



INSTRUMENTATION

Hydropower and water control applications

Level and pressure measurement

Long-term stable and precise

Rittmeyer level measurement systems are versatile, durable and highly precise. With RIPRESS *premium* and RIPRESS *smart*, a wide range of various applications can be covered. The Rittmeyer solutions in special offer the following customer benefits:

Benefits

- Excellent long-term stability and 100 % thermal compensation
- Pre-aged probes, reducing drift effects to a minimum
- Very accurate calculation of storage water volume
- Pressure measurements with a high-precision quartz crystal resonator
- Option for code output (BCD, Gray, Binary)
- Piezoresistive transmitters for pressure and temperature



RIPRESS
smart



RIPRESS
premium

	RIPRESS <i>smart</i>	RIPRESS <i>premium</i>
Accuracy	Up to $\pm 0.05\%$	Up to $\pm 0.01\%$
Level measurement range	0 ... 250 m WC 0 ... 820 ft WC	0 ... 270 m WC 0 ... 886 ft WC
Pressure measurement range	0 ... 160 bar 0 ... 2321 PSI	0 ... 27 bar 0 ... 400 PSI
100 % drift-free and long-term stable	–	■
Submersible level probes	■	–
Pressure transmitters	■	■
Pneumatic measurement	■	■
Hydrostatic measurement	■	■
Formulas for flow calc. (overflow, V-notch, etc.)	■	–
Formulas for volume calc. (cylindrical, spherical, etc.)	■	■
Special formulas (Winter-Kennedy, Parshall-Flume, Venturi, etc.)	■	–
Mathematical functions for custom applications	■	■

Absolute position and angle measurement

Highly functional and maintenance-free

Benefits

- Maintenance-free
- No need for recalibration
- Position tracking of gates, weirs, and valves
- Additional mathematical functions for flow calculation, gate automation, etc.
- Rugged and durable design
- Wide operating temperature range: $-40^{\circ}\text{C} \dots +60^{\circ}\text{C}$
- Four internal relays for use as limit switches, direction indication and more



RIPOS
RIPOS
smart



RIVERT
RIVERT
smart

	RIPOS <i>smart</i>	RIVERT <i>smart</i>
Measurement range	$0^{\circ} \dots 360^{\circ}$, 4096 turns	$-180^{\circ} \dots +180^{\circ}$
Accuracy	$\leq \pm 0.088^{\circ}$	$\leq \pm 0.044^{\circ}$ $\leq \pm 0.022^{\circ}$
Resolution	0.044°	0.044° 0.0055°
Measurement value acquisition	Shaft with starting drive torque of ≤ 0.01 Nm	Gravity-based pendulum
Smart applications (gate discharge, skew monitoring)	– ■	– ■
Protection class	IP 67	IP 68
Heating	–	optional
4...20 mA output	■	■
Modbus RTU/TCP, IEC 60870-5-104	–	■
Option for code output (BCD, Gray, Binary)	■	–

Flow measurement

Versatile and compact

Rittmeyer ultrasonic transit time flow measurement systems are extremely precise and durable also under tough conditions. Their versatility allows for a broad range of smart applications, for example: sediment monitoring, turbine efficiency, leak detection systems.



RISONIC modular

Flow measurement with highest flexibility and modularity.

Benefits

- Wide range of ultrasonic transducers for pipes and channels
- Up to 20 measurement paths, up to 4 individual sections (multi-pipe, multi-channel)
- Bi-directional flow measurement (used at pump storage hydro power plants)
- Excellent long-term stability, no need for recalibration
- Flow Measurement for IEC 60041 / ASME PTC18 applications
- Superior accuracy and reliability also under tough conditions



RISONIC compact

Flow measurement has never been easier.

Benefits

- Suitable for a broad range of pipe materials
- Mounting variety (magnetic, metal straps, or gluing)
- Yield on investment / fast ROI
- Seamless integration into plant operation systems
- Fast and easy installation and simple commissioning via tablet and/or smart phone (WIFI)
- State-of-the-art IT and cyber security features

Rittmeyer flow solutions overview



Pipe applications
(filled, partially filled)



Open channel
applications



Clamp-on applications
(non-intrusive)

	Pipe applications (filled, partially filled)	Open channel applications	Clamp-on applications (non-intrusive)
Diameter/width	Diameter 0.2 m ... 52 m	Width 0.2 m ... 130 m	Diameter 0.08 m ... 6 m
Water flow	-20 m/s ... +20 m/s	-20 m/s ... +20 m/s	-20 m/s ... +20 m/s
Measuring paths	1 ... 20	1 ... 20	1 ... 2
Measuring planes	1 or 2	1 or 2	1 or 2
Accuracy	Up to $\pm 0.5\%$	Up to $\pm 1\%$	Up to $\pm 1\%$
Transducer installation	Outside or inside	Outside or inside	Outside (magnetic, glue, or straps; coupling gel – dry coupling pads optionally available)

