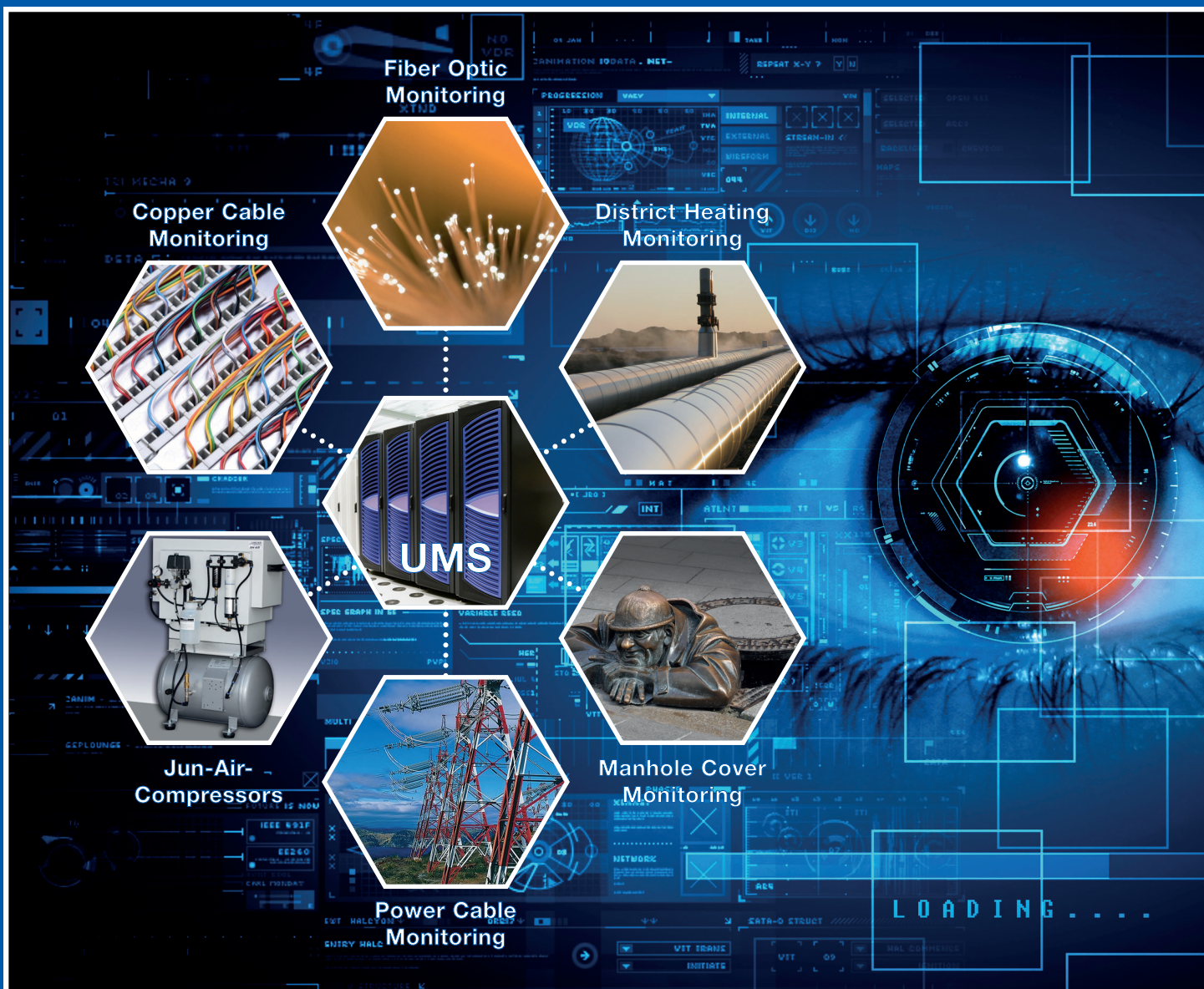













# Product Catalogue



*We develop solutions together:  
innovative, reliable, future-proof*

# Rail-Module-Bus

The modular Monitoring System for DIN rail mounting

| Item  | Description   | Order no.         |
|---|---|-------------------|
|  <b>RM-Basic</b>      | <b>Basic module</b> with Ethernet interface<br>Power supply and display module for the RM-Bus   | <b>074001.100</b> |
|  <b>RM-Iso</b>        | <b>Insulation and Loop Resistance Measuring Module</b><br>with capacitance based fault location   | <b>074003.100</b> |
|  <b>RM-TH</b>         | <b>Temperature and Humidity Measuring Module</b>  | <b>074004.000</b> |
|  <b>RM-Tx</b>         | <b>Module for reading out Tx-Bus sensors</b>  | <b>074005.000</b> |
|  <b>RM-Ax</b>         | <b>Module for reading out Ax-Bus sensors</b>  | <b>074006.000</b> |
|  <b>RM-Loop</b>       | <b>2-channel Loop Resistance Measuring Module</b><br>to monitor remote switches for contact monitoring purposes   | <b>074008.000</b> |
|  <b>RM-T2</b>         | <b>2-channel District Heating Temperature Monitoring module</b><br>for monitoring 2 PT 1000 temperaturr sensors   | <b>074700.000</b> |
|  <b>RM-Fiber</b>     | <b>Optical Fiber Attenuation Module</b> for dark and active fibers<br>W and A depend on laser diode and connector type  | <b>074704.0WA</b> |
|  <b>RM-Fiber-4S</b> | <b>Optical Fiber Attenuation Module</b> for dark and active fibers<br>for contact monitoring of 4 CoverSensors (see page 7)<br>W and A depend on laser diode and connector type | <b>074705.00A</b> |
|  <b>RM-Mx</b>       | <b>Interface Module</b><br>to integrate M-bus nodes into the Rail-Module-Bus  | <b>074701.000</b> |
|  <b>RM-X2</b>       | <b>2-channel Measuring Module</b><br>for the evaluation of sensors for physical parameters<br>with a standardised current and voltage interface                                 | <b>074708.100</b> |
|  <b>RM-WL</b>       | <b>2-channel Insulation and Loop Resistance Measuring Module</b><br>for Leakage Monitoring and Fault Localisation in Pipe Systems   | <b>074707.000</b> |






