

Protection of building site's power network with crane

Earth leakage protection B-SI type

"Disruption of energy supply to our drive-based crane cause delays and high cost. I need continuity of service and protected environment to ensure progress of construction work".



Acti9 iID B-SI type

The solution dedicated to building-site with cranes

Customer story

Carlos is a building site manager. Carlos' mission is to ensure work progress and protection of people on the site. Carlos is facing nuisance tripping of the crane's electrical supply. He thinks that this is mainly due to long cables between distribution board and crane.

Moreover, site environment with humidity, dust, long cable length without mechanical protection, requires specific electrical protection to comply with electrical installation standards. He's also responsible of compliance to safety standard IEC 61800-5-1 ensuring earth leakage protection on electrical installation of speed drives used in the crane. Finally, all the electrical protection chain must be coordinated.

Proposed solution

RCCB Acti9 iID B-SI type is designed to:

- **Protect people** against **multifrequency** earth leakage current (including pure DC). Such currents can be generated by speed drive technology embedded into cranes and they can cause fibrillation and electrocution.
- **Minimize nuisance tripping** thanks to Super Immunized (SI) technology tested on long distances of cables.
- **Be installed in coordination** with other upstream and parallel RCD (refer to Schneider Electric Residual Protection Device guide for coordination tables).
- **Simplify** operation thanks to Acti9 VisiSafe and VisiTrip.
- Adapt to your needs thanks to full range of **accessories and auxiliaries**.
- **Monitor and control** the electrical panel with PowerTag and Smartlink auxiliaries.

Customer benefits

For contractor

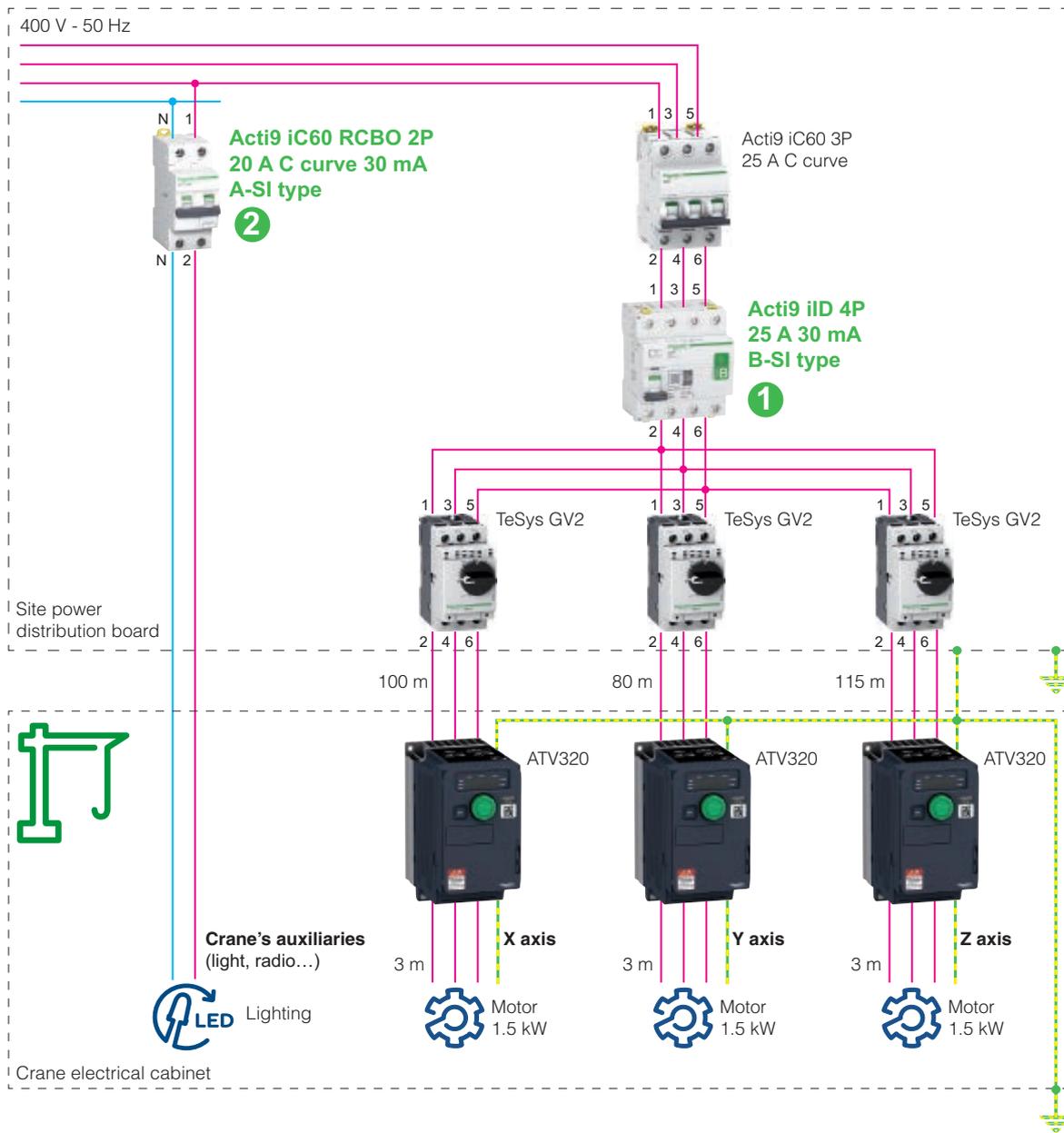
- **Peace of mind:** higher continuity of service and 30 mA RCD people protection compliant with the mandatory standards.
- **Productivity:** full compatibility with speed drive, even in severe conditions and long cable distance, SI technology is designed to improve availability of the installation.

For panel builder

- **Ergonomy:** Acti9 system has a complete set of auxiliaries and accessories. Acti9 B-SI type RCCB has a led on the front face to easily identify the product.
- **Savings:** with the cascading and coordination tables you propose the optimum solution for your customer's electrical installation.
- **Customer satisfaction:** RCCB B-SI type is designed, tested and certified to protect people against multifrequency earth leakage caused by speed drives.



Solution diagram for TT system



Note: during design phase, it's essential to define protections to avoid upstream and parallel protection disablement (blinding of upstream and parallel protection due to direct current signal presence).

In example above, ①, ② Residual Current Devices have been defined accordingly and the same should apply to any upstream RCD.

For more information about sensitivity choice, selectivity, coordination of protections and continuity of service, refer to earth leakage protection guide reference CA908066E and associated coordination tables.

Note: Surge protection devices are not represented on the architecture but are essential.

Schneider Electric recommends to install a type 2 Surge Protection Device into the site power distribution board.

If there is a lightning pole on the top of the crane, we recommend to install a type 1 Surge Protection Device into the crane electrical cabinet.

Products used

Product	Function	Quantity	Reference
Acti9 iC60 RCBO 2P 20 A C curve 30 mA, A-SI type	RCBO for other loads	1	A9D27220
Acti9 iC60 3P 25 A C curve	MCB for motors & speed drives	1	Specific to country
Acti9 iID 4P 25 A 30 mA B-SI type	RCCB for motors & speed drives	1	A9Z61425
TeSys GV2 3P 10 A	Circuit breaker for motor application	3	GV2L14
Altivar ATV320 1.5 kW	Variable speed drive 3 phases for crane axis	3	ATV320U15N4C