

PUMP MONITORING AND OPTIMISATION

wtele
Technik Braucht Kontrolle

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- 1 ●
 - 16
 - 2 ●
 - 15
 - 3 ●
 - 14
 - 4 ●
 - 13
 - 5 ●
 - 12
 - 6 ●
 - 11
 - 7 ●
 - 10
 - 8 ●
 - 9

US

Who we are.

TELE stands for high quality research and development, a modern production location in Austria and a very strong team, which launches new products.

We have specialised on our core competences in the past decades - time relays and automation components. Through passion and professionalism, modern monitoring and control technology emerged in accordance with international standards for worldwide use at the highest quality levels. Today we are the Austrian market leader in the area of high quality monitoring and control technology for machines, plants and buildings with the world's largest assortment of time and monitoring relays.

As pioneers and progressive thinkers we are offering intelligent solutions for the monitoring of plants, buildings or machines to keep machinery and equipment running. Our mission is sustainable power production and power use, which will address the social change of the future on a long term basis.

That already reflects in TELE's new products, likewise, as daily lived at handling our resources. More than 100 employees try not only to meet the day to day requirements of our customers but try to exceed them and have been doing this since 1963.

YOUR BENEFITS:

- **High availability**
- **100% Made in Austria**
- **Short delivery times**
- **Rapid processing**
- **Customised solutions**
- **Over 40 years of experience**

What we offer.

- **Monitoring devices for physical values** like current, voltage, temperature, level, etc.
- **Comprehensive technical know-how** through decades of experience
- Technological edge by **sophisticated development**
- **Worldwide sales network**
- **Sustainability**

Where we produce.

100 per cent of our core products are produced in Austria. Our core competences are research and development as well as production at our main location in Vienna with our team of highly qualified employees. Our own sales team in Austria and Germany as well as trade partners in over 50 countries form our global sales network.



Monitoring



Control



Communication





For transporting water or other liquids from A to B, pumps are required. TELE enables monitoring and optimisation of pumps **without additional sensors**. Secure and valid operating conditions are ensured by electrical parameters only. For assembly, no mechanical change is necessary. Therefore it is easily retrofittable.

SOLUTIONS

Information

Pump systems cause a substantial percentage of current worldwide consumption. As a result consequent analysis of operational data and long term optimisation are gaining huge energy saving potential. In addition

to that disturbances cause approximately 70 per cent of the life cycle costs of a pump and often end in production failure or entail enormous loss of production costs.¹⁾

YOUR BENEFITS:

- Improved reliability
- Increased operational reliability
- Optimised maintenance cycles
- Raised pump efficiency
- High expense resultant costs avoided



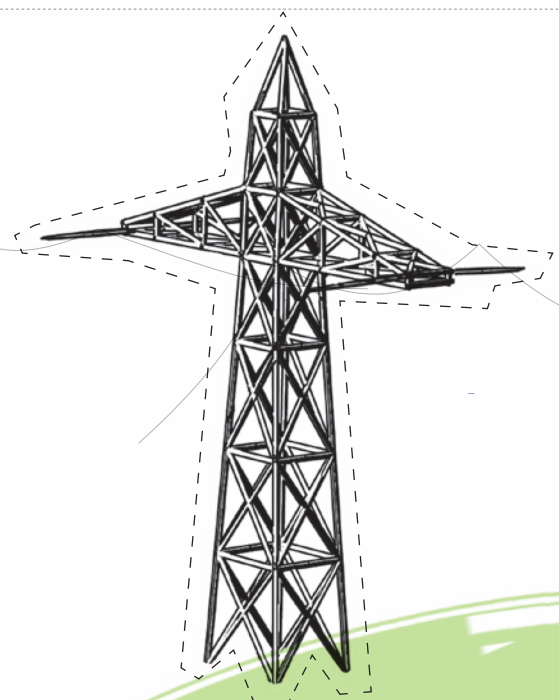
Mains monitoring

- Phase failure
- Phase sequence
- Voltage divergence (Under or overvoltage)



Pump monitoring

- Blockage
- Cavitation
- Dry running
- Filter pollution
- Overheating
- Wear
- Temperature

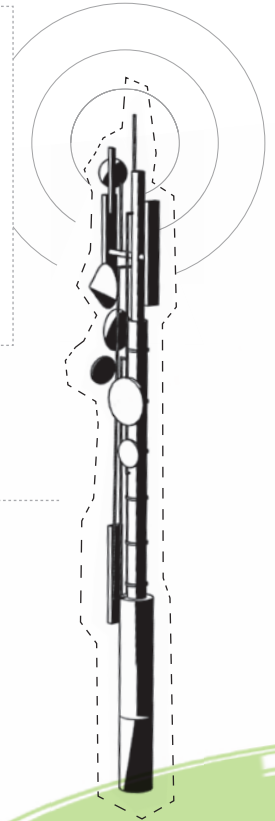


1) Brochure of Austrian energy agency: Technical manual solutions for the improvement of its engine systems, Vienna, <http://www.energyagency.at>



Communication

- Data recording
- Error logging
- Error message
- Remote maintenance



Pump controlling

- Level
- Pump start
- Pump soft start/stop
- Pump availability



Plunger pump

Helical rotor pump

Diaphragm pump

Canned motor pump

Impeller pump

Centrifugal pump

Gear pump

Progressing cavity pump

Peristaltic pump

Reciprocating pump

PRODUCTS



Solution of



Mains monitoring

Phase failure	Phase failure by phase interruption or voltage breakdown
Phase sequence	Phase sequence by wrong polarity of three phase mains
Voltage divergence	Under or overvoltage by bad quality of mains or reduced phase voltage