## Order code RM-Fiber

**W:** 7 = Wavelength 1310 nm Multimode  
8 = Wavelength 1310 nm Singlemode  
9 = Wavelength 1625 nm Singlemode

**A:** 2 = Fiber connector ST  
3 = Fiber connector SC/PC  
4 = Fiber connector DIN/PC  
5 = Fiber connector SC/APC  
6 = Fiber connector FC/APC  
7 = Fiber connector LC  
8 = Fiber connector E2000  
9 = Fiber connector FC/PC

# Rail-Module-Bus




The modular Monitoring System for DIN rail mounting

| Item  | Description   | Order no.         |
|---|---|-------------------|
|  <b>RM-Power</b>   | <b>Voltage Converter 110 .. 230 V AC / 24 V DC</b> , for Basic Module | <b>074009.000</b> |
|  <b>RM-Bus Extender</b>  | RM-Bus expansion for an additional DIN-Rail module                    | <b>074002.000</b> |
|  <b>19"-Hutschieneneinsatz 3 HE</b> | for the integration of RM modules into 19" racks                      | <b>075416.000</b> |





# Monitoring Stations


## Unified Monitoring System

| Item   | Description  | Order no.                              |
|--|--|--|
|  <b>Monitoring Station RTU</b>         | <b>Modular system</b> in 19" housing for universal monitoring tasks with 12 slots for measurement cards (not included)<br>Included standard modules: power supply, CPU card, CAN bus, TCP/IP communication interface<br><b>38 .. 72 V DC</b> (DC/DC power supply unit)<br><b>100 .. 250 V AC/45 .. 65 Hz</b> (AC/DC power supply unit) | <b>067400.000</b><br><b>067400.008</b> |
|  <b>Monitoring Station RTU 101-IMS</b> | <b>Compact system</b> in wall housing for insulation and loop resistance monitoring, MOD-bus compatible, Display+ control panel, 10 measuring channels, 13 alarm contacts, with pre-assembled ethernet cable<br>Measuring/Supply voltage.<br><b>30 V/ 21..72 V DC</b><br><b>90 V/ 21..72 V DC</b>                                      | <b>073187.000</b><br><b>073187.100</b> |
|  <b>Monitoring Station MUX 101-DW</b>  | Economically prized compact system in wall housing for universal monitoring tasks with 16 measuring channels for 127 addressable sensors each, with pre-assembled ethernet cable<br>Supply voltage <b>38 .. 72 V DC</b>  | <b>072681.000</b>                      |

## Fiber Optic Monitoring Options for modular Monitoring Station RTU


| Item  | Description   | Order no.  |
|---|---|--|
|  <b>OTDR Module</b>           | OTDR with 3 wave lengths, 1310/1550/1625 nm, singlemode<br>Dynamic range 45/45/43 dB<br>Laser class IEC 60825-1:2001 class 1M<br>other types of OTDR on request   | <b>074522.357</b>  |
|  <b>Optical Switch Module</b> | For 2 to 200 fiber connections<br>incl. interface card for RTU and connection cable<br>Size: 1 HU (44,3 mm) per 16 channels<br>Order no. <b>XXX</b> = number of switch channels<br>Larger switch modules e.g. for PON applications on request | <b>073XXX.0YY</b>  |
|   | <b>Available connectors:</b>  | <b>YY = 00</b><br><b>YY = 85</b><br><b>YY = 87</b><br><b>YY = 88</b><br><b>YY = 89</b> |

## ContactAlarm Stationary 2-channel Contact Monitoring Device



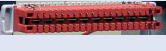

| Item   | Description   | Order no.         |
|--|---|-------------------|
|  <b>ContactAlarm 2 LTE</b> | <b>Battery-powered, 2-channel Contact Monitoring Device in the UMS network</b><br>with LTE and GSM based alarm, display panel and 6 contact ports<br>Supply voltage: <b>exchangeable lithium battery, 3.6 V</b><br><b>ContactAlarm2 LTE/UMS</b> | <b>076014.000</b> |

