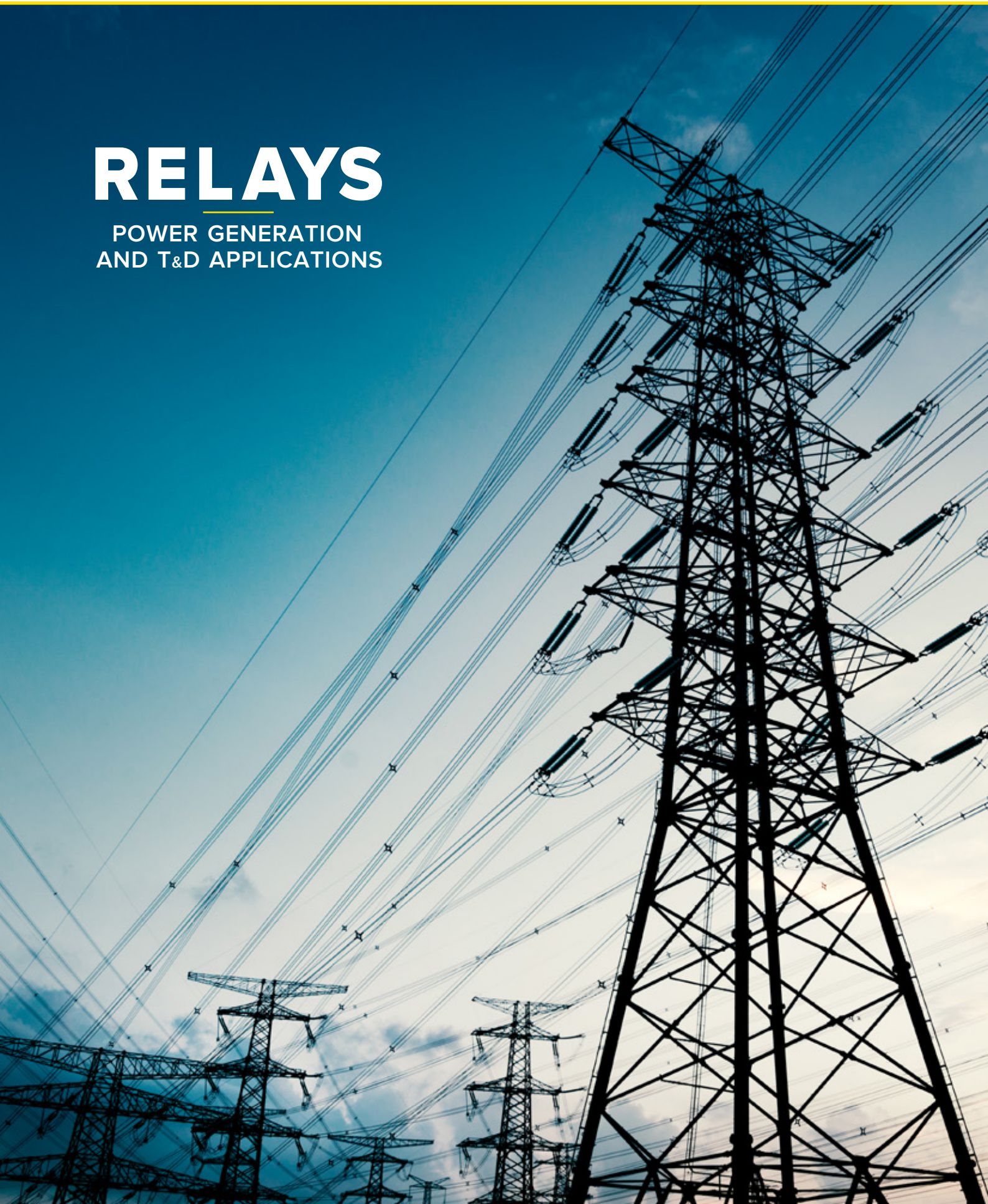


*RELAY*bility



RELAYS

POWER GENERATION
AND T&D APPLICATIONS



EFFICIENT INFRASTRUCTURES DESERVE



ENERGY HV TRANSMISSION

ROLLING STOCK

ONLY THE MOST RELIABLE COMPONENTS



RAILWAY INFRASTRUCTURES

ENERGY PRODUCTION

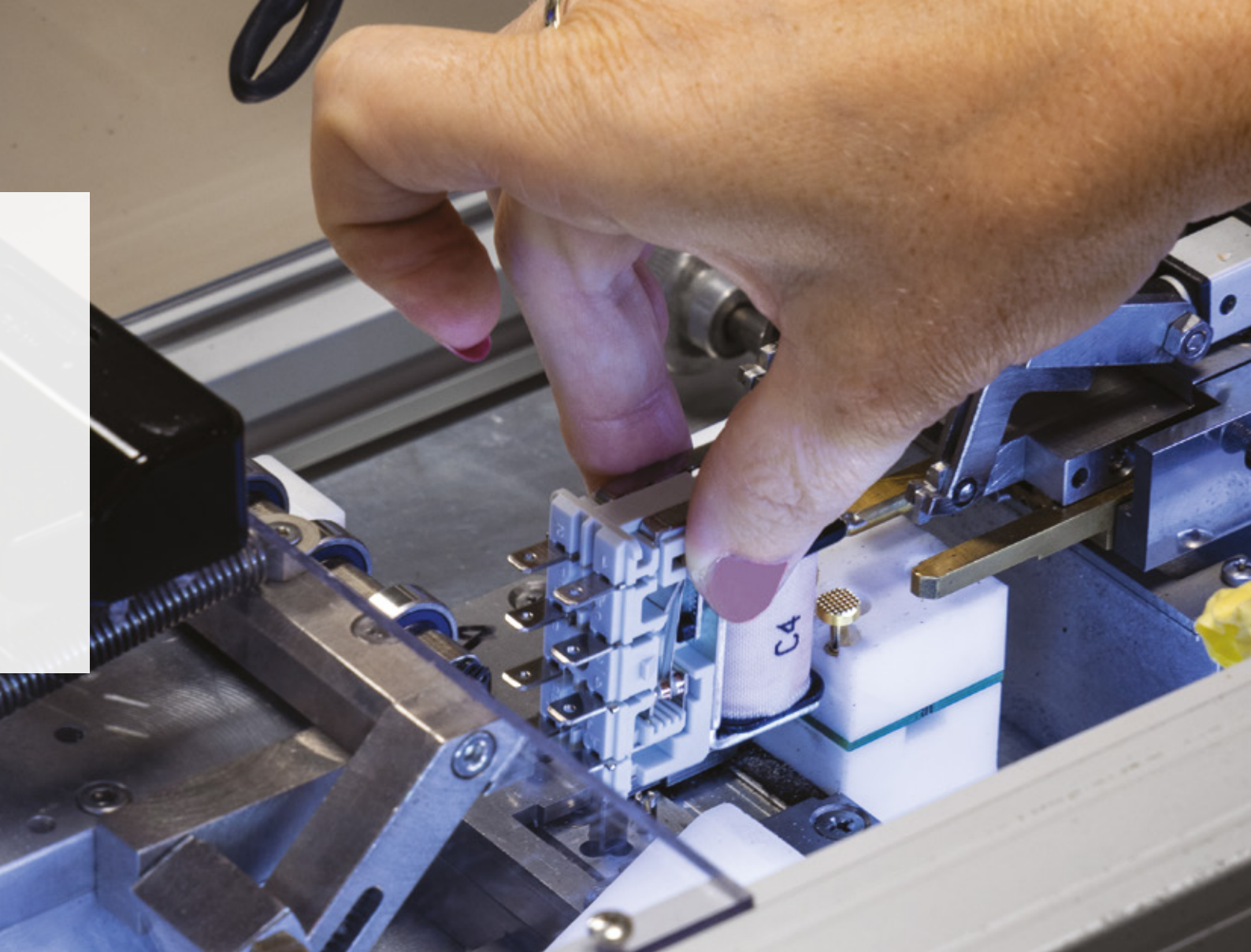
THE COMPANY IN BRIEF

Electromechanical relays manufacturer for **energy applications** (power plants and T&D), rolling stock, railway industry, **Italian production and development** since 1975.

Relays' **center of excellence** and competence of the CHAUVIN ARNOUX group.

