Okken and IEC 61439-1&2

The most safe and reliable low voltage switchboard
A fully compliant system with guaranteed consistency between electrical devices and equipment.

IEC standardization that integrates security, availability and reliability in its recommendations.

LV functional switchboards that are already fully compliant, for assembly manufacturer’s peace of mind.

Make the most of your energy
The main 10 functions of standard IEC 61439

All the verifications proposed by standard IEC 61439 contribute to the achievement of 3 basic goals: safety, continuity of service and compliance with end-user requirements.

### Safety

1. **Voltage stress withstand capability**
   Insulation to withstand long-term voltages, transient and temporary overvoltages guaranteed through clearances, creepage distances and solid insulation.

2. **Current-carrying capability**
   Protect against burns by limiting excessive temperatures:
   - when any single circuit is continuously loaded to its rated current
   - when any circuit is continuously loaded to its rated current multiplied by its rated diversity factor.

3. **Short-circuit withstand capability**
   Withstand short-circuit thanks to short-circuit protection devices, short-circuit coordination, and capability to withstand the stresses resulting from short-circuit currents in all conductors.

4. **Protection against electric shock**
   Hazardous live parts are not accessible (basic insulation protection) and accessible conductive parts are not hazardous for life (fault protection, and continuity of protective equipotential bonding).

5. **Protection against fire or explosion hazard**
   Protect persons against fire hazards: resistance to internal glowing faulty elements through selection of materials and design provisions.

### Continuity of service

6. **Maintenance and modification capability**
   Capability to preserve continuity of supply without impairing safety during assembly maintenance or modification through basic and fault protection and optional removable parts.

7. **Electro-Magnetic compatibility**
   Properly function and avoid generation of EMC disturbances through incorporation of electronic devices complying with the relevant EMC standard, and their correct installation.

### Compliance with end-user requirements

8. **Capability to operate the electrical installation**
   Properly function, according to:
   - The electrical diagram and the specifications (voltages, co-ordination, etc.) by selecting, installing and wiring the appropriate switching devices.
   - The specified operating facilities (access to Human-Machine Interfaces, etc.) through accessibility and identification.

9. **Capability to be installed on site**
   Withstand handling, transport, storage and installation constraints, and be capable to be constructed and connected through selection or design of the enclosure and the external terminals, and by provisions and documentation.

10. **Protection of the assembly against environmental conditions**
    Protect the assembly against mechanical and atmospheric conditions through selection of materials and design provisions.
Voltage stress withstand capability
- All busbar supports are designed to respect minimum creepage distances required by the IEC standard.
- The main busbar is placed in a partitioned compartment at the top of the switchboard.
- The distribution busbar is installed in a partitioned compartment to the rear of the switchboard.

Short circuit withstand capability
- Internal arc risks are reduced thanks to Polyfast® system, and to 3 confinement levels: at the functional unit (AS3439-1), at the column (IEC 61641), and at the switchboard.
- The partitioned terminals of the Polyfast® system ensure electrical insulation between the upstream circuit-breaker and the double contact clamps on the main busbar.
- Rated conditional short-circuit current (Isc) up to 150 kA.

Protection against electrical shocks
- The best safety and protection systems, preventing on-load operation to guarantee safer operation and maintenance.
- Live parts are protected by screens guaranteeing an IP20 degree of protection.
- Bus bars are totally encapsulated, making them the safer distribution bus bar of the market.
- Tap off equipped with shutters prevent access to live parts when the functional unit is removed out.
- Terminal block covers and forms of internal separation up to 4b offer safer protections.
Maintenance and modification capability
- All the electrical installations are operating correctly for the safety of the employees and for the security of equipment.
- Withdrawable solutions or drawers on Polystaff® units provide continuity of service and safety, even whilst additional feeders are being added.
- The modularity allows easy modifying or upgrading of the switchboard to adapt to the changing processes and increase performance.
- The withdrawable drawers can be plugged out while the equipment is energised, without cutting switchboard supply and in complete operator safety. They have 3 positions: connected, disconnected, and real test position guaranteeing power upstream and downstream insulation.

Capability to be installed on site
- The different framework associations are adapted to all electrical room configurations.
- The connections can be made from the front or rear, from the top and/or the bottom, from back to back.
- The installation is simplified thanks to built-in handling plinth, removable girders, pre-mounted sliding fishplates.

Protection of the assembly against environmental conditions
- Corrosive environments - The conductive parts are treated “anti-corrosion” (IEC 721-3-3): fixe parts with tin (ex: busbar trunkings), withdrawable parts with nickel (ex: clamps).
- Marine and offshore applications – Marine version are designed for saline environments, and are Det Norske Veritas (DNV) certified.
- Seismic areas – Okken 2G and 5G versions offer excellent mechanical resistance guaranteeing continuity of electrical supply. 2G is recommended for most sensitive applications. 5G is designed for the most critical applications, such as nuclear power plants.
- Protections IP41 and IP54 provide tightness for the dusty and/or damp environments.
- Okken is DEP Shell certified for petrochemical industries.

* Using only Schneider Electric devices guarantees the compliance with IEC as well as the reliability of installations.
All stakeholders are satisfied

Standard IEC 61439 clearly defines the type of verifications that must be conducted by both organisations involved in final conformity of the solution: the Original Manufacturer, guaranteeing Assembly System design and the Assembly Manufacturer, responsible for the final conformity of the switchboard.

End-User

Specifier

Assembly Manufacturer (panelbuilder)
> Routine verification

Original Manufacturer (Schneider Electric)
> Design verification

Schneider Electric insurance to be 100% compliant with IEC61439-1&2 standard

To find out more

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