# ENRAF SNARTSERVO 954 Industry's Best Servo Gauge Is Now Even Better

Honeywell



# **INTRODUCING THE SMART SERVO 954**

Honeywell Enraf has ensured that the industry's best tank gauging solution is now even better. Designed for measuring varied liquids in any type of storage tank, our new Smart Servo 954 is a reliable, versatile and accurate automatic tank gauge. This instrument advances the art of tank gauging by combining proven technology with enhanced electronics and software, as well as increased intelligence. And, it stands up to the most demanding process conditions.

#### THE INNOVATIVE DESIGN OF THE SMART SERVO 954 INCORPORATES:

- Patented algorithms for greater precision in all applications
- Adaptive dynamic compensations to improve measurement under adverse conditions
- Unique force transducer technology to optimize stable operation
- Advanced drum calibration for guaranteed accuracy
- "SIL-by-design" features with unique diagnostics for reliable operation (IEC 61508)
- Separate terminal compartment for ease of wiring
- Safety approvals and certifications from legal metrology institutes worldwide
  - NMi approvals
  - OIML R85 and varied liquids compliance

#### State-of-the-art Features

The Smart Servo 954 was designed to incorporate a host of innovative, best-in-class features.

For example, its unique, fully capable software supports diagnostics on SILrated loops. An option slot for additional functionalities allows the connection of temperature measuring elements for spot/average product and vapor phase temperature, as well as product temperature profiles.

The new gauge is equipped with a Servo Auto Test feature, which increases safety, integrity and diagnostic coverage, and enables usage in overfill protection loops. It can be included in SIL-2 safety loops, and if used in a redundant configuration, is suitable for SIL-3-rated loops.



## A FLEXIBLE AND ADAPTABLE SOLUTION

Honeywell Enraf servo gauging systems provide a flexible and adaptable solution for a wide range of terminal operations. They are suitable for:

- Product and gas temperature with spot or average temperature measurement, or temperature profiling
- Product level
- Interface level
- Density measurement and profiling
- Direct water bottom measurement or via capacitive probes
- Average continuous density monitoring connecting one or more HART pressure transmitters
- TUV SIL certified NO/NC alarm relay contact and/or 4-20mA Analog output for direct connection to Safety or Distributed control system
- Easy integration with Honeywell
   Experion DCS system & Safety
   Manager ESD system
- Measurement ranges up to 150 m
- Working pressure up to 40 bar

#### BENEFITS TO YOUR BOTTOM LINE

Honeywell Enraf Smart Servo 954 is the most reliable, versatile and accurate automatic tank gauge available.

- Accurate measurement in liquids including vaporized applications
- Improve reliability under dynamic conditions
- Maximize storage capacity with lowest safety diagnostic cycle time
- Enhanced safety with SIL certified AO/DO options for overfill prevention
- Modular design for ease of maintenance
- Simple & cost effective migrations for legacy & 3rd party gauge
- One stop integrated gauging solution for all your terminal needs

