

Observing Strong Connections

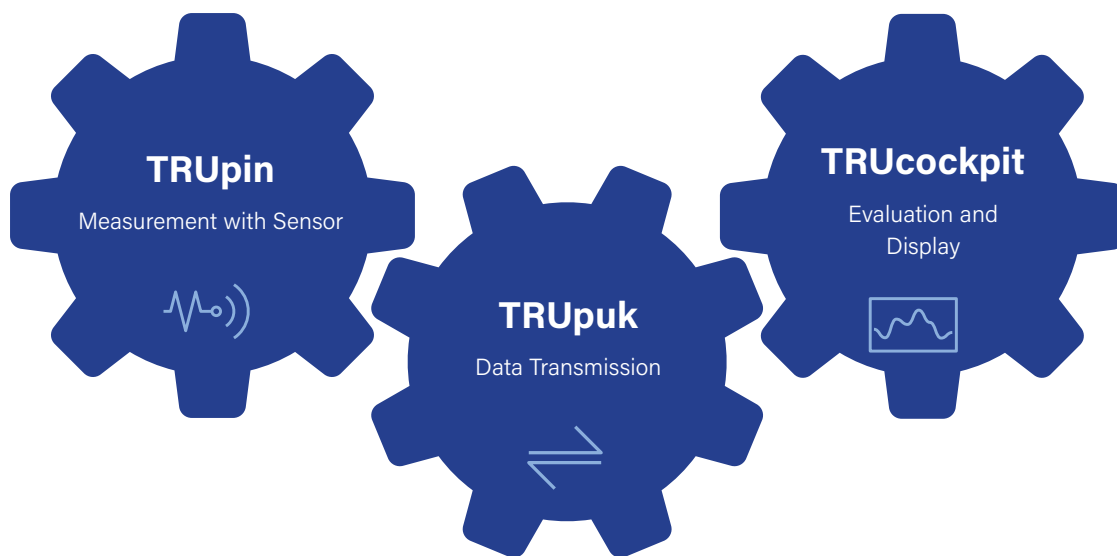
Monitoring Solutions for Rope Structures



Intelligent Solutions for Monitoring of Structural Ropes

Rope structures impress with their aesthetics, lightness and effectiveness. Steel wire ropes facilitate the installation thanks to their flexibility and ensure long-term resistance thanks to their high resilience. Thanks to decades of experience around steel wire ropes and their various applications, FATZER has the know-how to meet all these requirements. Our solutions for measuring, transmitting, evaluating and

displaying rope forces complement the use of high-quality steel wire ropes ideally. TRUpin, TRUpuk and TRUcockpit interlock like gears and support realization partners and clients of rope structures during installation and in the long run. Primarily designed for FATZER steel wire ropes, these solutions can also be used for other ropes. A retrofit for existing buildings is also possible.



How you benefit from our Solutions

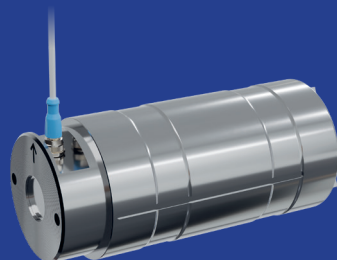
- More efficiency in installation, higher safety and durability of rope structures
- Visualization and evaluation of rope data on a dashboard
- Creation of reports
- Time- and location-independent measurement and monitoring thanks to mobile transmission solutions
- Easy handling and clear presentation of rope data
- Permanent monitoring enables early detection of changes
- Possibility for retrofitting in existing buildings