The company is proficient in manufacturing high reliability relays and available to engineer **custom solutions** with a lean approach and an agile company structure.





METICULOUS PROCESSES LEAD TO RELIABLE COMPONENTS

The materials, the design and in general the construction engineering processes make AMRA relays of **heavy-duty** construction and highly suitable for use in demanding applications.

For instance, during the construction phases,

all the contacts of each individual relay are accurately checked.

This is to ensure reliable operations even when the contacts must conduct a very **low current**.

To be sure that every contact is **perfectly calibrate**, a **conductivity and pressure test** are carried-out **on each contact**.

At the end of the production cycle, every single relay **is put under test which foresee the execution of hundreds operations**. This aims to verify that each relay and each contact works perfectly.



MAIN APPLICATIONS

The **AMRA relays** have been successfully used for **over 40 years** on the major power plants, T&D infrastructures and can be considered of **proven reliability** for:

- Trip applications, fast acting relays for ESD systems and all other applications where fast switching is necessary;
- Lock-out relays for protection systems in HV electrical substations or power stations;
- Auxiliary relays for logic signal and command of T&D apparatus.

COMPLIANT WITH INTERNATIONAL STANDARDS

EN 61810-1 | EN 61810-2 | EN 61810-7

Electromechanical Elementary Relay

EN 60695-2-10

Fire behaviour

EN 60529

Degree of protection provided by enclosures

EN 61000

Electromagnetic compatibility

For reference, rolling stock standards:

EN 60077-2

Electric equipment for rolling stock - electro technical components

EN 50155

Electronic equipment used on rolling stock

EN 45545-2

Fire behaviour, Category E10, Requirement R26, V0

EN 61373

Shock and vibration tests, Category 1, Class B

ASTM E162, E662

Fire behaviour



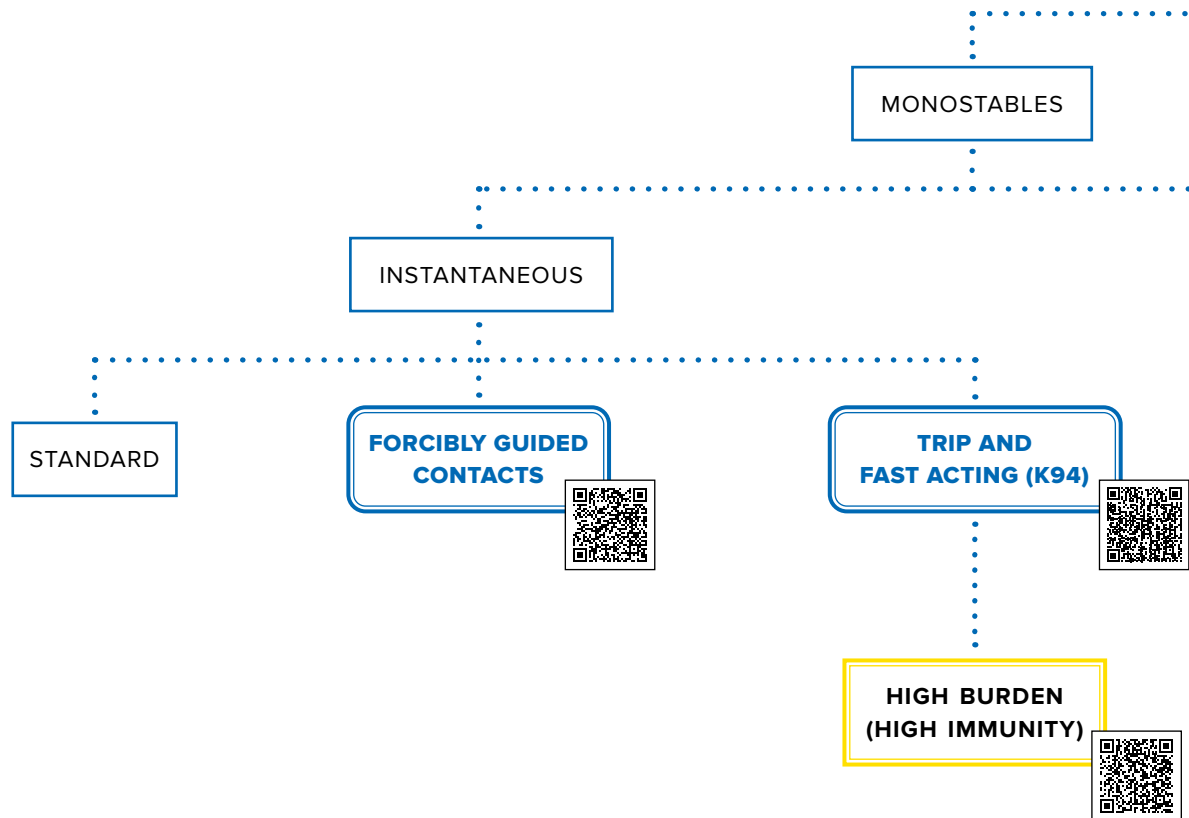
RELAY RANGE

POWER
TRANSMISSION
AND DISTRIBUTION

POWER
GENERATION

RAILWAY
INFRASTRUCTURE

ROLLING STOCK
APPLICATIONS



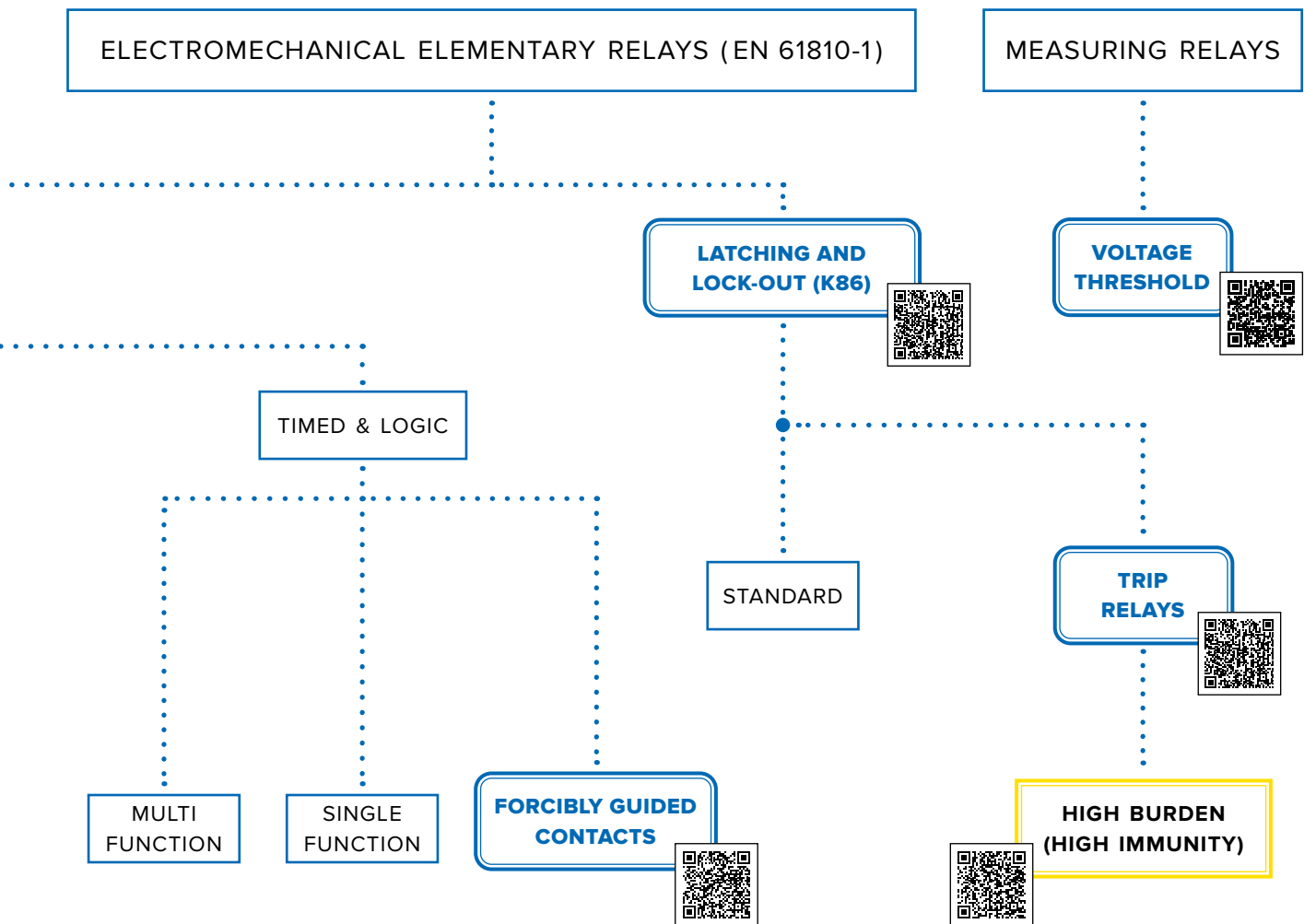
FOCUS

LOCK-OUT RELAYS

The **lockout relay** (code K86 in the ANSI standards) also identified therein as lock-out relay or master trip relay, assumes a very important function as it acts as an intermediate element between one or more protection relays and one or more control devices /check. In this position, its job is both to multiply the number of elements actuated by any protection function, and to provide a "hold" function typical of bistable relays, which must be intentionally reset to allow the system to resume normal operation.

HIGH BURDEN FUNCTION

This configuration provides higher security in plant control system, avoiding **unwanted relay operation due to capacitive discharge currents**, for example in case of an earth fault in long DC cables. A typical application is where the input command may be remote from the **trip relay (K94)**.



FORCIBLY GUIDED CONTACTS RELAYS