| Baud rate     1200 / 2400 bps       Cable characteristics     2 wires, twisted pair, Rmax = 200 0 hm / line, Cmax = 1uF; cable length: 10 km (6 miles) or more *1       Isolation voitage     *1,500 V       Lightning protection     Full galvanic separation via isolating transformers       Protocol     Standard Honeywell fieldbus (Sorial, ASCII, GPU protocol)       *150 dB     *150 dB       RL/2 Communication Protocol TRL/2 Communication Protocol (Pos 7 = T)       Protocol     Medbus RTU; Communication Protocol TRL/2 100/90 KHz FSK       Baud rate     4800, B bits and 1 stop bit.       Liphtning protocol     Opto-isolators       Cable of the second of the sec   | <b>DATA COMMUNICATION</b>  |  |
|--|--|--|
| Cable characteristics         2 wires, twisted pair, Rmax + 200 Ohm / line, Cmax + 1uF, cable length: 10 km (6 miles) or more + 1           Isolation voltage         1,500           Lightning protection         Full galvanic separation via isolating transformers           Protocol         Standard Honeywell Hiddbus (Serial, ASCII, GPU protocol)           Common mode rujection         150 dB           TRU-Z communication Protocol TRU-Z Communication Protocol (Pos 7 - T)           Protocol         Modes RU: Communication: TRU-Z 100/90 KHz FSK           Baud rate         4800, 8 bits and 1 stop bit.           Lightning protection         Obta-solators           Cabling         18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connections           Physical layer         Light of minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connections           Values evelose         2,600 Li re caresented by 100/4r and Logic D by Shbr.(-/-3%)           Values evelose         6,000 Li re protecolse de by 100/4r and Logic D by Shbr.(-/-3%)           Values evelose         6,000 Li re protecolse de by 100/4r and Logic D by Shbr.(-/-3%)           Values evelose         6,000 Li re protecols accurrent/power drawn with below mentioned conditions 16,000 Li re protecols accurrent/power drawn with below mentioned conditions 16,000 Li re protecols accurrent/power drawn with below mentioned conditions 16,000 Li re protecols accurrent/power drawn with below mentioned conditions   | Honeywell Bi-phase mark (Pos 7 = B)  |  |
| kstation voltage         > 1.500 V           Lightning protection         Full galvanic separation via isolating transformes           Dretocol         Standard Honeywell fieldbas (Senil, ASCII, GPU protocol)           Common mode rejection         > 150 dB           TRL/2 Communication Protocol TRL/2 Communication: TRL/2 100/90 KHz FSK           Baud rate         4800, 8 bits and 1 stop bit.           Lightning protection         OptSolators           Cabling         18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection           Physical layer         Logic 1 is represented by 100kHz and Logic 0 by 90khz (r/-3%)           Valtage twels         3.6 v/- 10%.           Power rating         4.1 2V Nominal current drawn by TRL/2 module alone is 40mA (r/- 10%), [power consumption is 480mW (r/- 10%)]. The warst case current/power drawn with below mentioned conditions is 60mA           HART* Stave – Muttidrop and/or 4-20 mA(Pos 7 - H)         Poesive: rating is ware rating sply voltage: 30 V (55 V with serial resistor)           Active or Passive: selectable by jumper         - Active: runs als upply voltage: 30 V (55 V with serial resistor)           Accuracy         2.0 Word, 2.A (40 VDC, 2.A)           Alerdware alarms (2x SPDT)         250 VAC, 2A (40 VDC, 2.A)           Redware alarms (2x SPDT)         250 VAC, 2A (40 VDC, 2.A)           Redware alarms (2x SPDT)         250 VAC, 2A (40 VDC, 2.A)   | Baud rate  | 1200/2400 bps  |
| Lightning protection       Full galvanic separation via isolating transformers         Protocol       Standard Honeywell fieldbus (Serial, ASCII, GPU protocol)         Common made rejection       > 150 dB         Protocol       Modbus RTU; Communication Protocol (Pos 7 - T)         Protocol       Modbus RTU; Communication: TRL/2 100/90 KHz FSK         Baud rate       4800, B bits and 1 stop bit.         Lightning protection       Opto-isolators         Cabling       18 MG (mininum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection         Physical layer       Logic 1 is represented by 100 kHz and Logic 0 by 90 khz (r/-3%)         Valtage levels       3.6V r/- 10%.         Power rating       A1 12X Nominal current drawn by TRL/2 module alone is 40mA (r/- 10%). [power consumption is 480mW (r/- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.         Protocol       Communications: HART* 7         Analog output toop (non-1S.)       Active or Passive; selectable by jumper         - Active: output voltage: 20V 5%       -         - Passive: minimum external supply voltage: 11.5V       maximum external supply voltage: 11.5V         maximum oxternal supply voltage: 30 (155 with serial resistor)       20 viect shielded, twisted pair         Actuve alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Raldy operation       - Normally De  | Cable characteristics  | 2 wires, twisted pair, Rmax = 200 Ohm / line, Cmax = 1uF; cable length: 10 km (6 miles) or more *1 |
| Protocol         Standard Honeywell fieldbus (Sarial, ASCII, GPU protocol)           Common mode rejection         > 150 dB           TRL/2 Communication Protocol TRL/2 Communication: TRL/2 LOM/90 KH2 FSK           Baud rate         4800, 8 bits and 1 stop bit.           Lightning protection         Opto-isolators           Cabling         18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection           Positical tays         Logic 1 is represented by 100kH2 and Logic 0 by 90kh2:(4'-3%)           Voltage levels         3 6V +/- 10%.           Power rating         At 12V Normal current drawn by TRL/2 module alone is 40mA (r/- 10%). [power consumption is 480mW (r/- 10%)]. The worst case current/power drawn with below mentioned conditions is a 60mA.           HART* Slave – Multidrop and/or 4-20 mA (Pos 7 + H)         -           Protocol         Communications: HART* 7           Analog autput loop (non-1.5.)         Active or Passive: selectable by jumper           - Active: output voltage: 20V ±5W         -           - Passive: minimum external supply voltage: 30V (55 V with serial resistor)           Accuracy         =0.1% of actual measurement           Cable characteristits         2 wires, shielded, twisted pair           Active alarms (1x SPDT)         250 VAC, 2 A (40 VDC, 2 A)           Hardware alarms (2x SPDT)         250 VAC, 2 A (40 VDC, 2 A)  | Isolation voltage  | > 1,500 V  |
| Common mode rejection         > 150 dB           TRL/2 Communication Protocol TRL/2 Communication Protocol (Pos 7 - T)           Protocol         Modbus RTU; Communication TRL/2 100/90 KHz FSK           Bada rate         4800.8 bits and 1 stop bit.           Lightning protection         Opto-loolators           Cabbing         18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection           Physical layer         Logic 1 is represented by 100kHz and Logic by 90kHz (FA.3%)           Voltage levels         36V +           Power rating         18 400m (+/- 10%). The worst case current/power drawn with below mentioned conditions is 60mA.           HART* Slave - Multidrop and/or 4-20 mA (Pos 7 + I)         Communications: HART* 7           Protocol         Communications: HART* 7           Analog output loop (non-1.5.)         Active or Passive; selectable by jumper           - Active: output voltage: 20V ±5%         - Passive: minimum external supply voltage: 11.5 V           Madvare alarms (1x SPDT)         250 VAC, 2 A (40 VDC, 2 A)           Active: output voltage: 20V ±5%         - Normally Open / Normally Unergrave isstor)           Active: alarms (1x SPDT)         250 VAC, 2 A (40 VDC, 2 A)           Balay aperation         250 VAC, 2 A (40 VDC, 2 A)           Relay operation         250 VAC, 2 A (40 VDC, 2 A)           Relay operation  | Lightning protection   | Full galvanic separation via isolating transformers  |
| TAL/2 Communication Protocol TRL/2 Communication Protocol (Pos 7 - T)         Protocol       Modbus RTU, Communication: TRL/2 100/90 KHz FSK         Baud rate       4800,8 bits and 1 stop bit.         Lightning protection       Opto-Isolators         Cabling       18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection         Physical layer       Logic 1 is represented by 100kHz and Logic 0 by 90khz (r/-3%)         Voltage levels       36V -/- 10%.         Power rating       At 122 Nominal current drawn by TRL/2 module alone is 40mA (r/- 10%), [power consumption is 480mW (r- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.         HART* Staxe - Multidrop and/or 4-20 mA (Pos 7 = H)       Communications: HART* 7         Protocol       Communications: HART* 7         Analog output loop (non-1:S.)       Active or Passive: selectable by jumper         - Active: output voltage: 20V 15%       - Passive: minimum external supply voltage: 11.5 V         maximum external supply voltage: 30V (S5V with serial resistor)       Accuracy         Active: output voltage: 20V 4.5 W (MOR)       S0 WAC, 2.4 (40 VDC, 2.4)         Hardware alarms (1x SPDT)       250 VAC, 2.4 (40 VDC, 2.4)         Relay operation       - Normally Dene/Normally Closed contact: selectable by jumper         - Normally Dene/Normally Decenergized: configurable by software setting)       - Normally Dene/Norm  | Protocol   | Standard Honeywell fieldbus (Serial, ASCII, GPU protocol)  |