# Accessories for Monitoring Stations

## Measuring Cards for modular Monitoring Stations RTU and DW 1005E

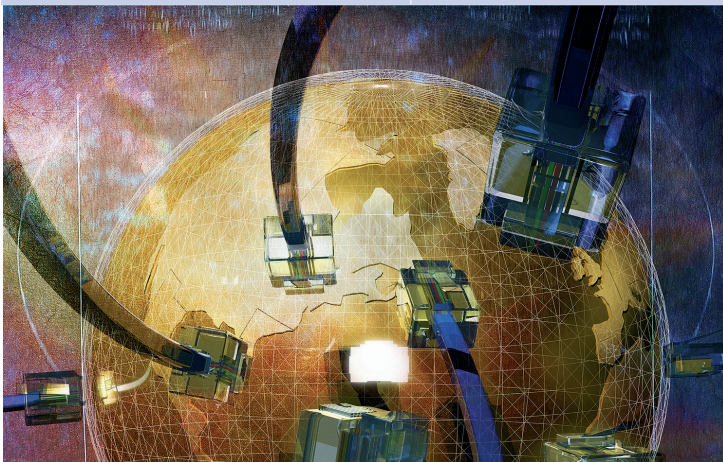
| Item  | Description   | Order no.  |
|---|---|--|
|  <b>Measuring Card R10</b> | for insulation and loop resistance, 10 channels with cable and terminal strip<br>Meas. voltage 30 V<br>Meas. voltage 90 V | <b>058493.000</b><br><b>058493.100</b>                               |
| <b>Measuring Card QE16</b>  | 16 channels for 127 addressable sensors (Tx-bus) each   | <b>047996.000</b>  |
| <b>Anschlusskabel VK 16</b>   | for available lengths see table bottom  | <b>029943.0XX</b>  |
| <b>Measuring Card C32</b>   | for 32 dry contacts   | <b>029920.000</b>  |
| <b>Connection Cable VK 32</b>   | for available lengths see table bottom  | <b>029946.0XX</b>  |
| <b>Measuring Card Out12</b>   | for external alarming, 12 dry contact outputs incl. connection cable VK12   | <b>058518.000</b>  |
| <b>Measuring Card Ax4</b><br><i>for RTU only</i>  | for real-time remote monitoring of contacts at measurement points without power supply with the Ax-Bus                    | <b>073810.000</b>  |
|   | <b>Available Connection Cable Lengths</b> 2.0 meters<br>5.0 meters<br>7.5 meters<br>10.0 meters                           | <b>XX = 00</b><br><b>XX = 85</b><br><b>XX = 86</b><br><b>XX = 87</b> |

## Accessories for modular Monitoring Stations RTU

| Item   | Description   | Order no.                              |
|--|---|--|
|  <b>Wall Mount Cabinet</b>          | <b>19"/11 HU</b> for RTU or DW 1005E and connection panel for 15 LSA+ connection strips (excl.)<br><b>19"/11 HU including wiring and mounting works</b> for one RTU or DW 1005E and the connection panel for 15 LSA+ connection strips (instruments and wires excluded) | <b>062526.000</b><br><b>062526.001</b> |
|  <b>LSA+ Connection Strip</b>       | for 10 pairs  | <b>047939.000</b>                      |
|  <b>LSA+ Earth Connection Strip</b> | for reference earth for R10 cards   | <b>059034.000</b>                      |
|  <b>Connection Panel 19"</b>        | for 15 LSA+ connection strips, without connection strips  | <b>047937.000</b>                      |

## Accessories for compact Monitoring Stations RTU, Types 101

| Item                         | Description                         | Order no.         |
|------------------------------|-------------------------------------|-------------------|
| <b>External Power Supply</b> | 230 V AC                            | <b>062025.000</b> |
| <b>19" 8 HU Adaptor</b>      | for mounting in 19" cabinet or rack | <b>061713.000</b> |



# Sensors

## Addressable Sensors for Tx-Bus systems

| Item  | Description   | Order no.  |
|---|---|--|
| <b>PTxA210PM</b>  | <b>Addressable Pressure Sensor</b> for joint installation<br>Measuring range 700..2100 hPa (mBar) abs.  | <b>054471.000</b>  |
| <b>PTxA210PE</b>  | <b>Addressable Pressure Sensor</b> for external installation in multi housing.<br>Measuring range 700..2100 hPa (mBar) abs.   | <b>047000.001</b>  |
| Accessories:<br><b>Verbindungskabel 0,2 m</b><br><b>Verbindungskabel 0,5 m</b><br><b>Anschlussatz</b> | for add on mounting<br>for add on mounting<br>for pressurized sleeves   | <b>046983.000</b><br><b>059541.000</b><br><b>048653.000</b>  |
| <b>PTxA 210</b>   | <b>Addressable Pressure Sensor</b> with adaptor board for placement in multi housing<br>Measuring range 700..2100 hPa (mBar) abs.   | <b>072888.000</b>  |
| <b>HPTxA</b>  | <b>Addressable High-Pressure Sensor</b><br>Measuring ranges 0..10 bar<br>Measuring ranges 0..200 bar  | <b>048338.000</b><br><b>072013.000</b>   |
| <b>TTxAM</b>  | <b>Addressable Temperature Sensor</b> for joint installation<br>Measuring range -20...+70°C<br>other measuring ranges upon request  | <b>043772.000</b>  |
| <b>TTxAS</b>  | <b>Addressable Temperature Sensor</b> in snap-on housing<br>Measuring range -20...+70°C<br>other measuring ranges upon request  | <b>063601.000</b>  |
| <b>HTxA5/95</b>   | <b>Addressable Humidity Sensor</b><br>Measuring range 5..95% r.h.   | <b>043771.000</b>  |
| <b>HTxA0/15</b>   | <b>Addressable Humidity Sensor</b><br>Measuring range 0..15% r.h. for compressor monitoring   | <b>063007.000</b>  |
| <b>XTxA</b>   | <b>Addressable Universal Sensor</b> in snap on housing<br>Current measuring range: 0.. 10 mA DC<br>Current measuring range: 0.. 100 mA DC<br>Current measuring range: 0.. 1 A DC<br>Voltage measuring range: 0.. 1 V DC<br>Voltage measuring range: 0.. 10 V DC<br>Voltage measuring range: 0.. 100 V DC<br>other measuring ranges upon request | <b>050601.010</b><br><b>050601.011</b><br><b>050601.012</b><br><b>050601.020</b><br><b>050601.021</b><br><b>050601.022</b> |
| <b>MTxA</b>   | <b>Addressable Humidity and Temperature Sensor</b>  | <b>072759.000</b>  |
| <b>CDtA 4S</b>  | <b>Addressable Contact Sensor</b> in snap-on housing  | <b>073985.000</b>  |
| <b>CDtA 4L</b>  | <b>Addressable Contact Sensor</b> latching in snap on housing<br>latching in multi housing  | <b>073778.000</b><br><b>073779.000</b>   |
| <b>LID-TxA-S</b>  | <b>Addressable RKA Light Detector</b><br>for directional short circuit indicators in power cable network  | <b>072203.000</b>  |

