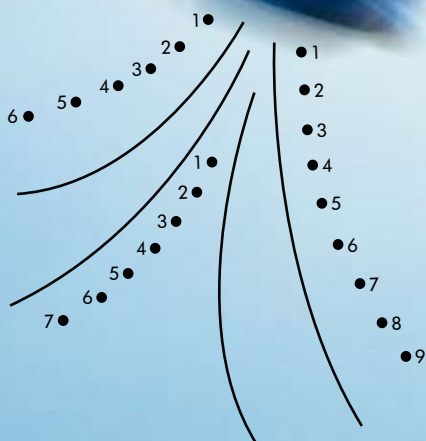


# FAN AND COMPRESSOR MONITORING & OPTIMISATION



Technik Braucht Kontrolle



# 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



**Monitoring**



**Control**



**Communication**

## 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.



For transporting or compressing air and other gases, fans or compressors are required. TELE enables monitoring and optimisation of fans and compressors **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

## YOUR BENEFITS:

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

## Information

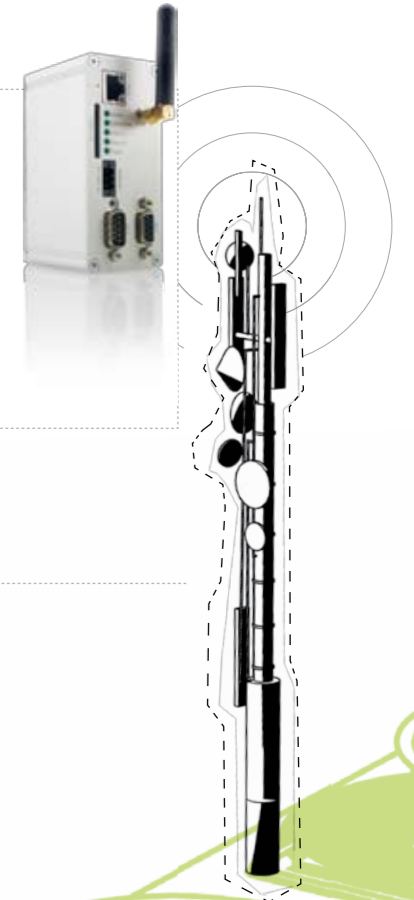
Ventilation and compressor systems cause a substantial percentage of current worldwide consumption. As a result consequent analysis of operational data and long term optimisation are gaining huge energy saving potential. In addition

to that disturbances cause high life cycle costs of compressors and ventilators and often end in production failure or entail enormous loss of production costs.<sup>1)</sup>



## Communication

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



## Fan & compressor controlling

- Encoder
- Potential separation, contact extension
- Time control
- Ventilator/ compressor start
- Ventilator/ compressor start and stop



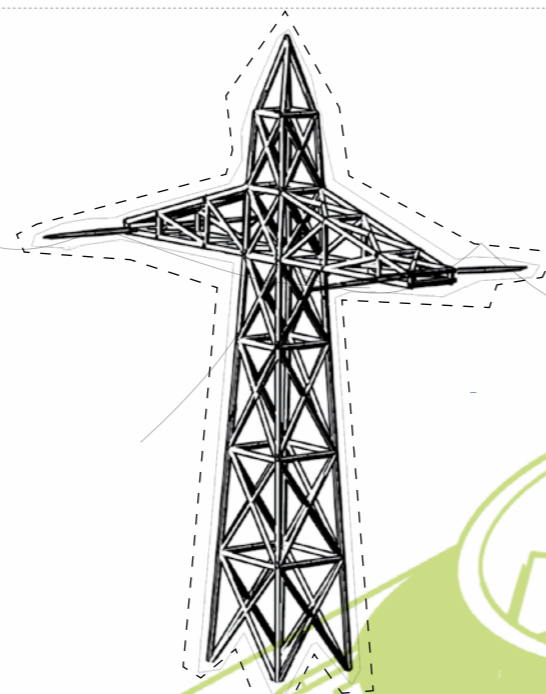
## Fan & compressor monitoring

- Blockage
- Filter pollution
- Stall (Air flow rate)
- V-belt crack, Drive element breakage
- Wear
- Temperature