| Protocol       Modbus RTU: Communication: TRL/2 100/90 KHz FSK         Baud rate       4800, 8 bits and 1 stop bit.         Lightning protection       Opto-isolators         Cabling       18 AWG (minimum) with shileded twisted pair, max 4 km with max 8 multi drop Gauge connector         Physical layer       Logic 1 is represented by 100kHz and Logic 0 by 90khz:(+/-3%)         Voltage levels       3.6V +/- 10%.         Power rating       At 12V Norminal current drawn by TRL/2 module alone is 40mA (+/- 10%), [power consumption is 480m W(+/- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.         HART* Stave – Multidrop and/or 4-20 mA (Pos 7 = H)       Protocol         Protocol       Communications: HART* 7         Analog output loop (non-15.)       Active or Passive: selectable by jumper         - Active: output voltage: 20V 15%       - Passive: minimum external supply voltage: 11.5 V         maximum external supply voltage: 11.5 V       maximum external supply voltage: 10.5 V with serial resistor)         Accuracy       to 1% of actual measurement       Cable characteristics         Zbio characteristics       2 wires, shielded, twisted pair         AltAPM CONTACT OPTIONS       Active: output voltage: 20V 46, 2 A (40 VDC, 2 A)         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Depon/Normally Closed contact: selectable by jump  | Common mode rejection  | > 150 dB   |
| Baud rate       4800.8 bits and 1 stop bit.         Lightning protection       Opto-isolators         Cabling       18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection         Physical layer       Logic 1 is represented by 100kHz and Logic 0 by 90kHz(x/-3%)         Voltage levels       36V+/-10%.         Power rating       At 12V Nominal current drawn by TRL/2 module alone is 40mA (r/-10%), [power consumption is 480mW (+/- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.         HART*Stave - Multidrop and/or 4-20 mA (Pos 7 = H)       Communications: HART* 7         Protocol       Communications: HART* 7         Analog output loop (non-15.)       Active or Passive: selectable by jumper         - Active: output voltage: 20V s5%       -         - Passive: minimum external supply voltage: 11.5 V       maximum external supply voltage: 30V (55 V with serial resistor)         Accuracy       0.1% of actual measurement         Cable characteristics       250 VAC; 2.4 (40 VDC; 2.4)         Hardware alarms (1x SPDT)       250 VAC; 2.4 (40 VDC; 2.4)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Den/Normally Closed contact: selectable by jottware setting       - Normally Open/Normally Closed contact: selectable by jottware setting         - Normally Denenergized: configurable by software setting  | TRL/2 Communication Protocol P | nication Protocol TRL/2 Communication Protocol (Pos 7 = T)   |
| Lightning protection       Opto-isolators         Cabling       18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection         Physical layer       Logic 1 is represented by 100kHz and Logic 0 by 90khz;(x/- 3%)         Voltage levels       3.6V ×/- 10%.         Power rating       At 12V Nominal current drawn by TRL/2 module alone is 40mA (x/- 10%), [power consumption is 480mW (x/- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.         HART* Slave – Multidrop and/or 4-20 mA (Pos 7 + H)          Protocol       Communications: HART* 7         Analog output loop (non-I.S.)       Active or Passive: selectable by jumper         - Active: output voltage: 20V 45%       -         - Passive: minimum external supply voltage: 11.5 V       maximum external supply voltage: 12.5 V with serial resistor)         Accuracy       6.01% of actual measurement         Cable characteristics       20 vires, shielded, twisted pair         Attardware alarms (L SPDT)       250 VAC, 2A (40 VDC, 2A)         Hardware alarms (2, SPDT)       250 VAC, 2A (40 VDC, 2A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Denn/Normally Closed contact: selectable by software setting)       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Denn/Normally Closed contact: selectable by software settingo <td>Protocol</td> <td>Modbus RTU; Communication: TRL/2 100/90 KHz FSK</td>   | Protocol   | Modbus RTU; Communication: TRL/2 100/90 KHz FSK  |
| Cabling       18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection         Physical layer       Logic 1 is represented by 100kHz and Logic 0 by 90khz;(+/-3%)         Voltage levels       3.6V +/-10%.         Power rating       At 12V Nominal current drawn by TRL/2 module alone is 40mA (+/- 10%), [power consumption is 480mW (+/- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.         HART* Slave - Multidrop and/or 4-20 mA (Pos 7 = H)       Communications: HART* 7         Protocol       Communications: HART* 7         Analog output loop (non-I.S.)       Active or Passive: selectable by jumper         - Active: output voltage: 30V (55 V with serial resistor)       maximum external supply voltage: 30V (55 V with serial resistor)         Accuracy       s0.1% of actual measurement       Cable characteristics         Cable characteristics       2 wires, shielded, twisted pair         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Copen/Normally Closed contact: selectable by jumper         - Normally Copen/Normally Closed contact: selectable by jumper       Normally Contact (2 x SPDT configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)       - PV Monitor (any of the measured parameters, configurable by software setting) </td <td>Baud rate</td> <td>4800, 8 bits and 1 stop bit.</td>  | Baud rate  | 4800, 8 bits and 1 stop bit.   |
| Physical layer       Logic 1 is represented by 100kHz and Logic 0 by 90khz:(+/-3%)         Voltage levels       3.6V +/- 10%.         Power rating       At 12V Nominal current drawn by TRL/2 module alone is 40mA (+/- 10%), (power consumption is 480mW (+/- 10%)). The worst case current/power drawn with below mentioned conditions is 60mA.         HART* Slave – Multidrop and/or 4-20 mA (Pos 7 = H)           Protocol       Communications: HART* 7         Analog output loop (non-I.S.)       Active or Passive: selectable by jumper <ul> <li>- Active: output voltage: 20V ±5%</li> <li>- Passive: minimum external supply voltage: 11.5 V</li> <li>maximum external supply voltage: 30V (55 V with serial resistor)</li> <li>Accuracy</li> <li>2 vires, shielded, twisted pair</li> <li>Atlardware alarms (1x SPDT)</li> <li>2 50 VAC. 2 A (40 VDC. 2 A)</li> <li>Hardware alarms (2x SPDT)</li> <li>2 50 VAC. 2 A (40 VDC. 2 A</li> <li>Normally De-energized: configurable by software setting)</li> <li>- PV Monitor (any of the measured parameters, configurable by software setting)</li> <li>- Renote control (configurable by software setting)</li> <li>- Remote control (configurable by software setting)</li></ul>   | Lightning protection   | Opto-isolators   |
| Voltage levels         3.6V +/- 10%.           Power rating         At 12V Nominal current drawn by TRL/2 module alone is 40mA (+/- 10%). [power consumption is 480mW (+/- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.           HART* Slave – Mutidrop and/or 4-20 mA (Pos 7 = H)         Communications: HART* 7           Analog output loop (non-1.S.)         Active or Passive; selectable by jumper           - Active: output voltage: 20V ±5%         - Passive; minimum external supply voltage: 11.5 V           maximum external supply voltage: 30 V (55 V with serial resistor)         - Active: output voltage: 30 V (55 V with serial resistor)           Accuracy         ±0.1% of actual measurement         - 20 V (- 20 A)           Cable characteristics         2 wires, shielded, twisted pair           Alardware alarms (1x SPDT)         250 VAC, 2 A (40 VDC, 2 A)           Hardware alarms (2x SPDT)         250 VAC, 2 A (40 VDC, 2 A)           Relay operation         - Normally Open/Normally Closed contact: selectable by jumper           - Normally Open/Normally Closed contact: selectable by software setting)         - Reneasured parameters, configurable by software setting)           - Relay operation         - Normally Configurable by software setting)         - Remeasured parameters, configurable by software setting)           SIL 2/3 SAFEETY FUNCTIONS & LARIM CONTACTS OPTIONS         - Reneasured parameters, configurable by software setting)           - Relay o  | Cabling  | 18 AWG (minimum) with shielded twisted pair, max 4 km with max 8 multi drop Gauge connection       |
| Part and generating       At 12V Nominal current drawn by TRL/2 module alone is 40mA (+/- 10%), [power consumption is 480mW (+/- 10%)]. The worst case current/power drawn with below mentioned conditions is 60mA.         HART* Slave - Multidrop and/or 4-20 mA (Pos 7 + H)       Communications: HART* 7         Protocol       Communications: HART* 7         Analog output loop (non-1.S.)       Active or Passive: selectable by jumper         - Active: output voltage: 20V 15%       - Active: output voltage: 11.5 V         maximum external supply voltage: 11.5 V       maximum external supply voltage: 30V (55 V with serial resistor)         Accuracy       a0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Deen/Normally Dee-nergized: configurable by software setting<br>- PV Wonitor (any of the measured parameters, configurable by software setting)<br>- PV Wonitor (any of the measured parameters, configurable by software setting)<br>- PV Wonitor (any of the measured parameters, configurable by software setting)<br>- PV Wonitor (any of the measured parameters, configurable by software setting)<br>- PV Wonitor (any of the measured parameters, configurable by software setting)<br>- PV Wonitor (any of the measured parameters, configurable by software setting)<br>- PV Wonitor (any of the measured parameters, configurable by software setting)<br>- PV Monitor (any of the measured parameters, configurable by software settin   | Physical layer   | Logic 1 is represented by 100kHz and Logic 0 by 90khz:(+/-3%)                                      |
| is 480mW (+/- 10%)). The worst case current/power drawn with below mentioned conditions is 60mA.         HART* Slave - Multidrop and/or 4-20 mA (Pos 7 - H)         Protocol       Communications: HART* 7         Analog output loop (non-I.S.)       Active or Passive; selectable by jumper         - Active: output voltage: 20V ±5%         - Passive: minimum external supply voltage: 11.5 V         maximum external supply voltage: 30V (55 V with serial resistor)         Accuracy       ±0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         Aldaware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Den/Normally De-energized: configurable by software setting)       - PV Monitor (any of the measured parameters, configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)       - Remote control (configurable by software setting)         - Remote control (configurable by software setting)       - Remote control (configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)       - Remote control (configurable by software setting)         - Relay operation       1 ×SIL DO contact (1 × SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax =   | Voltage levels   | 3.6V +/- 10%.  |