Evaluation via LANCIER Tx-Bus by monitoring stations RTU equipped with QE16 card and by MUX 101-DW as well as in the Rail Module Bus.




### Housing options:

- S:** Snap-on housing  
100 x 22.5 x 75 mm, IP 20
- M:** Joint installation  
95 x 30 x 18 mm, IP 20
- E:** Multi housing  
165 mm, Ø 50 mm, IP 68








# Sensors


## Addressable MK2-Sensors embedded in the monitoring system by Mod- or Tx-Bus

| Item  | Description   | Order no.  |
|---|---|--|
|  <b>IsoTxA Mk2</b>   | <b>Insulation and Loop Resistance Sensor</b>  | <b>071676.100</b>  |
|  <b>FiberTxA Mk2</b> | <b>Optical Attenuation Sensor</b> , 0..50 dB,<br>for dark and active fibers, integrated laser diode and photo diode   | <b>071840.0WA</b>  |
|  <b>OpTxA Mk2</b>    | <b>Optical Power Sensor</b> , for active fibers, -50..10 dBm,<br>integrated optical coupler, broadband (1000-1600 nm) | <b>071850.00A</b>  |
|   | Wavelengths: 1310 nm multimode (FiberTxA only)<br>1310 nm singlemode<br>1625 nm singlemode                            | <b>W = 7</b><br><b>W = 8</b><br><b>W = 9</b>                 |
|   | Available connectors: SC/APC<br>FC/APC<br>E2000<br>FC/PC, others on request   | <b>A = 2</b><br><b>A = 5</b><br><b>A = 6</b><br><b>A = 8</b> |
| <b>Accessories</b>  |   |  |
| <b>Tx-Bus Interface</b>   | Internal plug-in module for connection to monitoring systems<br>DW 1005E or DW 101E (1 per Mk2-Sensor required)       | <b>071700.000</b>  |
| <b>Modbus Interface</b>   | Internal plug-in module for connection to telecontrol systems via<br>RS232 interface (1 per Mk2-Sensor required)      | <b>073601.000</b>  |
| <b>Drawer 19" 1HU</b>   | Module carrier for max. three Mk2 sensors   | <b>071863.000</b>  |
| <b>Wall Housing</b>   | for max. three Mk2 sensors with power supply unit 48/60 VDC<br>with power supply unit 115-230 VAC                     | <b>072723.000</b><br><b>072723.008</b>                       |

## Special Purpose Sensors




| Item  | Description  | Order no.                              |
|---|--|--|
|  <b>Aquasensor</b>                           | reports humidity and water in sleeves of fiber optic cables and locates<br>the defective sleeve  | <b>068969.000</b>                      |
|  <b>CoverSensor</b>                          | reports the opening of doors, supply shafts etc.<br><b>via fiber optic cable</b><br><b>via copper cable</b>  | <b>075694.000</b><br><b>075694.010</b> |
|  <b>Float Switch</b>                         | at multi housing, 5 m connection cable, opening/closing contact<br>equipped with connecting box and casting compound   | <b>074764.000</b><br><b>074764.010</b> |
|  <b>Float Switch-4S</b>                      | at multi housing, 5 m connection cable, opening/closing contact/<br>line disconnection / line short-cut<br>equipped with connecting box and casting compound | <b>074764.004</b><br><b>074764.014</b> |
|  <b>Float Switch<br/>with contact sensor</b> | at multi housing, 5 m connection cable, opening/closing contact,<br>incl. addressable contact sensor CTxA  | <b>074765.000</b>                      |
| <b>Sensor CAx 4S-PE</b>   | Digital Contact Sensor for real-time remote monitoring of contacts at<br>measurement points without power supply by Ax-Bus                                   | <b>073809.004</b>                      |

## Mobile Testing Equipment for Tx-Bus systems

| Item  | Description  | Order no.         |
|---|--|-------------------|
|  <b>Testbox T2</b> | Testing equipment for addressable sensors/LANCIER Tx-Bus<br>incl. earphone, measurement cables and battery charger | <b>050833.100</b> |