Relays with **forcibly-guided contacts**, comply with standard **EN 61810-3, type A**, are used in safety circuits. These relays are equipped with mechanically linked contacts (forcibly guided), an indispensable feature for applications where there is a need to guarantee that make (NO) contacts will never assume the same status as break (NC) contacts.

Forcibly guided contacts are also known as **WELD-NO-TRANSFER**.

TRIP RELAYS

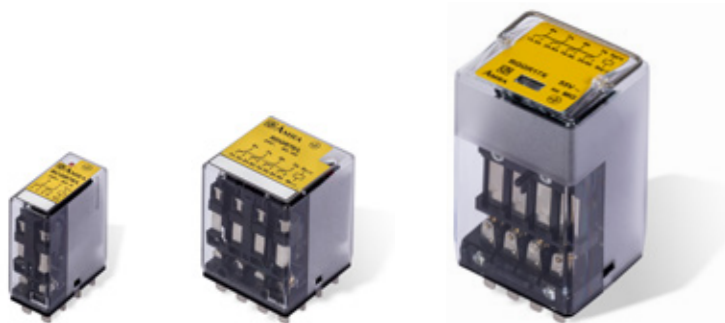
A **trip relay** (defined with the acronym K94 in the ANSI standards) is a **fast acting relay** designed to ensure a high switching speed together with a high breaking capacity in order to manage inductive and high direct current loads.

Main application:

This range of trip relays is commonly used in the switches control chains (both medium and high voltage) and more in general in all **rapid fault extinction duty**, where it is essential to place the system in safe conditions in the shortest possible time.

OUR MAIN MODELS

AUXILIARY



FORCIBLY GUIDED CONTACT

TIMED & LOGIC



TRIP & FAST ACTING

K86

LATCHING & LOCKOUT



K94



OUR CATALOGUES AND APPROVALS

INTERNATIONAL APPROVALS

The main international transmission and distribution operators such as **EDF** – France, **EGAT** – Thailand, **REE** – Portugal, **HEDNO** – Greece, etc., have chosen **AMRA** relays as a standard quality range of products for high reliability duties in their own electrical networks.