| box and a construction of the server of the  | Power rating   | At 12V Nominal current drawn by TRL/2 module alone is 40mA (+/- 10%), [power consumption           |
| HART* Slave - Multidrop and/or 4-20 mA (Pos 7 = H)         Protocol       Communications: HART* 7         Analog output loop (non-l.S.)       Active or Passive; selectable by jumper         - Active: output voltage: 20V ±5%       - Active: output voltage: 20V ±5%         - Passive: minimum external supply voltage: 11.5 V       - maximum external supply voltage: 30 V (55 V with serial resistor)         Accuracy       ±0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         Atardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting)       - PV Monitor (any of the measured parameters, configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)       - Remote control (configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)       - Remote control (configurable by software setting)         - Remote control (configurable by software setting)       - Remote control (configurable by software setting)         - RUST SAFEETY FUNCTIONS       1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL AO  |  | is 480mW (+/- 10%)]. The worst case current/power drawn with below mentioned conditions is         |
| Protocol       Communications: HAR1* 7         Analog output loop (non-I.S.)       Active or Passive; selectable by jumper         - Active: output voltage: 20V ±5%       -         - Passive: minimum external supply voltage: 30 V (55 V with serial resistor)         Accuracy       ±0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         AltARM CONTACT OPTIONS       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting         - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by software setting)         - Remote control (configurable by software setting)         - SIL 2/3 SAFETY FUNCTIONS AL ARM CONTACTS OPTIONS         SIL Digital Output       1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL AO NAMUR NE43 compliant  |  | 60mA.  |
| Analog output loop (non-I.S.)       Active or Passive; selectable by jumper         - Active: output voltage: 20V ±5%       -         - Passive: minimum external supply voltage: 11.5 V       maximum external supply voltage: 30 V (55 V with serial resistor)         Accuracy       ±0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         Attawe alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Den/Normally De-energized: configurable by software setting       - PV Monitor (any of the measured parameters, configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)       - Renote control (configurable by software setting)         SIL 2/3 SAFETY FUNCTIONS       L XSIL D0 contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SilL Digital Output       1x SilL D0 contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SilL Analog Output       SilL A0 NAMUR NE43 compliant   | HART <sup>®</sup> Slave – Multidrop and/or 4-20 mA (Pos 7  | ′ = H)   |
| Accuracy Acc | Protocol   | Communications: HART® 7  |
| - Passive: minimum external supply voltage: 11.5 V         maximum external supply voltage: 30 V (55 V with serial resistor)         Accuracy       ±0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         ALARM CONTACT OPTIONS       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by software setting)         - Remote control (configurable by software setting)         - Remote control (configurable by software setting)         - SIL Do contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W) <td>Analog output loop (non-I.S.)</td> <td>Active or Passive; selectable by jumper</td>   | Analog output loop (non-I.S.)  | Active or Passive; selectable by jumper  |
| maximum external supply voltage: 30 V (55 V with serial resistor)         Accuracy       ±0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         ALARM CONTACT OPTIONS       Attack of the serial resistor)         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting)         - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by  |  | – Active: output voltage: 20V ±5%  |
| Accuracy       ±0.1% of actual measurement         Cable characteristics       2 wires, shielded, twisted pair         ALARM CONTACT OPTIONS       Alarware alarms (1x SPDT)         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting)       - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by software setting)       - Remote control (configurable by software setting)         SIL Digital Output       1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL AO NAMUR NE43 compliant   |  | <ul> <li>– Passive: minimum external supply voltage: 11.5 V</li> </ul>                             |
| Cable characteristics       2 wires, shielded, twisted pair         ALARM CONTACT OPTIONS       Alarwa charms (1x SPDT)         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting         - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by software setting)         - SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         - x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)   |  | maximum external supply voltage: 30 V (55 V with serial resistor)                                  |
| ALARM CONTACT OPTIONS         Hardware alarms (1x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A)         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting         - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by software setting)         - SIL 2/3 SAFEETY FUNCTIONS ALARM CONTACTS OPTIONS         SIL Digital Output       1 x SIL D0 contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL D0 contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL D0 contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL A0 NAMUR NE43 compliant  | Accuracy   | ±0.1% of actual measurement  |
| Hardware alarms (1x SPDT)250 VAC, 2 A (40 VDC, 2 A)Hardware alarms (2x SPDT)250 VAC, 2 A (40 VDC, 2 ARelay operation- Normally Open/Normally Closed contact: selectable by jumper<br>- Normally Energized / Normally De-energized: configurable by software setting<br>- PV Monitor (any of the measured parameters, configurable by software setting)<br>- Remote control (configurable by software setting   | Cable characteristics  | 2 wires, shielded, twisted pair  |
| Hardware alarms (2x SPDT)       250 VAC, 2 A (40 VDC, 2 A         Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting         - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by software setting)         - SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL AN NAMUR NE43 compliant   | <b>ALARM CONTACT OPTIC</b>   | DNS  |
| Relay operation       - Normally Open/Normally Closed contact: selectable by jumper         - Normally Energized / Normally De-energized: configurable by software setting         - PV Monitor (any of the measured parameters, configurable by software setting)         - Remote control (configurable by software setting)         SIL 2/3 SAFETY FUNCTIONS ALARM CONTACTS OPTIONS         SIL Digital Output       1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SILAO NAMUR NE43 compliant   | Hardware alarms (1x SPDT)  | 250 VAC, 2 A (40 VDC, 2 A)   |
| <ul> <li>Normally Energized / Normally De-energized: configurable by software setting         <ul> <li>PV Monitor (any of the measured parameters, configurable by software setting)</li> <li>Remote control (configurable by software setting)</li> </ul> </li> <li>SIL 2/3 SAFETY FUNCTIONS ALARM CONTACTS OPTIONS         <ul> <li>SIL Digital Output</li> <li>1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)</li> <li>2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)</li> </ul> </li> <li>SIL Analog Output</li> <li>SIL AO NAMUR NE43 compliant</li> </ul>  | Hardware alarms (2x SPDT)  | 250 VAC, 2 A (40 VDC, 2 A  |
| - PV Monitor (any of the measured parameters, configurable by software setting)     - Remote control (configurable by software setting)  SIL 2/3 SAFETY FUNCTIONS ALARM CONTACTS OPTIONS  I x SIL D0 contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W) 2 x SIL D0 contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W) SIL Analog Output SIL ANALVER SET SIL AD NAMUR NE43 compliant  | Relay operation  | <ul> <li>Normally Open/Normally Closed contact: selectable by jumper</li> </ul>                    |
| - Remote control (configurable by software setting)  SIL 2/3 SAFETY FUNCTIONS ALARM CONTACTS OPTIONS  I x SIL D0 contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W) 2 x SIL D0 contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W) SIL Analog Output SIL AN ANDUR NE43 compliant  |  | – Normally Energized / Normally De-energized: configurable by software setting                     |
| SIL 2/3 SAFETY FUNCTIONS ALARM CONTACTS OPTIONS         SIL Digital Output       1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL A0 NAMUR NE43 compliant   |  | – PV Monitor (any of the measured parameters, configurable by software setting)                    |
| SIL Digital Output       1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL AO NAMUR NE43 compliant   |  | – Remote control (configurable by software setting)  |
| SIL Digital Output       1 x SIL DO contact (1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL AO NAMUR NE43 compliant   | SIL 2/3 SAFETY FUNCTI  | ONS ALARM CONTACTS OPTIONS   |
| 2 x SIL DO contact (2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)         SIL Analog Output       SIL AO NAMUR NE43 compliant   | SIL Digital Output   |  |
| SIL Analog Output SIL AO NAMUR NE43 compliant  |  |  |
|  | SIL Analog Output  |  |
|  | SIL Digital Output + Analog Output   | •  |