# Pressurisation Systems



## Installed Pressurisation Systems RTS

| Item   | Description   | Order no.         |
|--|---|-------------------|
|  | Sound proofed compressor-dryer system with air distribution mounting facility and digital control panel.<br>Fully automated remotely monitorable systems (per Ethernet) with maintenance as necessary.  |                   |
|  <b>RTS 1000-PSC</b>   | Output capacity (sea level) 1000 l/h<br>Mounting space for digital flow meters in front door 10<br>(flow meters and ACS not included)<br>Wall mount, 230 V, single phases<br><b>Equipment</b><br>Lockable glass front door<br>Control panel with PSC<br>Maintenance signal 400 hours<br>Compressor with electric plug | <b>075418.000</b> |
|  <b>RTS 2600-PSC</b>  | Output capacity (sea level) 2600 l/h<br>Mounting space for digital flow meters in front door 30<br>(flow meters not included)<br><b>Equipment</b><br>Control panel with PSC<br>Maintenance signal 400 hours<br>Total flow meter<br>Manometer for air dryer<br>Lockable glass front door                               | <b>075199.000</b> |
|  <b>RTS 5200-PSC</b> | Output capacity (sea level) 5200 l/h<br>Mounting space for digital flow meters in front door 50<br>(flow meters not included)<br><b>Equipment</b><br>Control panel with PSC<br>Maintenance signal 400 hours<br>Total flow meter<br>Manometer for air dryer<br>Lockable glass front door                               | <b>075200.000</b> |
| <b>Accessories/Options</b>   |   |                   |
| <b>Cyclone water separator</b>   | Air pre-dryer for use in particular humid environments  | <b>073735.172</b> |
| <b>Built-in light assembly</b>   | for fitting into RTS PSC pressurisation systems:<br>Built-in light, mounting material and 5 m power line  | <b>075342.000</b> |
| <b>FI switch</b>   | in mounting box for installed pressurisations systems as residual current protective device   | <b>074523.000</b> |
| <b>Sensor compressor pressure</b>  | for monitoring and evaluating the compressure pressure by the PSC   | <b>073153.000</b> |
| <b>Sensor Compressor head temperature</b>  | for monitoring and evaluating the compressure head temperature by the PSC   | <b>073155.100</b> |




# Pressurisation Systems



## Installed Pressurisation Systems RT-UG

| Item  | Description  | Order no.         |
|---|--|-------------------|
|  <b>RT-UG-PSC</b>        | Base frame with air dryer and various pneumatic elements for large output power depending on utilised compressor.<br>Example: output power with compressor type KCT 401S 8500 l/h<br><b>Equipment</b><br>Floor-mounted appliance<br>Lockable side door<br>Control panel with PSC<br><b>Options/Accessories</b><br><b>Compressor KCT401S</b><br>with sound proofed hood | <b>075438.000</b> |
|   |  | <b>070492.000</b> |
|  <b>RT-UG 10000-PSC</b> | Base frame with air dryer and various pneumatic elements and Jun-Air compressor without sound proofed hood<br>Output power 10000 l/h<br><b>Equipment</b><br>Control panel with PSC<br>Maintenance signal 400 hours<br>Total flow meter<br>Manometer for air dryer<br>Lockable side door  | <b>075438.100</b> |

## Mobile Pressurisation Systems LAM



| Item  | Description  | Order no.         |
|---|--|-------------------|
|  <b>LAM 2000</b> | Output capacity (sea level) 2000 l/h                                   | <b>073139.000</b> |
|   | Dismountable into 2 lightweight Modules,<br>weights approx. 28 + 22 kg |                   |

## Installed Pressurisation Systems LANCIER Jun-Air Series OF-S and -ST

| Item  | Description  | Order no.  |
|---|--|--|
|  <b>Serie OF-S</b> | <ul style="list-style-type: none"> <li>• Soundproof compressors with extremely low noise and vibration operation</li> <li>• Compact design</li> <li>• Supply performance at 8 bar: 12 l/min to 35 l/min</li> <li>• Excellent compressed air quality acc. to ISO 8573-1:2010 [1:3:1]</li> <li>• Air tank sizes 15 l, 25 l and 40 l</li> </ul> | <b>On request</b>  |
|   |  <b>Serie OF-ST</b>   | <ul style="list-style-type: none"> <li>• <b>Equipped with air-dryer</b></li> <li>• Soundproof compressors with extremely low noise and vibration operation</li> <li>• Compact design</li> <li>• Supply performance at 8 bar: 12 l/min to 35 l/min</li> <li>• Excellent compressed air quality acc. to ISO 8573-1:2010 [1:3:1]</li> <li>• Air tank sizes 15 l, 25 l and 40 l</li> </ul> |

# Monitoring of Pressurisation Systems



## Addressable Digital Flow Meters for Pressurisation Systems

| Item  | Description  | Order no.         |
|---|--|-------------------|
|  <b>Digital Flow Meter Block</b>    | Digital flow meter block for the integration into pressurisation system cabinets |                   |
|   | equipped with 1 digital flow meter FMA 200C                                      | <b>064950.101</b> |
|   | equipped with 2 digital flow meter FMA 200C                                      | <b>064950.102</b> |
|   | equipped with 3 digital flow meter FMA 200C                                      | <b>064950.103</b> |
|   | equipped with 4 digital flow meter FMA 200C                                      | <b>064950.104</b> |
| equipped with 5 digital flow meter FMA 200C   | <b>064950.105</b>  |                   |
|  <b>Digital Flow Meter FMA 200C</b> | Extension of existing flow meter block by additional digital flow meter FMA 200C | <b>064952.100</b> |

