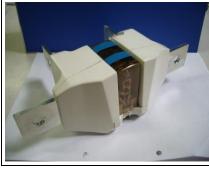
### **Main Characteristics and Benefits**











Tailor-Made Relays	<ul> <li>Wide range of adjustment</li> <li>Precision, sensitivity</li> <li>From 1 mA to 15000 Amp</li> <li>From 10 mV to 10000 Volts</li> <li>May be mounted in any ways (head down)</li> <li>Fit to unique requests</li> </ul>
Reliability and Strength	<ul> <li>Functioning in vehicles for more than 50 years</li> <li>Lifetime: 10<sup>7</sup> operations</li> <li>Ambient operating temperature: from - 25° to + 70°C</li> <li>Humidity: 95%</li> <li>No maintenance</li> </ul>
High Galvanic Separation	<ul> <li>Dielectric testing to 20k volts (between HT and LT)</li> </ul>
No Auxiliary Supply Required	<ul><li>Standalone equipment</li><li>Protection of people and equipment</li></ul>
High Resistance to Strong Overloads	<ul><li>Overload protection (motor)</li><li>Overload protection in short circuit</li></ul>
Low Energy Consumption	<ul> <li>From some mWatts to a few Watts (close to zero for current relays)</li> </ul>
Self-Restorable	<ul> <li>Customers can repair and maintain our devices themselves</li> <li>After sales services</li> <li>Plug and play</li> </ul>
Respectful to Railway Standards	- IEC 60077 / IEC 60068 - EN 50123 / EN 50124

Good management of urgent cases

Manufacturing flexibility

Flexibility and

Reactivity

**Made in France**