Wiring flexibility with pluggable functions

In contrast to the traditional terminal block, a pluggable terminal block is equipped with a removable plug that allows quick assembly or disassembly of the equipment.

Pluggable terminal blocks are characterized by the type of technology used (screwless, screw, insulation displacement connection, etc.) and the number of connections, plugs and circuits. ABB provides the full scope of pluggable terminal blocks – for example, PI-Spring (combining push-in and spring technologies) and ADO System® for harsh environments, and screw clamp technology for general industry.

Prewiring

With plugs, wires can be easily combined into harnesses – a task that can be performed prior to complete equipment mounting and testing. The ability to prewire and pretest removes potentially high-risk manufacturing steps from the project critical path and brings major positive benefits:

Serialized production and testing

Wiring is usually subcontracted to a specialist who uses automatic wiring machines for the time-consuming tasks of
Switchgear equipment is constantly evolving and newer products include high-end electronics as well as digital communication. ABB’s SNK pluggable terminal blocks make the expansion of these complex switchgear systems simple. The SNK series provides double-plug connection, which allows daisy chaining of signals and easy system expansion.

Railways
Prewired solutions are a major contributor to the efficiency increases sought by European railway manufacturers in response to global price erosion. ABB is a leading supplier of terminal blocks – particularly the pluggable type – to the railway market ➔.

Railways, process automation and switchgear are just three areas where prewiring solutions are making a significant impact. There are countless others.

Pluggable terminal blocks facilitate and considerably accelerate assembly, test and factory commissioning.

wire cutting, stripping, crimping and identification or marking. This results in a high-quality product and is usually far more cost-effective than performing the task in-house. Pretesting can easily be automated and set up for serial production.

Equipment assembling and testing, factory commissioning
Before delivering equipment to the final customer, the equipment must be assembled in the workshop and fully tested – a procedure considerably accelerated when pluggable terminal blocks are used.

Transportation and installation
For larger items, transportation may involve dismantling before shipping and reassembly on site – a process greatly facilitated by pluggable terminal blocks. Further, screwless technologies such as ABB’s PI-Spring or ADO system technologies guarantee a vibration-proof and shockproof connection, so are ideal for equipment that has to be shipped already wired up.

Railways
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ABB’s PI-Spring terminal blocks, being compact (space for equipment on trains is limited) and resistant to shock and vibration, are ideal for making reliable connections in trains. ADO System terminal blocks offer significant productivity savings as well as secure and reliable connections. These connector systems are tested to the latest international standards for rolling stock, such as IEC 61373 for vibration and shock, and EN 45545-2/NFPA 130 for flammability and toxicity of plastic material.

Process automation
Process automation applications typically handle thousands of signals and, here again, prewiring and pluggable solutions offer significant system simplification and better wiring reliability. ABB’s Interfast prewiring system for programmable logic controllers (PLCs) and digital control systems (DCSs), for example, can reduce installation time by up to 98 percent.

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Pluggable and prewired connections are particularly useful in electronics-laden modern trains, where space is limited.