(1 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W) SIL AO + 2 SIL DO contacts NAMUR NE43 compliant

(2 x SPDT contact, 2 A at 250 Vac or 2 A at 40 Vdc, Pmax = 500 W)

Continued....

#### Notes:

HAR T  $^{\circ}$  is a registered trademark of the HAR T Communications Foundation.

\*1 Distances of more than 10 km possible depending on amount of field instruments and cabling topology. <sup>\*2</sup> Under reference conditions. <sup>\*3</sup> With VITO temporature probe or

 \*3 With VITO temperature probe or Spot (PT100).
 \*4 Various generally available types of elements (RTD, MRT) can be selected.
 \*5 Under reference conditions \*6 Minimum product densit y bet ween layers: 100 kg/m3 (6.25 lb/ft3)

<sup>+7</sup> In ex treme environments the accuracy could be af fected depending on the thermal expansion coef ficient of the wet ted parts.

### Technical Specifications (continued)

| INPUT                                      |  |
|--|--|
| VITO Input for Temperature and Water Probe |  |
| Communications                             | Proprietary HART <sup>®</sup> (Ex−i  |
| Cable characteristics                      | 2 wires, shielded, twisted pair, Cmax = 1 $\mu$ F, Lmax = 9 mH, Rmax = 25 $\Omega$ / line        |
| Accuracy                                   | <ul> <li>Temperature measurement: ±0.1 °C (±0.18 °F) *2, *3</li> </ul>                           |
|  | – Water level measurement: ±2 mm (0.078") *3   |
| Resolution                                 | – Temperature measurement: 0.01 °C (0.01 °F)   |
|  | – Water level measurement: 0.1 mm (0.01")  |
| Spot RTD Input                             |  |
| Configurations                             | – 3 wire or 4 wire RTD, one element or two elements *4   |
|  | – MPT or MRT up to 6 elements with 2 common ground wires *4                                      |
| Cable characteristics                      | Shielded, Rmax = 100 $\Omega/$ line, Cmax = 1 $\mu\text{F},$ Lmax = 10.5 mH                      |
| Accuracy                                   | ±0.1 °C (±0.18 °F)   |
| Resolution                                 | 0.01 °C (0.01 °F)  |
| HART <sup>®</sup> Input                    |  |
| Configurations                             | Options  |
|  | <ul> <li>– 5 HART<sup>®</sup> inputs and / or HIMS density calculation</li> </ul>                |
|  | – VITO sensors and / or 3 HART® inputs   |
|  | – 3 HART® input, HIMS density calculation and VITO sensors                                       |
| Max. instruments per module                | 5 (digital) or 1 (analog)  |
| Communications                             | HART® (revision 4)   |
| Cable characteristics                      | 2 wires, shielded, twisted pair, Cmax = 1 $\mu\text{F}$ , Lmax = 9 mH, Rmax = 25 $\Omega$ / line |
| Other Options                              |  |
| Cable entries                              | Adapters available to fit other sizes cable glands   |
| <b>INSTRUMENT MEASUR</b>                   | ING SPECIFICATION  |
| Level measuring range                      |  |
| Standard                                   | 27 m (88 ft) Pos 18 = A, B, C  |
| Extended                                   | 37 m (121 ft) Pos 18 = E, F  |
|  | 40 m (131 ft) Pos 18 = H,  |
|  | 45 m (147 ft) Pos 18 = K,  |
|  | 35 m (115 ft) (with measuring wire up to 150 m (492 ft)) Pos 18 = M;                             |
|  | For longer ranges, please contact factory  |
| Veasuring accuracy level                   | 40 m (131.2 ft): < ± 0.4 mm (± 0.016") *5;   |
|  | 40 m (131.2 ft): OIML R85 certified (Pos 5 = X);   |
|  | 45 meter with +- 1 mm accuracy   |
|  | last 35 meter with +- 1 mm accuracy on 150 m wire  |
| Measuring accuracy interface               | < ± 2 mm (± 0.08") *6  |
| Measuring accuracy temperature             | < ± 0.1 °C (± 0.18 °F) *5  |
| Sensitivity                                | ≤ 0.1 mm (± 0.004") *5   |
| Repeatability                              | ≤ 0.1 mm (± 0.004") *5   |
| Density Measurement                        |  |
| Density measurement                        | With density firmware (Pos 20 = D and density displacer (Pos 19 - E or F)                        |
| Measuring accuracy servo density           | < ± 3 kg/m3 (± 0.19 lb/ft3)  |
| MECHANICAL                                 |  |
| Flange                                     | See 'Identification Code' Pos 14-16  |
| Dimensions                                 | See 'Dimensional Drawing'  |

| Flange                  | See 'Identification Code' Pos 14-16         |
|-------------------------|---|
| Dimensions              | See 'Dimensional Drawing'                   |
| Weight                  |   |
| Medium pressure version | 16 kg (35 lb)                               |
| Chemical version        | 21 kg (46 lb)                               |
| High pressure version   | 26 kg (57 lb)                               |
| Cable entries           | 4 x ¾" NPT threaded (2* I.S. + 2* non-I.S.) |