High-precision instruments for hydropower and water control applications

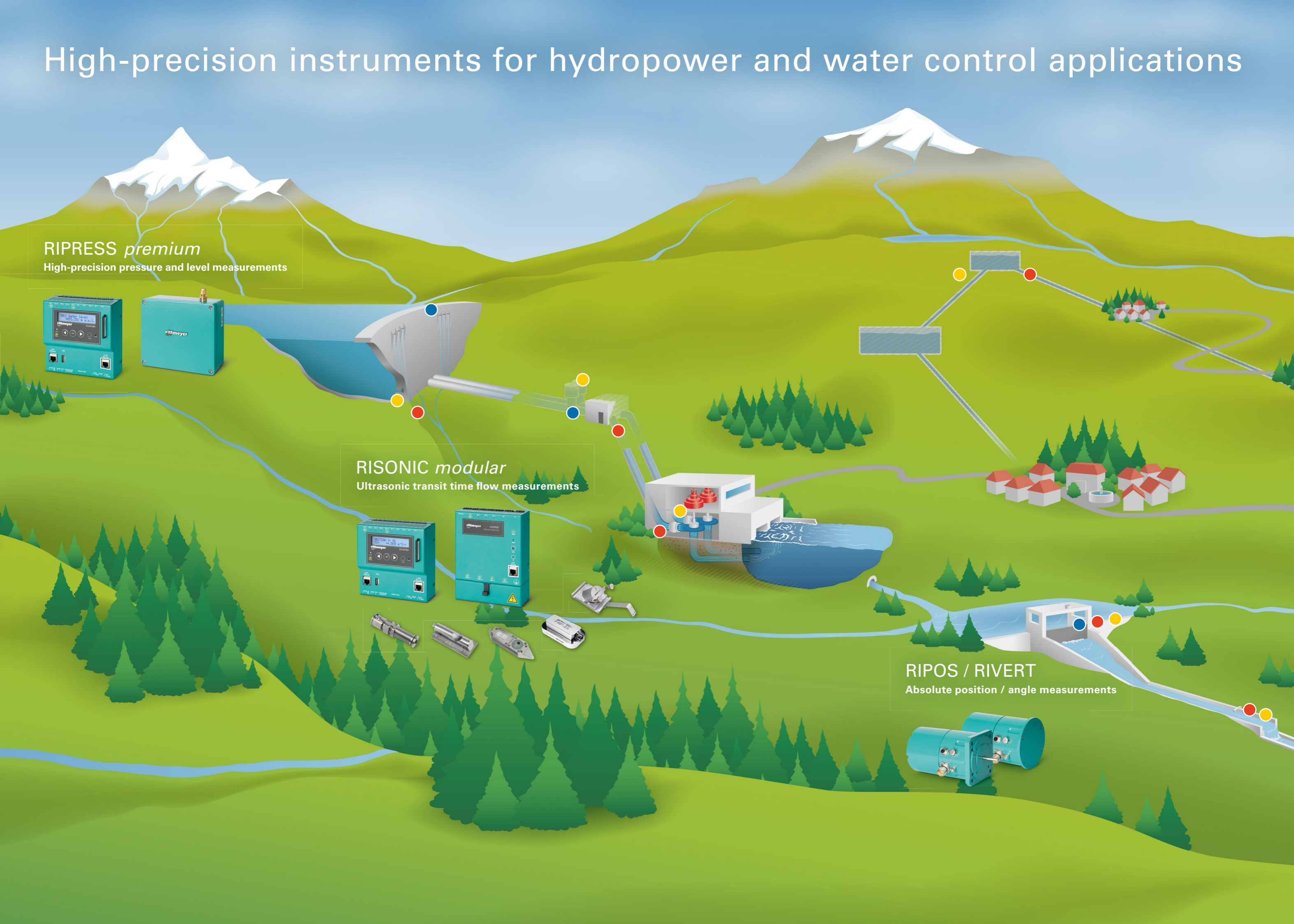
RIPRESS *premium*
High-precision pressure and level measurements