## Installation Material for Digital Flow Meter Blocks




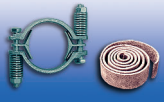
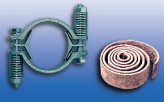
| Item                                 | Description   | Order no.                              |
|--------------------------------------|---|--|
| <b>Pneumatic Installation Kit</b>    | for one FMA 200C (output connector for new RTS equipment, 19" wall-mount cabinets and expansions)           | <b>065898.000</b>                      |
| <b>Common Input Air Filter KL 15</b> | for installation into PE 10/7 hose when connecting to cable type PWE2Y (one required for each FMA 200)      | <b>071011.000</b>                      |
| <b>Non-return Valve</b>              | Non-return valve for hose diameter 10/7 mm<br>Non-return valve for hose diameter 6/4 mm                     | <b>057311.000</b><br><b>057311.066</b> |
| <b>19" Installation Kit</b>          | for one distribution block (for installation into 19" wall-mount cabinets and front doors of RTS equipment) | <b>064955.000</b>                      |
| <b>Wall Mount Cabinet</b>            | Wall mount cabinet for 4 digital flow meter blocks (20 FMA 200C)<br>Other wall mount cabinets on request    | <b>069631.004</b>                      |

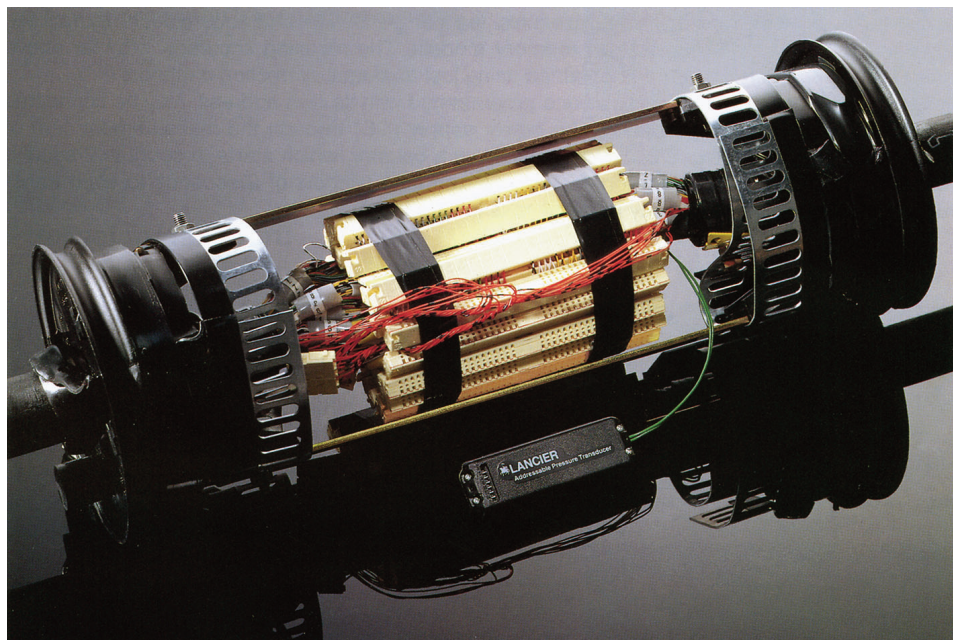
## Mobile Testing Equipment for Pressurised Cable Network and Pressurisation Systems

| Item  | Description  | Order no.         |
|---|--|-------------------|
|  <b>DFP</b>                       | <b>Digital Humidity and Temperature Analyser</b><br>with quick connector   | <b>072773.000</b> |
|  <b>Hydrotector H<sub>2</sub></b> | <b>Cable Leak Detector</b><br>incl. charging set 230 V 50-60 Hz, headphones, plunger, 2 NiCd batteries, special case | <b>057049.100</b> |
|   | <b>Accessory</b><br><b>Tracing Gas Filling Kit</b><br>for Hydrotector with single stage reducer and 5 m hose         | <b>057388.000</b> |



# Material for Pressurised Cables

| Item  | Description   | Order no.  |
|---|---|--|
|  <p><b>Material Set for Pressure Test and Feeding Points</b></p>       | for cable diameter of 10 to 30 mm<br>for cable diameter of 30 to 38 mm<br>for cable diameter of 38 to 60 mm<br>for cable diameter of 60 to 90 mm  | 028771.000<br>020746.000<br>020747.000<br>020748.000                   |
|  <p><b>Connectors</b></p>  | <p><b>T-Piece Hose Connector</b> with test valve<br/>for hoses with inner diameter of 7 to 8 mm</p> <p><b>Valve Connector</b> Vg 8 x 7,5, straight<br/>for hoses with inner diameter of 7 to 8 mm</p> <p><b>Valve Connector</b> Vg 8 x 7,5, bent 90°<br/>for hoses with inner diameter of 7 to 8 mm</p> | 002501.000<br><br>021190.000<br><br>021191.000                         |
|  <p><b>Material Set for Air Blocks</b></p>                             | for cable diameter of 10 to 30 mm<br>for cable diameter of 30 to 38 mm<br>for cable diameter of 38 to 60 mm<br>for cable diameter of 60 to 90 mm  | 028767.000<br>028768.000<br>028769.000<br>028770.000                   |
|  <p><b>Self arming Glass Fiber Tape</b></p>                          | 12 mm wide, roll of 20 m  | 020480.000   |
|  <p><b>Material for Air Blocks in Cables with Plastic Sheath</b></p> | <p><b>Tension Clamp</b> for cable diameter of 38 to 48 mm<br/>for cable diameter of 48 to 60 mm<br/>for cable diameter of 60 to 75 mm<br/>for cable diameter of 75 to 90 mm</p> <p><b>Packing Tape</b> used with tension clamp for cables with smaller diameters</p>                                    | 015463.000<br>015464.000<br>015465.000<br>015466.000<br><br>015467.000 |