### Technical Specifications (continued)

| PROCESS                    |   |
|----------------------------|---|
| Operating pressure         |   |
| M and C versions           | Up to 6 bar / 0.6 MPa (90 psi); Pos 14  |
| Hversion                   | Up to 40 bar / 4 MPa (600 psi) (up to 25 bar / 2.5 MPa in acc. to PED); Pos 14                          |
| Temperature                |   |
| Max. process temperature   | +200 °C (+392 °F), drum housing must be kept below +65 °C (+149 °F) *7                                  |
| Min. process temperature   | -200 °C (-328 °F), drum housing must be kept above -40 °C (-40 °F) *7                                   |
| PROCESS WETTED             |   |
| MATERIALS                  |   |
| Drum compartment           | Cast aluminum Int. reg. AA A356 EN1706 AC-AlSi7Mg0.3; Pos 14 = A or M                                   |
|                            | Stainless steel ASTM A351, CF-8M, G-X6 CrNiMo 18 10 (1.4408); Pos 14 = H or C                           |
| Measuring drum, drum shaft | Stainless steel (1.4401) EN10088 AISI 316   |
| Measuring wire             | See 'Identification Code'; Pos 18   |
| Magnet cap                 | Stainless steel (1.4401) EN10088 AISI 316   |
| O-rings                    | Drum cover Silicone/FEP; others FPN (Viton®); Special O-ring (Perlas®) available for demanding          |
|                            | chemical applications (such as Ammonia), part nr. S0854969  |
| ENCLOSURE MATERIALS        |   |
| Servo comp. and cover      | All types cast aluminum Int. reg. AA A356 EN1706 AC-AlSi7Mg0.3  |
| Finish aluminum parts      | Conforms to MIL-DTL-5541F   |
| <b>ENVIRONMENTAL SAFET</b> | (   |
| Ambient temperature        | -40 °C to +65 °C (-40 °F to +149 °F)  |
| Storage temperature        | -50 °C to +70 °C (-58 °F to +158 °F)  |
| Protection class           | IP66 / IP67 accordingto EN 60529 (NEMA 4X)  |
| Safety                     | Explosion proof   |
|                            | – II 1/2 G Ex d IIB T6 Ga/Gb or Ex de IIB T6 Ga/Gb or Ex d [ia Ga] IIB T6 Ga/Gb or Ex de [ia Ga] IIB T6 |
|                            | Ga/Gb; acc. to ATEX KEMA  |
|                            | – Class I, Division 1, Group C & D; acc. to FM  |
|                            | – Class I, Group C & D acc. to CSA certificate  |
|                            | Consult factory for other approvals and updates   |
| ELECTRICAL                 |   |
| Power supply               | Autoselect 65 Vac to 240 Vac, 50/60 Hz and/or 24 Vdc to 65 Vdc  |
| Power rating               | 11 Wmax continuously  |
| MIGRATION OPTION           |   |

Migration kit 954 (Pos 4: Option M)

Migration Kit 954 - Enraf Servo 854 ATG to Servo 954 hardware migration kit

| Instrument code Os 4 Servo main selections Enraf Servo 954  |       |    |   | Terminals | +         |
|---|-------|----|---|-----------|-----------|
|   |       |    |   |           | t         |
|   |       |    |   |           |           |
| Enraf Servo 954   |       |    |   |           | T         |
| Migration Kit 954   | *5    |    |   |           |           |
| Pos 5 Performance and Legal metrology approvals   |       |    |   |           |           |
| Accuracy ± 0.4 mm Xtreme Performance, Legal Metrology with OIML R85 report and sealing facilities.  | *1,*3 | *А |   | 2         |           |
| Accuracy ± 0.4 mm Xtreme Performance per OIML R85, with factory calibration report according to OIML  |       |    |   | 2         |           |
| Accuracy ± 1 mm High Performance, for custody transfer compliant to OIML R85, API 3.1B and ISO 4266 (1 & 3) with factory calibration report according to OIML |       |    |   | 2         |           |
| Accuracy ± 1 mm High Performance, for custody transfer compliant to API 3.1B and ISO 4266 (1 & 3)   |       |    |   | 2         |           |
| Pos 6 User interface (connector for portable HART SmartView standard for all selections)  |       |    |   |           |           |
| With internal display   |       |    |   |           |           |
| B With internal display and terminals for stand-alone HART SmartView  | *4    |    | 2 |           |           |
| Pos 7 Data transmission   |       |    |   |           |           |
| B Enraf Fieldbus Bi-phase Mark (BPM)  |       |    |   | 2         |           |
| HART / 4-20 mA output   |       | *B |   | 2         |           |
| TRL2 field bus  |       |    |   | 2         |           |
| Pos 8 Basic VITO and HART input options   |       |    |   |           |           |
| None  |       |    |   |           |           |
| VITO temperature and/or water sensor  |       |    | 2 |           | T         |
| VITO temperature and/or water sensor and 1 HART input   |       |    | 4 |           | T         |
| HART input (up to 3 HART devices)   |       |    | 2 |           | t         |
| HART input (up to 3 HART devices) and HIMS density calculations   |       |    | 4 |           | t         |
| Pos 9 Additional VITO and HART input options  |       |    |   |           | t         |
|   |       |    |   |           | t         |
| VITO temperature and/or water sensor  |       |    | 2 |           | ╈         |
| VITO temperature and/or water sensor<br>VITO temperature and/or water sensor and 3 HART inputs  |       |    | 8 |           | +         |
|   |       |    | 8 |           | +         |
| VITO temperature and/or water sensor and 3 HART inputs and HIMS density calculations  |       |    | - |           | +         |
| HART input (5 HART inputs)  |       |    | 4 |           | +         |
| HART input (5 HART inputs) and HIMS density calculations  |       |    | 4 |           | +         |
| Pos 10 Temperature  |       |    |   |           | +         |
|   |       |    |   |           | +         |
| RTD one spot element 3 wire   |       |    | 3 |           | 1         |
| RTD one spot element 4 wire   |       |    | 4 |           |           |
| RTD two spot elements 3 wire  |       |    | 6 |           |           |
| RTD two spot elements 4 wire  |       |    | 8 |           |           |
| 8 RTD 3 elements MRT / MPT  |       |    | 5 |           | ſ         |
| 4 RTD 4 elements MRT / MPT  |       |    | 6 |           |           |
| B RTD 5 elements MRT / MPT  |       |    | 7 |           | T         |
| RTD 6 elements MRT / MPT  |       |    | 8 |           | T         |
| Pos 11 Alarm outputs  |       |    |   |           | T         |
| None None   |       |    |   |           |           |
| Hardware alarms (1x SPDT) 250 VAC, 2 A (40 VDC, 2 A)  |       |    |   | 2         | t         |
| Hardware alarms (2x SPDT) 250 VAC, 2 A (40 VDC, 2 A)  |       |    |   | 4         | ╈         |
| Pos 12 SIL functionality  |       |    |   |           | +         |
| None  |       |    |   |           | t         |
|   |       |    |   | 2         | +         |
| 1 x SIL DO contact (1 x SPDT contact, 2 A at 250 VAC or 2 A at 40 VDC, Pmax = 500 W)  |       |    |   | 2         | +         |
| 2xSIL DO contact (2xSPDT contact, 2A at 250 VAC or 2A at 40 VDC, Pmax=500 W)  | -     |    |   | 4         | +         |
| SIL AO NAMUR NE43 compliant   |       |    |   | 3         | +         |
| SILAO + 1 SIL DO contact NAMUR NE43 compliant   |       |    |   | 5         |           |
| (1 x SPDT contact, 2 A at 250 VAC or 2 A at 40 VDC, Pmax = 500 W)   |       |    | + | 7         | +         |
| SIL AO + 2 SIL DO contacts NAMUR NE43 compliant<br>(2 x SPDT contact, 2 A at 250 VAC or 2 A at 40 VDC, Pmax = 500 W)  |       |    |   | 7         |           |
| Pos 13 - Additional communication   |       |    |   |           | $\dagger$ |
| None or Select from Pos 7   |       |    | 1 | 0 or 2    | t         |

