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**Power factor/cosinus-phi monitor for inductive and capacitive consumers from TELE**Monitoring of phase shifts extends the service life of drives and systems.

**TELE introduces the G4CM690V16ATL20 load monitor for monitoring the power factor/cosinus phi in machines and systems. The unit monitors the loads of inductive and capacitive consumers in single or three-phase networks, up to 16 A direct, including with external power converters. Voltages from 85 to 690 VAC are possible. This gives the power factor monitor the ability to reliably detect toothed belt breaks, dry running of pumps, filter contamination, or excessive pressure in pipes. It is also ideal for regulating the reactive power in compensation systems. The new power factor monitor can also be used with frequency converters from 10 to 100 Hz and has a selectable supply voltage (using transformer modules) and two potential-free switching contacts. The threshold values for the power factor/cosinus phi monitor are selectable, as are the separately adjustable starting and trigger delays. In addition to motor temperature monitoring, the unit also contains an error memory.**

The power factor/cosinus phi changes as the load on the motor changes (inductive load). For this reason, this measurement method is particularly well-suited for monitoring single and three-phase asynchronous motors for underloads and no-load conditions, regardless of size. When faults are detected early, damage and downtime can be avoided, increasing the system's availability. This is good for motors, pumps, conveyance systems, and other machines. In addition to motor overload, the power factor/cosinus phi monitor also detects contamination, such as cutting residuals, clogged pipes and filters, and worn-out toothed belts. The G4CM690V16ATL20 unit can also detect when consumers are switched off, with the ability to select the desired relay position.

**Reactive power control in compensation systems**The new power factor/cosinus phi monitor can also be used as an apparent current relay for monitoring loads of capacitive or inductive/capacitive consumers. Electric consumers, such as asynchronous motors, choke coils, transformers, or power converters require reactive power for generating electrostatic or electromagnetic fields. Since these fields continually build and dissipate according to the alternating voltage cycle, the reactive power alternates between generator and electrical consumer. Unlike active power, reactive power cannot be utilized and results in loads on the supply grid and the generating systems. All energy distribution systems must be dimensioned larger for the provision of reactive power.

Because of this, it is useful to reduce the inductive reactive power close to the consumer through a counteracting capacitative reactive power that is as close as possible to the same size. Compensation systems perform this task. In this application, the power factor/cosinus phi monitor from TELE compares defined thresholds and can be used to switch fixed capacitors on and off for the purpose of compensating reactive power. When the rated current is greater than 16 A, current is measured by an external current transformer.

**Power factor/cosinus phi monitor with analog output signal**The cosinus phi monitor is also available by request as a measuring converter G2CA… 0…10V or 4…20 mA for applications where an analog output signal is needed. It can be used, for example, in power generating systems such as co-generation units, synchronized machine applications, and other reactive power compensation applications.

**Text and image material available at**[**http://www.tele-online.com/organisation/kontakt/presse**](http://www.tele-online.com/organisation/kontakt/presse) **for download.**

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# About TELE: Founded in 1963, the company makes products for a better world and specializes in high-value industrial electronics such as monitoring technology, time relays, power electronics, and grid and system protection. Known as the Smart Factory, TELE is an innovation laboratory for integrated technologies. At its Vienna location it produces technological solutions for mechanical and plant engineering, renewable energies, water & waste, and other industry sectors. TELE's organizational culture is free of traditional hierarchies, which creates the space needed for independent thinking and extraordinary ideas. In 2014, the company generated approximately 14 million euros, 10.5 million euros of which were from exports. In addition to the site in Vienna with over 90 employees, TELE Group also consists of an international network of more than 60 trade partners.