ENEL | TERNA APPROVED SERIES

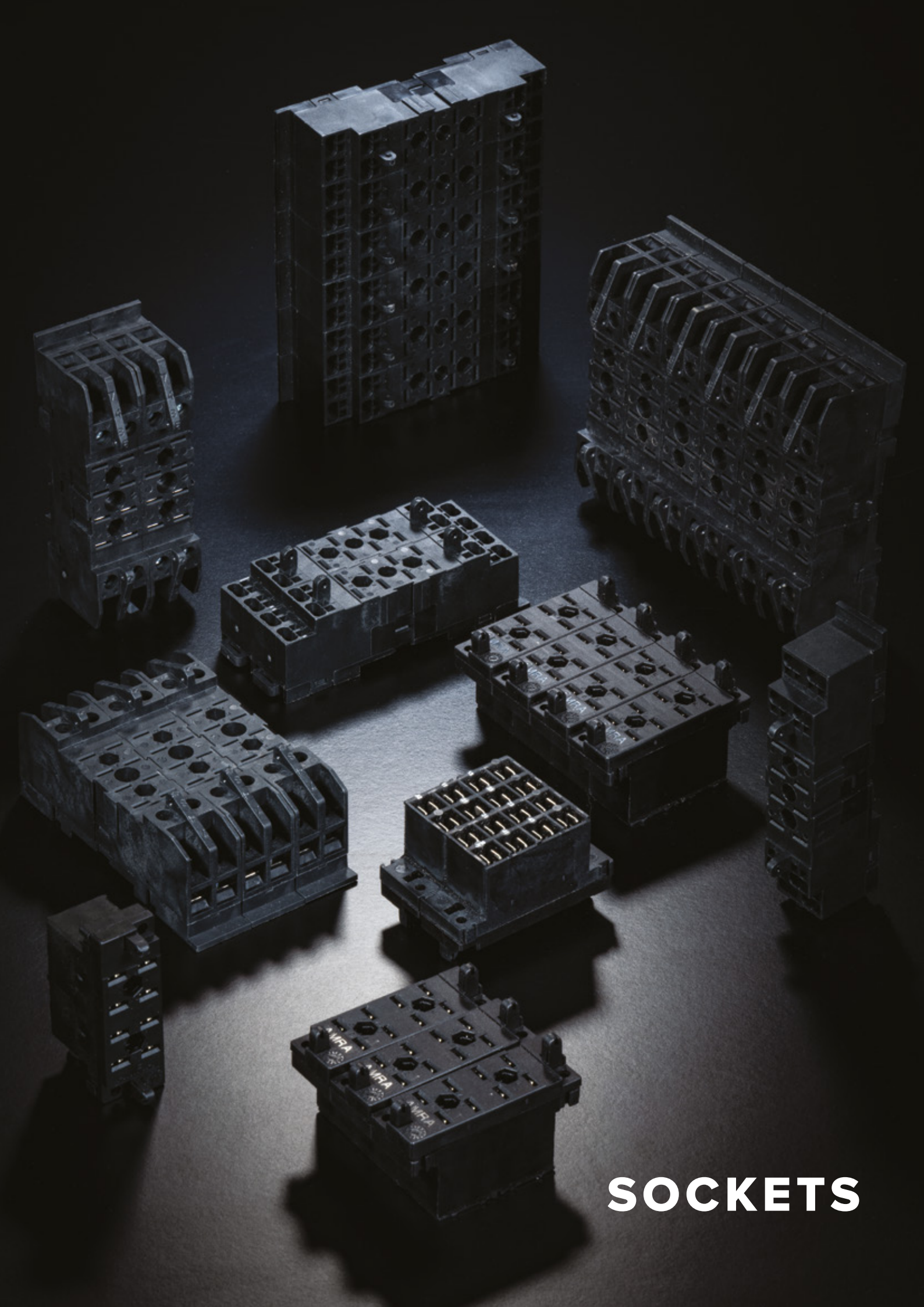
Enel (Italian DSO) and **TERNA** (Italian TSO) have approved **AMRA** relays for electricity production, HV transmission and MV/LV distribution networks. This range is compliant with the specifications **LV15**, **LV16**, **LV20**, and designed for heavy use in control, protection, monitoring and automation systems.

RFI APPROVED SERIES

Relays for railway infrastructure systems, approved by the Italian railway network operator (RFI), compliant with the technical specification **RFI DPRIM STF TE 143 A**. This range is designed for use in electrical substations and electrical traction systems.