The Solution for Efficiency, Safety and Durability of Rope Structures

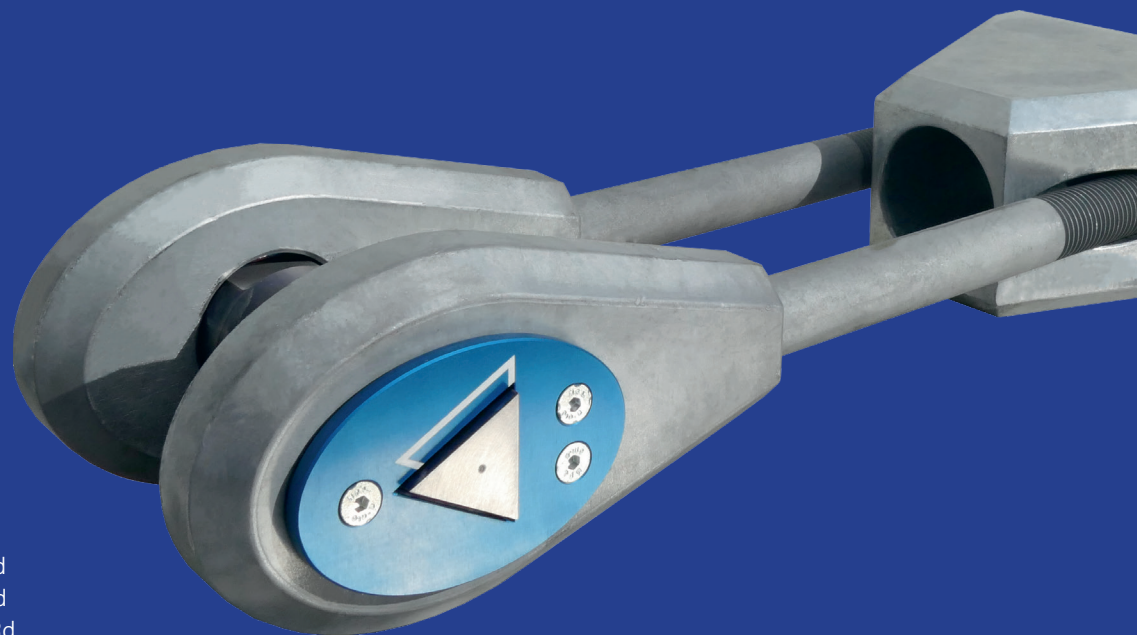
TRUpin Sensor

TRUpin is the solution for monitoring rope forces in rope structures. The force measuring bolt is used for bridges, facades, stadium roofs and numerous other buildings. Suitable for a very wide range of applications and any bolt-lug connection, users benefit from more efficiency in construction, increased safety and enhanced durability of rope structures thanks to TRUpin.

TRUpin delivers the output signal via a reverse polarity protected socket.



TRUpin combines the function of a force-transmitting bolt with that of a measuring device for the occurring rope forces. This makes it possible to continuously monitor structural ropes in real time. TRUpin is used both during installation, which can be accelerated as a result, and in the years after completion. At the point of acceptance of construction works, TRUpin also scores by the fact that, in addition to the geometric control, a force control can be carried out. Thanks to preventive maintenance recommendations by TRUpin, it is also possible in the long term to plan maintenance measures in advance. The force measuring bolt was developed for FATZER HYEND end connections. In consultation, TRUpin can also be used for other bolted connections. A retrofit is also possible in already existing buildings.



Accuracy of TRUpin

5–50% F Rd: $\pm 0.5\%$ of F Rd
50–80% F Rd: $\pm 2.0\%$ of F Rd
80–100% F Rd: $\pm 3.0\%$ of F Rd

TRUpuk Data Transmission

TRUpuk transmits the measurements of rope forces by TRUpin to the monitoring platform TRUcockpit. Adapted to individual needs and the intended measurement intervals, the readout device TRUpuk is available in different versions. With TRUpuk Handheld, a selective measurement with

manual transmission is possible, TRUpuk Wireless is intended for daily automatic use and TRUpuk Wired for energy-intensive, high-frequency continuous measurements with real-time transmission. What all versions have in common is their simple and user-friendly handling.



TRUpuk Handheld

- Universal readout device
- Suitable for mV/V output signals
- 20 hours battery life
- Selective measurement as needed
- Connection directly to the socket of the TRUpin
- Possibility of data storage on the readout device via SD card
- Presentation, evaluation and alerting take place after data transmission to TRUcockpit
- The measured values must be transmitted or entered manually into TRUcockpit
- Protection class IP65



TRUpuk Wireless

- Individual readout device with transmitter unit for each TRUpin
- Suitable for mV/V output signals
- Power supply by built-in battery with a lifetime of up to 10 years
- Standard measurement frequency: 1/h
- Standard transmission frequency: 1/day
- Higher frequencies possible at the expense of battery life
- Connection directly to the socket of the TRUpin
- Data transmission via mobile network
- Presentation, evaluation and alerting take place after the transmission to TRUcockpit
- Protection class IP64



TRUpuk Wired

- Central readout device with transmitter unit for one or more TRUpin
- Suitable for 4–20 mA output signals
- Power supply via mains connection
- Standard measurement frequency: 0.1/s
- Standard transmission frequency: 0.1/s
- Lower frequency possible
- Connection of one or more TRUpin to the central readout device with connection cables
- Data transmission via mobile network
- Presentation, evaluation and alerting take place after the transmission to TRUcockpit
- Protection class IP65

TRUcockpit Evaluation and Display

Whether visualization of measurement results, their evaluation or, if necessary, also alerting: TRUcockpit is a scalable and widely applicable platform for the efficient digital management of steel wire ropes. It combines all those functions that are necessary for location-independent monitoring in real time at the highest level.

Digitally displayed, digital rope twins in TRUcockpit enable a comprehensive condition monitoring of steel wire ropes. In the dashboard, the rope condition can be captured at a glance based on recorded rope data. If changes in load occur on ropes, an automatic alarm is triggered. In addition, TRUcockpit facilitates the documentation of all important rope data and also enables the storage of a rope documentation. Thus, TRUcockpit contributes significantly to efficient construction and monitoring processes, a maximum of safety and the early planning of maintenance work. Basically designed for use with TRUpin and TRUpuk, TRUcockpit can also realize special solutions for monitoring with other sensors and transmission solutions. FATZER supports customers with a network of specialized partners.



Contact us now!

More efficient installation, increased safety, enhanced durability and predictable maintenance thanks to monitoring with FATZER TRU products for rope structures!



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**Building
Strong
Connections**