## Mains monitoring

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



Side canal compressor

Circulation blowers

Piston blowers

Vacuum blowers

Screw compressors

Swash-plate compressors

Centrifugal compressors

Diaphragm compressors

Piston compressors

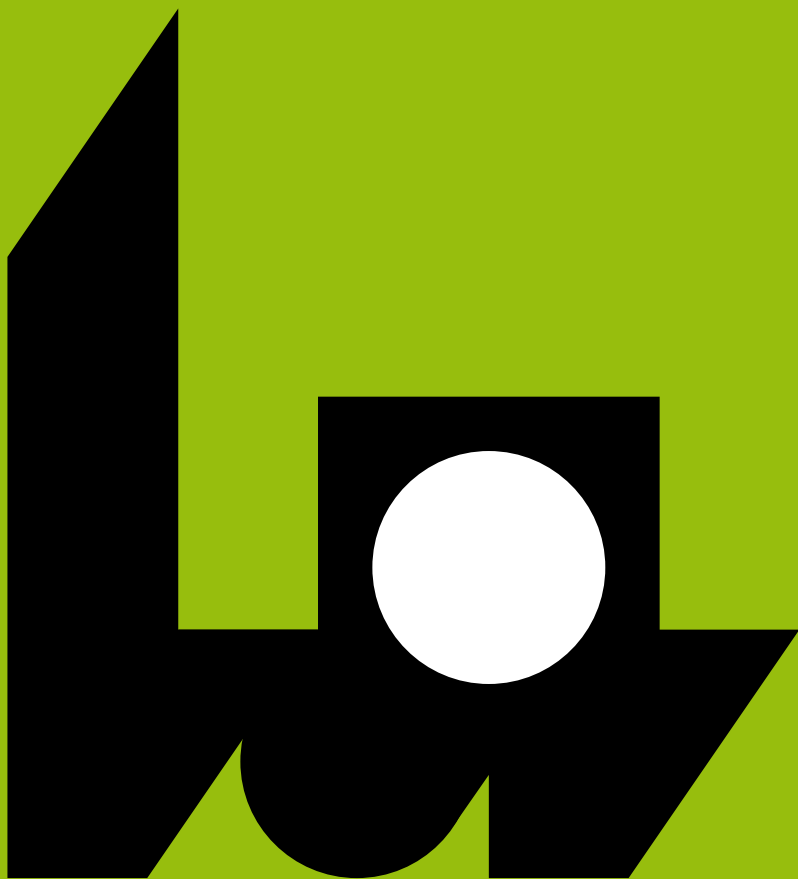
Liquid ring compressors

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

# PRODUCTS



Solution of		Benefit	by	Realised with
Phase failure	Phase failure by phase interruption or voltage breakdown	<ul style="list-style-type: none"><li>■ Comprehensive voltage monitoring</li><li>■ Guaranteed system and motor protection</li><li>■ Rotation direction monitoring</li></ul>	<ul style="list-style-type: none"><li>■ Comprehensive power supply:<ul style="list-style-type: none"><li>* Powered by measuring circuit up to 690V AC</li><li>* Zoom voltage 24-240V AC/DC</li><li>* Power modules up to 440V AC</li></ul></li><li>■ Integrated monitoring of asymmetry</li><li>■ Detection of return voltage</li><li>■ Neutral conductor monitoring</li></ul>	<b>Voltage monitoring</b> <ul style="list-style-type: none"><li>■ Series GAMMA &amp; ENYA</li></ul> <ul style="list-style-type: none"><li>- Voltage monitoring relays</li><li>- Phase failure relays</li><li>- Phase sequence relays</li></ul>
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			
Blockage	Clogging or wedging by foreign materials ➔ Overload	<ul style="list-style-type: none"><li>■ No need for additional pressure switches</li><li>■ Optimized operation and transparency</li><li>■ Increased operating and process security</li><li>■ Minimized costs by condition based preventive maintenance</li><li>■ Extended lifetime</li><li>■ Warning in case of inadmissible operating conditions</li><li>■ Ensuring system availability</li><li>■ Prevention of unpredictable production loss</li><li>■ Increased efficiency by continuous control</li></ul>	<ul style="list-style-type: none"><li>■ Direct measuring up to 690V and 16A</li><li>■ Devices with analogue output</li><li>■ Digital adjustable versions available</li><li>■ Temperature monitoring of motor winding</li><li>■ Operation after frequency converter possible</li></ul>	<b>Load monitoring</b> <ul style="list-style-type: none"><li>■ Series GAMMA</li></ul> <ul style="list-style-type: none"><li>- Power factor monitoring (cos φ)</li><li>- True power monitoring</li></ul> <b>Temperature monitoring</b> <ul style="list-style-type: none"><li>■ Series GAMMA &amp; ENYA</li></ul>
Filter pollution	Reduced output due to polluted filters ➔ Underload			
Stall (Air flow rate)	No medium transportation by exceeding stall threshold ➔ Underload			
V-belt crack, Drive element breakage	Cracking of drive element by overload, exceeded lifetime or material defect ➔ Underload	<ul style="list-style-type: none"><li>■ Manual maintenance and test</li><li>■ Changeover to manual operation</li><li>■ Save operation of sensors</li></ul>	<ul style="list-style-type: none"><li>■ Zoomvoltage</li><li>■ As analog encoder 0-10V, 0-20mA</li><li>■ As threshold switcher</li><li>■ Integrated two stage switch</li><li>■ Feedback of switch setting</li></ul>	<b>Coupling units</b> <ul style="list-style-type: none"><li>■ Series ENYA &amp; OCTO</li></ul>