# Monitoring Software

## Unified Monitoring System UMS

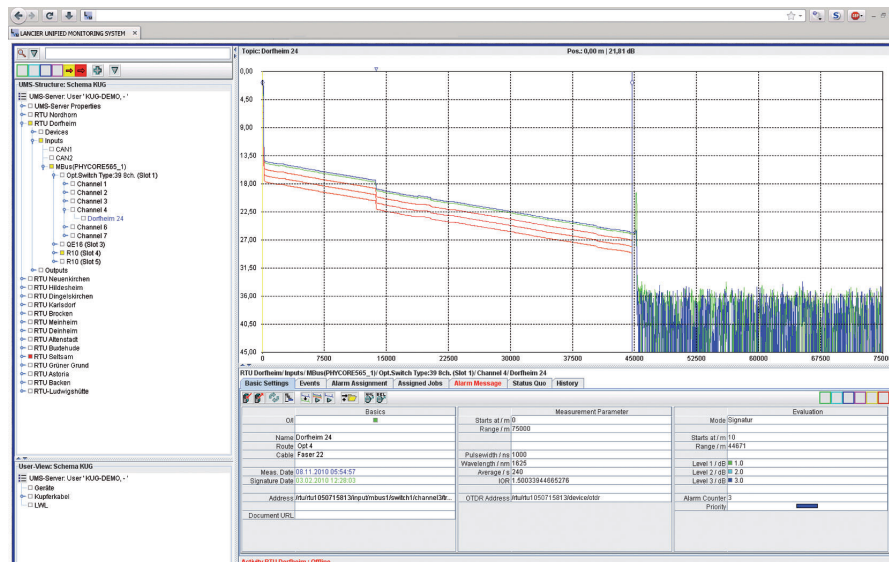
| Item                                 | Description  | Order no.         |
|--------------------------------------|--|-------------------|
| <b>Unified Monitoring System UMS</b> | For reading out UMS Monitoring Stations as well as the evaluation and graphical presentation of the measured values and the monitored networks |                   |
| <b>Database</b>                      | <b>Oracle Database Standard Edition</b> , full use, 5 named users  | <b>072215.000</b> |
|                                      | <b>Upgrades</b><br>5 additional Clients for Oracle Database  | <b>072215.005</b> |
|                                      | 25 additional Clients for Oracle Database  | <b>072215.025</b> |
| <b>UMS Server License</b>            | up to 5 Clients  | <b>072216.000</b> |
|                                      | <b>Upgrades</b><br>up to 5 additional Clients for UMS Server   | <b>072216.005</b> |
|                                      | up to 25 additional Clients for UMS Server   | <b>072216.025</b> |
| <b>UMS Client License</b>            | <b>1 Fiber Optic Cable (OTDR) User</b><br>(limited to use OTDR, FiberTxA and OpTxA measurement)  | <b>072239.200</b> |
|                                      | <b>1 Standard User</b> (everything except OTDR measurement)  | <b>072239.100</b> |
|                                      | <b>1 Full User</b> (standard plus OTDR)  | <b>072239.300</b> |
| <b>EasyView</b>                      | <b>Visualisation tool for UMS</b>  | <b>075683.000</b> |

## Unified Monitoring System UMS Lean

| Item            | Description  | Order no.         |
|-----------------|--|-------------------|
| <b>UMS Lean</b> | For reading out UMS Monitoring Stations as well as the evaluation and graphical presentation of the measured values and the monitored networks as <b>single-user application</b> , not expandable! | <b>074051.000</b> |

## UMS Hosting-Service

| Item                       | Description   | Order no.         |
|----------------------------|---|-------------------|
| <b>UMS Hosting-Service</b> | For the remote hosting of measuring data and their evaluation at computers of LANCIER Monitoring with world wide, password-protected access. No own resources are necessary.<br><br>Technical requirements and prices on request. | <b>099467.000</b> |



Screenshot UMS client: Backscattering trace of optical fiber

# UMS with EasyView - Access to all significant data with only a few mouse clicks

The screenshots illustrate the user interface for monitoring a district heating system (UMS) with EasyView. The main interface shows a map with various monitoring stations and routes. A red line on the map indicates an alarm condition. The interface includes a sidebar with a legend for different types of buildings and monitoring points, and a top navigation bar with buttons for 'Zurück zur Auswahl' and 'Abmelden'.

**Start screen with choice of monitoring station and route. Red colour indicates routes in alarm condition.**

**An intuitive graphic user interface leads per mouse click from the measuring station and the data point with all measuring values to the graphic evaluation.**

**Monitoring Station Overview Table:**

| Name                      | Rolle | Einbaort | Messwert | Zustand |
|---------------------------|-------|----------|----------|---------|
| ISO_VL                    | -     | 50 MChm  | -        | -       |
| Schleife_VL               | -     | 2 MChm   | -        | OK      |
| Fehlerbewertung           | -     | 0 %      | -        | -       |
| Fehlerort a=F             | -     | 0 %      | -        | -       |
| Fehlerort b=F (Rückwärts) | -     | 0 %      | -        | -       |

**Detailed Data View for ISO2:**

**Name:** ISO2  
**Trasse:** -  
**Einbaort:** -  
**Zustand:** -  
**Messwert:** 0.06 MChm  
**Messzeit:** 18.07.2016 08:00:21  
**Sensortyp:** pa-iso