ENERGY SERIES

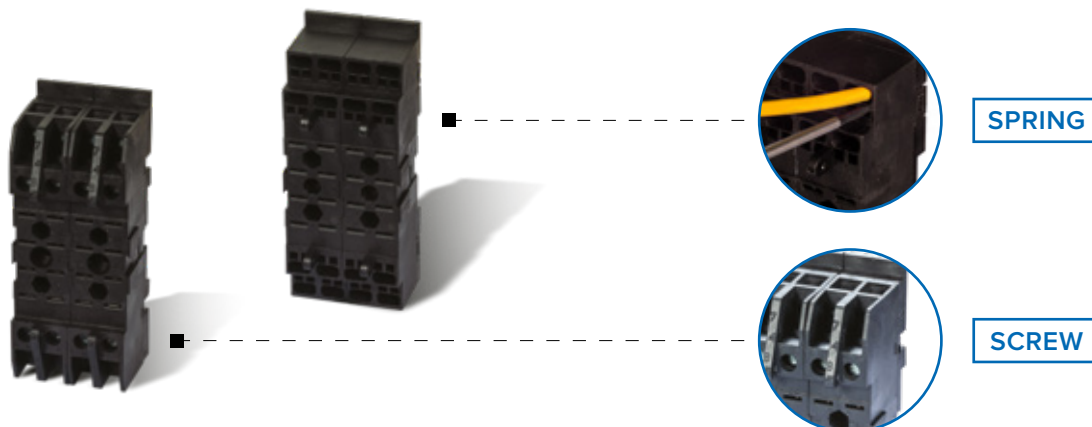
Standard auxiliary relays, lock-out and trip relays designed to meet the highest level of reliability in the most demanding sectors (energy production and T&D, railway infrastructure and rolling stock). Adopted globally by the main operators, system integrators and cabinet manufacturers.



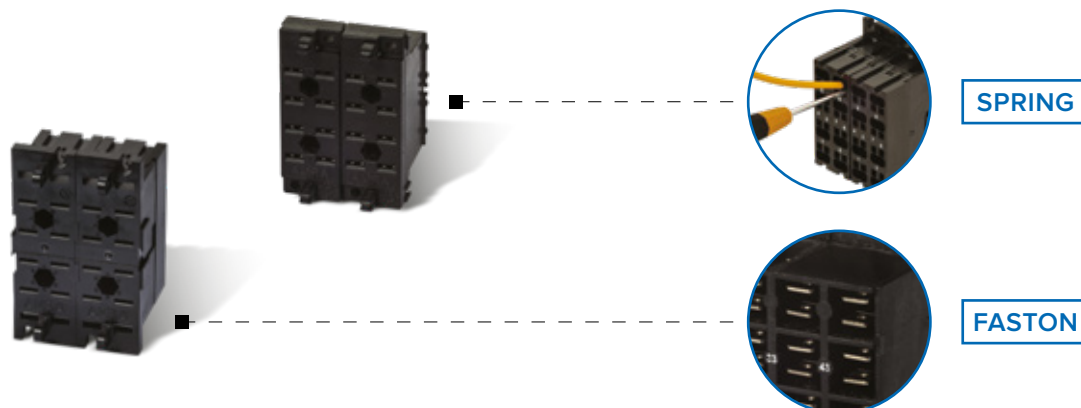
SOCKETS

TYPE OF CONNECTION

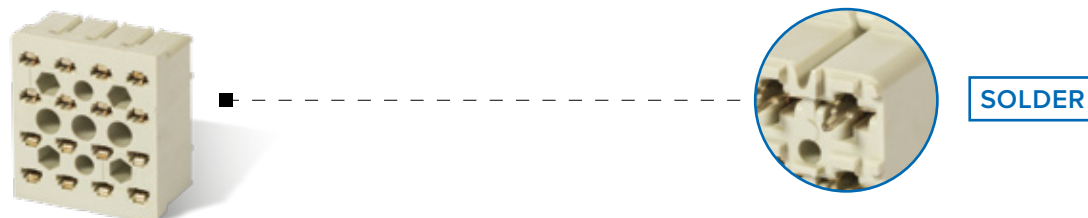
FRONT CONNECTION



REAR CONNECTION



PCB CONNECTION



SCAN ME AND DISCOVER
ALL THE AMRA SOCKETS RANGE







AMRA and Chauvin Arnoux, 130 years
of history in their own sectors.

The energy of our experience
makes us move towards the future.



*RELAY*bility



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