| with 150 m 0.2 mm wire for cavern installation)         Pos 19 Displacer         Image: State of the stat |    | * |
|--|----|---|
| No feet, High pressure Migration KIT         Atmospheric pressure, 2' Class 150 FF, Flanges acc. ASME B16.5, (Ra - 32-6.3 'm), AL,           Medium pressure, 2' Class 150 FF, Flanges acc. ASME B16.5, (Ra - 32-6.3 'm), AL, Up to 6 Bar         Chemical version, 2' Class 150 RF, Flanges acc. ASME B16.5, (Ra-32-6.3 'm), ALSI 316, Up to 6 Bar           Chemical version, DNSO, PN 6, Ranges acc. ASME B16.5, (Ra-32-12.5 'm), AISI 316, Up to 40 Bar         High pressure, 2' Class 300 RF, Flanges acc. ASME B16.5, (Ra-32-12.5 'm), AISI 316, Up to 40 Bar           High pressure, DNSO, PN 40, Flanges acc. EN 1092-1, (Ra-32-12.5 'm), AISI 316, Up to 40 Bar         Ra-32-12.5 'm), AISI 316, Up to 40 Bar           Pos 17 Safety approvals         ATEX / IECEx         FM           M OS 18 Measuring range & wire material         No True           No Trum         2' T m (88 ft)         AISI 316           O Trum         2' T m (88 ft)         Tungsten         0.25 mm           M O 111 ft)         AISI 316         0.2 mm         1'           M O 113 ft)         AISI 316         0.2 mm         1'           M O 113 ft)         AISI 316         0.2 mm         1'           M O 113 ft)         AISI 316         0.2 mm         1'           M O 113 ft)         AISI 316         0.2 mm         1'           M O 113 ft)         AISI 316         0.2 mm         1'           M O 113 ft) <td< td=""><td></td><td></td></td<>   |    |   |
| Medium pressure, 2' Class 150 FF, Flanges acc. ASME B165, (Ra-32-63 'm), AL, Up to 6 Bar         Chemical version, 2' Class 150 RF, Flanges acc. ASME B165, (Ra-32-63 'm), AISI 316, Up to 6 bar         Chemical version, DN50, PN 6, Flanges acc. EN 1092-1, (Ra-32-125 'm), AISI 316, Up to 40 Bar         High pressure, 2' Class 300 RF, Flanges acc. ASME B165, (Ra-32-63 'm), AISI 316, Up to 40 Bar         Pos 17 Safety approvals         ATEX / IECEx         FM       USA         CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material       Pos 18 Measuring range & wire material         No Drum       27 m (88 ft)       Hastelloy C22       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm       27 m (88 ft)       Tantalum         37 m (121 ft)       Invar       0.2 mm       37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm       37 m (121 ft)       Invar       0.2 mm       40 m (131 ft)       AISI 316       0.2 mm       40 m (131 ft)       AISI 316       0.2 mm       45 m (131 ft)       41 Si 316       0.2 mm       45 m (131 ft)       AISI 316 (0.2 mm       45 m (131 ft)       40 m (131 ft)       AISI 316       0.2 mm       45 m (131 ft)       AISI 316 (0.2 mm       45 m (131  |    | * |
| Chemical version, 2' Class 150 RF, Flanges acc. ASME B165, (Ra-32-63'm), AISI 316, Up to 6bar         Chemical version, DN50, PN 6, Flanges acc. ASME B165, (Ra-32-12.5'm), AISI 316, Up to 40 Bar         High pressure, 2' Class 300 RF, Flanges acc. ASME B165, (Ra-32-12.5'm), AISI 316, Up to 40 Bar         High pressure, DN50, PN 40, Flanges acc. ASME B165, (Ra-32-12.5'm), AISI 316, Up to 40 Bar         Pos 17 Safety approvals         ATEX / IECEx         FM       USA         CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material         No Drum       27 m (88 ft)         27 m (88 ft)       Tantalum         0.2 mm       27 m (88 ft)         7 m (121 ft)       Inugsten         0.27 m (131 ft)       AISI 316         0.2 mm       37 m (121 ft)         0.3 ft       1.21 ft)         150 m (492 ft)       AISI 316         0.2 mm       45 m (131 ft)         7 m (42 ft)       AISI 316         0.2 mm       37 m (121 ft)         150 m (492 ft)       AISI 316         0.2 mm       45 m (131 ft)         7 m (121 ft)       Iungsten         0.25 mm       45 m (131 ft)         7 m (492 ft)       A  |    | * |
| 6 bar         Chemical version, DN50, PN 6, Flanges acc. EN 1092-1, (Ra-32-12.5 'm), AISI 316, Up to 60 bar         High pressure, 2' Class 300 RF, Flanges acc. EN 1092-1, (Ra-32-6.3 'm), AISI 316, Up to 40 Bar         High pressure, DN50, PN 40, Flanges acc. EN 1092-1, (Ra-32-12.5 'm), AISI 316, Up to 40 Bar         Pos 17 Safety approvals         ATEX / IECEx         FM       USA         CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material       Pos 18 Measuring range & wire material         No Drum       27 m (88 ft)         27 m (88 ft)       Tantalum         0.2 mm       27 m (88 ft)         7 m (81 ft)       Tungsten         0.25 mm       37 m (121 ft)         11 Nurgetn       0.2 mm         37 m (121 ft)       Invagen         0.25 mm       37 m (121 ft)         12 ft)       Invagen         0.25 mm       45 m (131 ft)         13 ft)       Tungsten       0.25 mm         14 0 m (131 ft)       AISI 316       0.2 mm         15 0m (492 ft)       AISI 316       0.2 mm         16 45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m m   |    | * |
| Chemical version, DN50, PN 6, Flanges acc. EN 1092-1, (Ra-32-12.5 'm), AISI 316, Up to 6 bar           High pressure, 2' Class 300 RF, Flanges acc. ASME B16.5, (Ra-32-63 'm), AISI 316, Up to 40 Bar           Pos 17 Safety approvals           ATEX / IECEx           FM         USA           CSA         Canada           KOSHA         Korea           INMETRO         Brazil           Pos 18 Measuring range & wire material         Pos 18 Measuring range & wire material           No Drum         27 m (88 ft)         AISI 316         0.2 mm           27 m (88 ft)         Tantalum         0.2 mm         37 m (121 ft)         Invasten         0.25 mm           37 m (121 ft)         Invasten         0.25 mm         37 m (221 ft)         Iungsten         0.25 mm         45 m (131 ft)         AISI 316         0.2 mm         *2 mm           37 m (121 ft)         Iungsten         0.25 mm         37 m (221 ft)         Iungsten         0.25 mm         45 m (131 ft)         AISI 316         0.2 mm         *2 mm           90 m         150 m (492 ft)         AISI 316         0.2 mm         *2 mm         *2 mm           170 m         0.25 mm         16 mm         0.25 mm         17 m (22 mm)         *2 mm           171 ft)         Iungsten <t< td=""><td></td><td>*</td></t<>  |    | * |
| (Ra-32-6.3 m), AISI 316, Up to 40 Bar         High pressure, DN50, PN 40, Flanges acc. EN 1092-1,         (Ra-32-12.5 m), AISI 316, Up to 40 Bar         Pos 17 Safety approvals         ATEX / IECEx         FM       USA         CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material         No Drum         27 m (88 ft)       AISI 316         0.2 mm         27 m (88 ft)       Tantalum         0.2 mm         27 m (88 ft)       Tantalum         0.2 mm       27 m (88 ft)         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invasten       0.25 mm         37 m (121 ft)       Invasten       0.25 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cav  |    | * |