Wear	Impeller wear, shaft bearing damage, etc. causes inadmissible operating condition ➔ Under or overload			
Temperature	Increase of motor temperature by phase failure, frequent start up or blockage ➔ Overtemperature			
Encoder	Setpoint selection of required parameters for simulating measured values or function tests of systems	<ul style="list-style-type: none"><li>■ Increased safety</li><li>■ Prevention of ground loops and electromagnetic interferences</li><li>■ Simple assembly</li><li>■ Individual applicable</li></ul>	<ul style="list-style-type: none"><li>■ Miniature, Industrial, PCB or Interface Relays</li><li>* Position indication by LED</li><li>* Manual override</li><li>* Integrated protection circuit</li><li>* 8 or 11 way plug-in socket for mounting</li></ul>	<b>Switching relays</b> <ul style="list-style-type: none"><li>■ Series RA, RM, RT, RP, SKR</li></ul> <b>Coupling units</b> <ul style="list-style-type: none"><li>■ Series ENYA &amp; OCTO</li></ul>
Potential separation, Contact extension	Galvanic separation and contact extension of independent switching circuits by coupling units or switching relays			
Time control	Sequence control by time controlled conditions and procedures = time dependent controls			
Ventilator/ compressor start	Prevent high current peaks and high torsional load by Star Delta Relays	<ul style="list-style-type: none"><li>■ Simple integration of timings</li><li>■ Flexible use in different applications</li><li>■ Simple wiring</li></ul>	<ul style="list-style-type: none"><li>■ Comprehensive power supply (see voltage monitoring)</li><li>■ Remote potentiometer connection</li><li>■ Potential-free and loadable change over contact</li><li>■ Multifunctional: ON/OFF delay, Flasher, Impulse switch, etc.</li></ul>	<b>Time relays</b> <ul style="list-style-type: none"><li>■ Series DELTA, GAMMA, ENYA, ...</li></ul>
Ventilator/ compressor start and stop	Reduce mains and motor load by conducted starting and stopping			
Data recording	Monitoring and communicating system status, send measured values to control system and reacting in case of an error	<ul style="list-style-type: none"><li>■ Optimised starting</li><li>■ Minimisation of starting current</li><li>■ Less burden of mains</li></ul>	<ul style="list-style-type: none"><li>■ Selectable transit time</li><li>■ Broad, adjustable star-time range</li></ul>	<b>Star Delta Relays</b> <ul style="list-style-type: none"><li>■ Series DELTA, GAMMA &amp; ENYA</li></ul>
Error logging				
Error message				
Remote maintenance				
		<ul style="list-style-type: none"><li>■ Better planning of faults and maintenance</li><li>■ Remote maintenance and remote signalling</li><li>■ Easy linking to control systems</li><li>■ Simple control functions</li></ul>	<ul style="list-style-type: none"><li>■ Varied communication capabilities:<ul style="list-style-type: none"><li>* GSM/GPRS, Ethernet, Serial Interface, Digital In/Outputs, WEB-portal, Integrated WEB-PLC-based, graphical programming, Logical operators like AND, OR, XOR, etc.</li></ul></li></ul>	<b>GSM/GPRS Communication module</b>



**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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