

MEDIA RELEASE

R&M Launches Quality Seal for PoE Range

Power over Ethernet (PoE) with high currents in continuous operation requires optimal termination technology / White paper looks at the risks for LAN cabling

Wetzikon, May 3, 2018. R&M, the globally active developer and provider of cabling systems for high-quality network infrastructures, based in Wetzikon, Switzerland, is launching a quality seal for the Power over Ethernet product range. PowerSafe is the name of the new mark. Cabling products labeled PowerSafe can continuously transmit high currents in local data networks. The range includes patch cords, cable assemblies, connection modules, couplers and field-mountable connectors. At the same time, R&M provides information on the consequences of transmitting high currents in the LAN. In the future, Power over Ethernet (PoE) is to be operated with 90 Watts and with power transmission on all four pairs of the data cables. A current white paper explains the background.

Power over Ethernet (PoE) is rapidly spreading even further in structured LAN cabling. Supplying power to end devices over data cables is paving the way to more intelligent buildings and to the Internet of Things. Sensors, WiFi antennas, lighting, video cameras, medical technology, emergency and access control systems, remote maintenance, checkouts, terminals, scoreboards, air-conditioning and heating technology, thin clients and lots of other digital systems can be integrated. Since the launch of PoE, transmittable electrical output has multiplied and will soon reach 90 Watts. The current rating is reaching 1 ampere per twisted pair. In the future, current is to flow over all four twisted pairs of the copper data cabling (4PPoE). The relevant standard IEEE 802.3bt is likely to be ratified in 2018.

There will also be PoE applications which require maximum electrical output around the clock. To date, peak loads have only lasted a few seconds or at most minutes, for example during start-up or switching operations. The entire LED lighting of large buildings (referred to as connected lighting or smart lighting) or LED advertising spaces



(digital signage) can be operated over data networks in the future. "In these applications, very high currents will be flowing through the data network 24 hours a day, seven days a week. That can have dramatic consequences for the cabling which to date was not designed for this purpose, but was simply there to transmit data signals," explains Matthias Gerber, Market Manager LAN Cabling at R&M in Wetzikon.

He describes possible escalations: Cable bundles heat up. And that will slow down data transmission. The contact resistance increases with lower-quality contacts. This can lead to overheating, sparking and destruction. In particular R&M draws attention to the risks of the widely-used piercing contact technology in the RJ45 plugs of patch cords. With this technology, the connections between the copper wires and the conductors in the plug can slacken. Matthias Gerber: "Experiences confirm R&M's opinion, that the industry has created a sword of Damocles with the use of piercing connection technology. It can strike at any time when using PoE with continuous maximum power, in other words it is unpredictable."

The insulation displacement contact (IDC) used by R&M excludes such risks. "It offers long-term safety," says Matthias Gerber. In the case of IDC, two sides of a spring contact clamp the wires permanently. The contact halves cut through the insulation and flexibly terminate the wire. IDC terminations are fatigue-proof, load- and vibration-resistant, temperature- and moisture-resistant, dust- and gas-tight, and thus corrosion-protected. Matthias Gerber: "Test series and R&M experience show, that the contact resistance of an IDC connection remains continuously low and stable. IDC is the one and only basis for using Power over Ethernet with high currents in continuous operation. And we are accentuating that with the PowerSafe seal." R&M PowerSafe-products for PoE installations exclusively feature IDC terminations as well as wires with the appropriate conductor cross-sections for optimal resistance values. The company is the only supplier of RJ45 patch cords with IDC technology.

R&M provides advice and planning aid alongside the PowerSafe quality seal and specialist information on Power over Ethernet. Network planners can use calculation tools and cable configurators for PoE applications. These can be used to determine temperature development in cable bundles, the ideal thickness of cable bundles and maximum link lengths. This is how to avoid data transmission restrictions from the outset. R&M makes tools and the relevant information available on its website:
<https://www.rdm.com/sites/PowerSafe>

About R&M

R&M (Reichle & De-Massari AG) is a leading global producer of future-proof products and systems for communication and data networks. The company's close collaboration with certified partners results in pioneering connectivity solutions in the sectors LAN, Public and Telecom Networks as well as Data Centers. The Swiss family company stands for innovation, quality, and proximity to customers. More information can be found at www.rdm.com

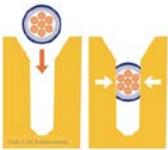
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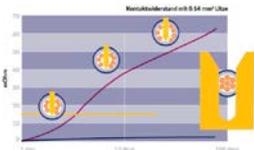
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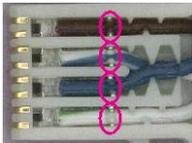
Caption: R&M labels the powerful PoE range with the PowerSafe quality seal.



Caption: Diagram of insulation displacement contact (IDC). Two sides of a spring contact clamp the copper wires permanently.



Caption: Varying resistance behavior of the insulation piercing (violet curve) and insulation displacement connection (blue curve) in an aging test in the climate chamber.



Caption: Use of an RJ45 connector from R&M with termination using an insulation displacement contact, IDC. Image source: R&M

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