**Bewertungsgrenzen:**  
**Priorität 3 (Dau ):** 0 MChm - 10 MChm

**Kommentare:**  
 - Thu May 26 13:05:40 CEST 2016  
 La Wila  
 - Fri Jan 29 16:02:18 CET 2016  
 20.01.16

# District Heating Monitoring

## PipeMonitor

| Item               | Description  |
|--------------------|--|
| <b>PipeMonitor</b> | Multi-channel measuring system for district heating monitoring equipped with display, control panel and signal output via dry contacts.<br>The system may be extended by RM-Modules (ref. page 4) for further measuring tasks. |


| Item  | Cu*               | NiCr**            | HDW**             |
|---|-------------------|-------------------|-------------------|
| 2C <b>fix</b> not modularly extendable                              |                   | <b>075051.202</b> |                   |
| 2C <b>short</b> for 1 track (flow + return line) length up to 750 m |                   | <b>075050.102</b> |                   |
| 2C for 1 track (flow + return line)                                 | <b>075050.002</b> | <b>075050.202</b> | <b>075050.302</b> |
| 4C for 2 track (flow + return line)                                 | <b>075050.004</b> | <b>075050.204</b> | <b>075050.304</b> |
| 6C for 3 track (flow + return line)                                 | <b>075050.006</b> | <b>075050.206</b> | <b>075050.306</b> |
| 8C for 4 track (flow + return line)                                 | <b>075050.008</b> | <b>075050.208</b> | <b>075050.308</b> |
| 10C for 5 track (flow + return line)                                | <b>075050.010</b> | <b>075050.210</b> | <b>075050.310</b> |

Measurement systems for Cu, NiCr and HDW may be combined with each other




\*) max. length of measurement track 4.000 m,

\*\*) max. length of measurement track 1.500 m





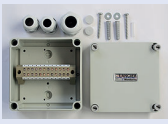

## PipeAlarm

| Item  | Description  | Order no.         |
|---|--|-------------------|
|  <b>PipeAlarm 2 LTE</b> | <b>Battery-powered, 2-channel district and local heating pipeline monitoring device for detached measuring points in the UMS network</b><br>with LTE and GSM based alarm, pipe connection monitoring, display panel and 2 contact ports<br>Supply voltage: <b>exchangeable lithium battery, 3.6 V</b><br><b>PipeAlarm2 LTE/UMS short</b><br>(max. length of measured section NiCr 750 m) | <b>075968.100</b> |
|   | <b>PipeAlarm2 LTE/UMS</b><br>(max. length of measured section NiCr 1500 m)   | <b>075968.200</b> |


## Mobile Testing Equipment for district heating pipeline monitoring

| Item  | Description  | Order no.         |
|---|--|-------------------|
|  <b>PipeCheck</b>               | <b>Hand-held measuring device</b><br>for district heating pipe sensors   | <b>075163.000</b> |
|  <b>PipeCheck <i>plus</i></b>   | <b>Hand-held measuring device</b><br>for district heating pipe sensors<br>with fault location (NiCr-System)  | <b>075410.000</b> |
|  <b>Accessory kit PipeCheck</b> | comprising:<br>1 charging cable with plug for use in cars, 2 test tips, 2 large alligator clips, 1 test plug (1.1 MΩ / 5.8 kΩ, fault 0.1 % of m. v. each), 2 spring clips, 1 replacement magnet, 1 pipe connector mount, 1 pipe connection extension cable, 1 replacement SD memory card | <b>075261.000</b> |


## Mounting Material for District Heating Monitoring Systems

| Item  | Description   | Order no.         |
|---|---|-------------------|
|  <b>LM-2</b>               | <b>Heat resistant cable LM-2</b><br>Two-core cable for routing monitoring sensors out of plastic sheathed pipes   | <b>075276.025</b> |
|  <b>LM-4</b>               | <b>Heat resistant cable LM-4</b><br>Four-core cable for routing monitoring sensors out of plastic sheathed pipes  | <b>075277.050</b> |
|  <b>LM-RA</b>              | <b>Pipe sensor connection LM-RA</b><br>for welding onto the carrier pipe  | <b>075209.000</b> |
|  <b>Junction box</b>       | With terminal strip for 8 strands up to 4 mm <sup>2</sup> cross section<br>Protection class IP66 according to EN60529/DIN VDE 0470-1  | <b>074895.000</b> |
|  <b>Distribution box</b>  | With terminal strip for 12 strands up to 4 mm <sup>2</sup> cross section<br>Protection class IP66 according to EN60529/DIN VDE 0470-1   | <b>075613.000</b> |
|  <b>Distribution box</b> | With terminal strip for 16 - 34 strands up to 4 mm <sup>2</sup> cross section<br>Protection class IP66 according to EN60529/DIN VDE 0470-1<br><b>XX</b> = Number of terminals (16 - 34) | <b>076206.0XX</b> |

## PipeLog for contactless status recording of district heating networks by radio

| Item  | Description                                     | Order no.         |
|---|---|-------------------|
|  <b>PipeLog LoRaWAN sensor</b> | for mobile measurement data readouts by LoRaWAN | <b>075834.000</b> |

## PipeSens for contactless status recording of district heating networks by

| Item   | Description                                     | Order no.         |
|--|---|-------------------|
|  <b>PipeSens Radio sensor</b> | for mobile measurement data readouts by LoRaWAN | <b>076262.000</b> |

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