Pump monitoring

Blockage	Clogging or wedging by foreign materials → Overload
Cavitation	Destruction of the impeller by gasification and pressure surges → Monitoring of valid operating conditions
Dry running	Dry running through lack of medium by closed valve or empty tank → Underload
Filter pollution	Reduced output due to polluted filters → Underload
Overheating	Circulation and heating up by unexhausted liquid → Underload
Wear	Impeller wear, bearing failure, etc. causes inadmissible operating condition → Under or overload
Temperature	Increase of motor temperature by phase failure, frequent start up or blockage → Overtemperature



Pump controlling

Level	Level monitoring and controlling by conductive probes
Pump start	Prevent high current peaks and high torsional load by Star Delta Relays
Pump soft start/stop	Reduce mains and motor load by conducted starting and stopping
Pump availability	Reliable operational readiness of reserve aggregate by alternating operation



Communication

Data recording	Monitoring and communicating system status, send measured values to control system and reacting in case of an error
Error logging	
Error message	
Remote maintenance	



Benefit	by	Realised with
<ul style="list-style-type: none"> ■ Comprehensive voltage monitoring ■ Guaranteed system and motor protection ■ Rotation direction monitoring 	<ul style="list-style-type: none"> ■ Comprehensive power supply: <ul style="list-style-type: none"> * Powered by measuring circuit up to 690V AC * Zoom voltage 24-240V AC/DC * Power modules up to 400V AC ■ Integrated monitoring of asymmetry ■ Detection of return voltage ■ Neutral conductor monitoring 	<p>Voltage monitoring</p> <ul style="list-style-type: none"> ■ Series GAMMA & ENYA <ul style="list-style-type: none"> - Voltage monitoring relays - Phase failure relays - Phase sequence relays
<ul style="list-style-type: none"> ■ Optimized operation and transparency ■ Increased operating and process security ■ Minimized costs by condition-based preventive maintenance ■ Extended lifetime ■ Warning in case of inadmissible operating conditions ■ Ensuring system availability ■ Prevention of unpredictable production loss ■ Increased efficiency by continuous control 	<ul style="list-style-type: none"> ■ Direct measuring up to 690V and 16A ■ Devices with analogue output ■ Digital adjustable versions available ■ Temperature monitoring of motor winding ■ Operation after frequency converter possible 	<p>Load monitoring</p> <ul style="list-style-type: none"> ■ Series GAMMA <ul style="list-style-type: none"> - Power factor monitoring (cos φ) - True power monitoring <p>Temperature monitoring</p> <ul style="list-style-type: none"> ■ Series GAMMA & ENYA
<ul style="list-style-type: none"> ■ Level monitoring of conductive substances ■ Prohibition of inefficient operating conditions ■ Prevention of personal damage 	<ul style="list-style-type: none"> ■ Pumping up or down adjustable ■ Minimum and maximum monitoring ■ Secure galvanic isolation of measuring circuit 	<p>Level monitoring</p> <ul style="list-style-type: none"> ■ Series GAMMA & ENYA
<ul style="list-style-type: none"> ■ Optimised starting ■ Minimisation of starting current ■ Less burden of mains 	<ul style="list-style-type: none"> ■ Selectable transit time ■ Broad, adjustable star-time range 	<p>Star Delta Relays</p> <ul style="list-style-type: none"> ■ Series DELTA, GAMMA & ENYA
<ul style="list-style-type: none"> ■ Optimised control of start and stop ■ Reduced burden of mains at heavy or long-term starting/stopping ■ No additional ventilation ■ No external bypass contactors ■ Higher energy efficiency as frequency converter at full load 	<ul style="list-style-type: none"> ■ Adaptive acceleration control ■ Integrated bypass contactor ■ Motor protective function 	<p>Soft starter</p> <ul style="list-style-type: none"> ■ Series CSXi, EMX3
<ul style="list-style-type: none"> ■ Management of production peaks ■ Optimised utilisation by peak load covering ■ Efficient protection of mains 	<ul style="list-style-type: none"> ■ Parallel operation ■ Switching without downtimes ■ Adjustment of switch-on delay ■ Zero-voltage safety after voltage failure or disconnection 	<p>Pump alternator</p> <ul style="list-style-type: none"> ■ Series GAMMA
<ul style="list-style-type: none"> ■ Better planning of faults and maintenance ■ Remote maintenance and remote signalling ■ Easy linking to control systems ■ Simple control functions 	<ul style="list-style-type: none"> ■ Varied communication capabilities: <ul style="list-style-type: none"> * GSM/GPRS * Ethernet * Serial Interface * Digital In/Outputs * WEB-portal * Integrated WEB-PLC-based, graphical programming * Logical operators like AND, OR, XOR, etc. 	<p>GSM/GPRS Communication module</p>



Technik braucht Kontrolle: TELE combines the power of research and development, an Austrian production base and a strong team that readies its products for the market. The company grew to its present size on the strength of its timing relays and automation components, and its development has been shaped by the company's focus on monitoring techniques. We are pioneers and trendsetters, offering intelligent solutions for monitoring installations, buildings and machines and keeping them running. With passion and professional expertise, we at TELE create the very latest monitoring and control technology to the very highest standards of quality and in compliance with international standards for use all over the world.

Founded in 1963 as a family business, TELE now has its headquarters and main production facilities in Vienna, with branches in Germany and the UK and a dense network of more than 60 trading partners throughout the world. Our long-standing relationships with customers from all areas of industry and our innovative solutions for challenging problems have made us a reliable and versatile partner. Our striking green design is an external sign of our inner values – quality and innovation are the basis of our long-term success and our orientation for the future.

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