RISONIC *modular*
Ultrasonic transit time flow measurements



RIPOS / RIVERT
Absolute position / angle measurements

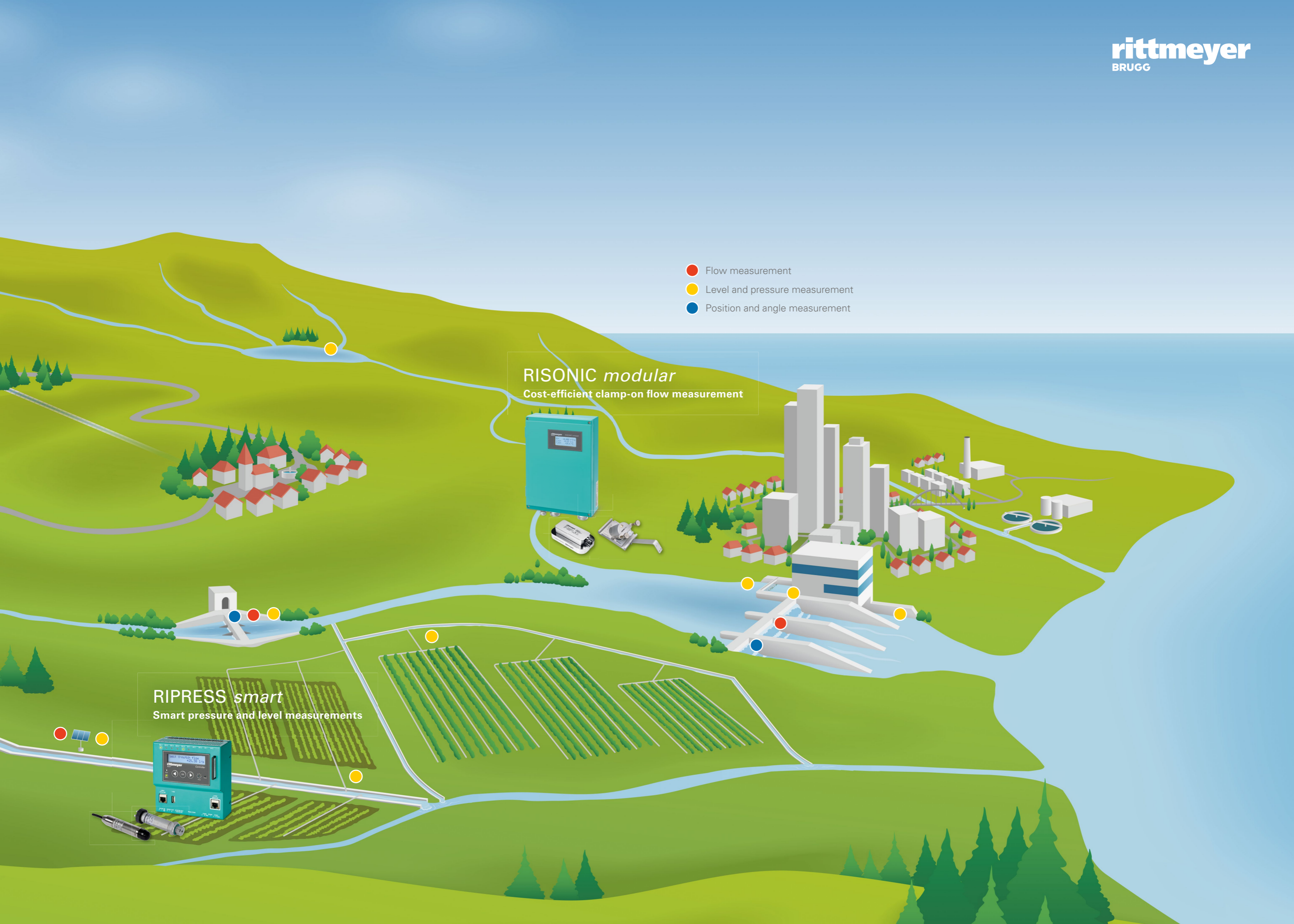


- Flow measurement
- Level and pressure measurement
- Position and angle measurement

RISONIC modular
Cost-efficient clamp-on flow measurement



RIPRESS smart
Smart pressure and level measurements



Instrumentation controller

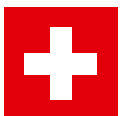
for flow, level, and pressure measurements

Interfaces

- Galvanically isolated analog inputs/outputs
4 ... 20 mA, accuracy ± 0.1 % FS
- Galvanically isolated digital input/outputs
(optocoupler, relays)
- Ethernet 10/100 BaseT; HTTP, FTP, SNMP,
Modbus TCP master + slave, IEC 60870-5-104
- Cloud access and SMTP/SMS via external
cellular modem (3G/4G/5G)
- Ethernet 10/100 BaseT
(for communication with RIMOUSTT modules)
- RS485; Modbus RTU master + slave
- Electronically switched 24 VDC output
- Status output (watchdog, supervision)

Benefits

- Various communication protocols
(Profinet, Profibus, Hart, M-Bus, CAN, BAC net, ...)
- Seamless integration in all plant processes
- Compatible with the Rittmeyer IoT platform
- User-friendly web-interface and no extra
programming software needed
- Remote access, monitoring and advanced
diagnostic functions



Swiss made

Rittmeyer, a member of the BRUGG GROUP, develops, manufactures and installs metrology system solutions for water utilities and hydro-power plants. The company's high-precision measuring instruments for pressure, level, flow, angle and position are in operation around the globe. Since its establishment in 1904, Rittmeyer has put more than 20000 installations into operation and is represented worldwide with subsidiaries, sales offices, and a distribution network in over 25 countries.

www.rittmeyer.com

rittmeier
BRUGG

Rittmeyer AG
Inwilerriedstrasse 57
POB 1660
CH-6341 Baar
+41 41 767 10 00
sales@rittmeyer.com

82540.6.E | 2105 JUN
Subject to change