Alternative grounding – virtual reference

- For applications with larger electrical potentials, electrochemical reactions on the grounding electrodes/rings (damage/leaks)
- With virtual grounding there is no connection to ground
- Measuring electrodes pick up the potential of the medium and this is used as a reference potential
- Enormous cost savings:
  - Aggressive media for which special materials must be used
  - Large diameters
  - No additional leakage point
  - Only two gaskets required, therefore easy mounting
  - Optionally available also after installation

PROFINET to transmit flow and conductivity

- Simultaneous transmission of flow, conductivity and diagnostic data
- Integrated Ethernet switch supports line topology ("daisy chain"), ring, star and tree topology
- Flexible connection technology: - M12 connectors
  - In future also conventional cable bushings and connection terminals
- Cost savings:
  - Small and medium-sized controllers in standard version with PROFINET
  - No costs for analogue and discrete I/Os
- Active conductivity monitoring in pump stations or sewage treatment plant inlets
- Continuous monitoring of water and wastewater quality

Analytical panel solution

- Completely prefabricated panels made of plastic or stainless steel with the analytical sensors relevant for each application
- Concept with digital SMARTPAT sensors
- Turbidity, ORP, conductivity, pH value
- Concept with analogue OPTISENS sensors and/or OPTISYS systems
- Turbidity, oxygen, pH value, conductivity
- Standardised multiparameter signal converter

KROHNE Water & Wastewater – your partner for the right measurement solution

With more than 50 years of experience and application know-how in the water and wastewater industry, KROHNE provides highly sophisticated, market-oriented and competitively priced measuring devices, matched solutions up to integration into the control system, complemented by extended services and support. In 1961, KROHNE introduced the world’s first electromagnetic flowmeter (EMF) for water, wastewater, additives and sludge. Since then, we have developed a large and dedicated portfolio with approvals from potable water to Ex. We have also developed numerous system solutions for typical applications that have their very own requirements, e.g. rainwater management or remote data communication. Offering a variety of services to assist you in all stages of your water or wastewater project completes our portfolio.
OPTIMASS – Coriolis mass flowmeters
- The straight measuring tube design eliminates negative effects on the measurement of high viscous liquids or pastes.
- EGM™ enables measurements of inhomogeneous mixtures, media with fibres, or solid or gas entrainment
- For advanced process and custody transfer (CT) applications
- Not susceptible to installation effects
- Minimal pressure loss with straight tube measuring devices: up to two sizes smaller than competitor devices if compared by pressure drop
- OPTICHECK – service tool for inline verification of meter accuracy

OPTIFLUX, WATERFLUX and TIDALFLUX – Electromagnetic flowmeters
- All KROHNE EMFs are wet-calibrated in direct comparison of volumes
- For all applications with conductive liquids (especially for high bubble content, high solids content and pulsating flow)
- Basic to demanding flow and custody transfer (CT) measurements
- Electric conductivity of the medium can be used for detection of product changeover
- Designs and liner materials for various applications – from potable water to extremely adhesive, abrasive or aggressive fluids
- 3x100% diagnostics (application and device diagnostic, out-of-spec test)
- Devices for special applications (e.g. underground installation, battery operation, partially filled pipes)
- OPTICHECK – service tool for inline verification of meter accuracy

OPTISONIC – ultrasonic flowmeter
- Comprehensive portfolio for gases, liquids and steam, aggressive or corrosive media
- High temperatures and cryogenic versions, variants for high pressure and higher viscosities
- Various designs: from clamp-on devices to multipath inline flowmeters
- Measuring cooling water and demineralised water in power plants
- Biogas version for biogas, landfill and sewage gas applications, with the option to output flow and methane
- Portable version available with battery-powered meter, for on-site verification of process flows or inline meters at any location

OPTITEMP – industrial temperature assemblies
- Very good repeatability and long-term stability
- Standardised and customer-specific temperature assemblies
- Compact, fast and precise measurement
- Pt100 class A according to IEC 60751
- In-situ verification

OPTIFLEX – TDR level transmitter
- Guided radar (TDR) level transmitter for general-purpose applications
- Continuous measurement of level, distance, volume or mass
- For continuous level and interface measurement or point level detection
- Contact or non-contact measurement of liquids, pastes, granulates, powders, solids, bulk goods, etc.

OPTIWAVE – FMCW radar level transmitters
- 2-wire 24 and 80 GHz radar level transmitters
- Continuous, non-contact measurement of level, distance, volume, mass, reflection and flow rate
- For liquids in storage and process applications
- Not affected by process conditions: dust, foam, vapour, agitated or boiling surfaces, changes in pressure, temperature and density

SMARTPAT – digital analytical sensors
- Wide range of sensors with or without integrated transmitter
- For pH, ORP, conductivity, turbidity and TSS, oxygen or chlorine measurements
- Different sensor materials and components
- For any industrial requirement – from hazardous areas to hygienic environments

OPTISENS – analogue analytical sensors
- Measurement of pH, TS, oxygen and conductivity
- Self-compensating four-beam technology reduces drift caused by soiling or ageing
- Maximum product safety thanks to glass-free design and no material transitions
- Durable LED

OPTISYS – analytical measuring systems
- Measurement of sludge level, free chlorine and turbidity
- Suitable for CIP/SIP and includes installation version for retractable assemblies
- Accurate NIR absorption measurement regardless of the colour
- Compact system with integral electronics

OPTIBAR – process/differential pressure transmitters
- Differential pressure measurement (abs./rel.) up to +150 °C without diaphragm seal
- Flush and recessed metal (PM) and ceramic (PC) diaphragms
- DP cell with high static pressure, specialised for low ranges
- Various housing materials available
- Very good repeatability and long-term stability
- Turndown ratio up to 100:1

Excerpt from KROHNE product portfolio – water and wastewater devices