| High pressure, DN50, PN 40, Flanges acc. EN 1092-1,       (Ra-32-12.5 'm), AISI 316, Up to 40 Bar         Pos 17 Safety approvals       ATEX / IECEx         ATEX / IECEx       FM         USA       CSA         CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material       Image: Common state st   |    | * |
| Pos 17 Safety approvals       ATEX / IECEx         FM       USA         CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material       Pos 18 Measuring range & wire material         No Drum       27 m (88 ft)       AISI 316       0.2 mm         27 m (88 ft)       Hastelloy C22       0.2 mm       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm       0.2 mm         37 m (121 ft)       AISI 316       0.2 mm       0.2 mm         37 m (121 ft)       AISI 316       0.2 mm       0.2 mm         37 m (121 ft)       Invar       0.2 mm       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm       0.2 mm         40 m (131 ft)       Tungsten       0.25 mm       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2   |    | * |
| ATEX/IECEx       FM       USA         FM       USA       Csa         CSA       Canada       KosHa         NMETRO       Brazil       Pos 18 Measuring range & wire material         No Drum       27 m (88 ft)       AISI 316       0.2 mm         27 m (88 ft)       Hastelloy C22       0.2 mm       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm       0.2 mm         27 m (88 ft)       Tungsten       0.25 mm       0.2 mm         37 m (121 ft)       AISI 316       0.2 mm       0.2 mm         37 m (121 ft)       Invar       0.2 mm       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       Imm       0.25 mm       0.25 mm       10         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         1   |    |   |
| FM       USA         CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material         No Drum         27 m (88 ft)       AISI 316         27 m (88 ft)       Hastelloy C22         0.2 mm       27 m (88 ft)         7 m (88 ft)       Tantalum         0.2 mm       27 m (88 ft)         7 m (121 ft)       AISI 316         0.2 mm       37 m (121 ft)         10 ar (121 ft)       Invar         0.2 mm       37 m (121 ft)         11 my ar       0.2 mm         37 m (121 ft)       Invar         0.2 mm       40 m (131 ft)         40 m (131 ft)       Tungsten         0.25 mm       45 m (131 ft)         45 m (131 ft)       Tungsten         0.25 mm       45 m (131 ft)         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)         Pos 19 Displacer       Imm         None       "U815C/223/CT/10 Carbon filled PTFE Hostafton ™, weight 223 g; ø 90 mm"         "U815C/223/CT/90 Carbon filled PTFE Hostafton ™, weight 223 g; ø 90 mm"   |    |   |
| CSA       Canada         KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material         No Drum         27 m (88 ft)       AISI 316         27 m (88 ft)       Hastelloy C22         0.2 mm         27 m (88 ft)       Tantalum         0.2 mm         27 m (88 ft)       Tantalum         0.2 mm         37 m (121 ft)       AISI 316         0.2 mm         37 m (121 ft)       Invar         0.2 mm         37 m (121 ft)       Invar         40 m (131 ft)       Tungsten         0.25 mm         40 m (131 ft)       Tungsten         0.25 mm       40 m (131 ft)         40 m (131 ft)       Tungsten         0.25 mm       45 m (131 ft)         45 m (131 ft)       Tungsten         0.25 mm       150 m (492 ft)         AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)         Pos 19 Displacer       None         *U815C/223/CT/110 Carbon filled PTFE Hostaflon **, weight 223 g; ø 90 mm*         *U815C/223/CT/90 Carbon filled PTFE Hostaflon **, weight 223 g; ø 90 mm*  |    |   |
| KOSHA       Korea         INMETRO       Brazil         Pos 18 Measuring range & wire material         No Drum       27 m (88 ft)         27 m (88 ft)       AISI 316       0.2 mm         27 m (88 ft)       Hastelloy C22       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tungsten       0.25 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316 (0.2 mm       *2         with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       *2         None       *10815C/223/CT/10 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 100 mm*         *101102 /020 /021/02 /021/02 /021/02 /021/02 /021/02 /021/02 /021 /021  |    | * |
| INMETRO       Brazil         Pos 18 Measuring range & wire material         No Drum         27 m (88 ft)       AISI 316       0.2 mm         27 m (88 ft)       Hastelloy C22       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tungsten       0.25 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       None       *2         None       *10815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 100 mm*       *2         *10815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm*       *2  |    | * |
| Pos 18 Measuring range & wire material         No Drum         27 m (88 ft)       AISI 316       0.2 mm         27 m (88 ft)       Hastelloy C22       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       */         Pos 19 Displacer       None       */       */         *       None       */       */         *       */       */       */         *       */       */       */         */       */       */       */         */       */ <t< td=""><td></td><td>*</td></t<>  |    | * |
| No Drum       27 m (88 ft)       AISI 316       0.2 mm         27 m (88 ft)       Hastelloy C22       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tungsten       0.25 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.25 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       Tungsten       0.25 mm         40 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       Imm <sup>*</sup> Imm <sup>*</sup> Imm <sup>*</sup> 10       None       Imm <sup>*</sup> Imm <sup>*</sup> 10       ISISC/223/CT/110 Carbon filled PTFE Hostaflon <sup>™</sup> , weight 223 g; ø 100 mm <sup>*</sup> Imm <sup>*</sup> 10       ISISC/223/CT/90 Carbon filled PTFE Hostaflon <sup>™</sup> , weight 223 g; ø 90 mm <sup>*</sup> Imm <sup>*</sup>   |    | ^ |
| 27 m (88 ft)       AISI 316       0.2 mm         27 m (88 ft)       Hastelloy C22       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tungsten       0.25 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       ValteC/223/CT/110 Carbon filled PTFE Hostaflon <sup>™</sup> , weight 223 g; ø 110 mm*       *2         *10815C/223/CT/90 Carbon filled PTFE Hostaflon <sup>™</sup> , weight 223 g; ø 90 mm*       *1   |    | * |
| 27 m (88 ft)       Hastelloy C22       0.2 mm         27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tungsten       0.25 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       None       *2       *2         *       'U815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm*       *2         *       'U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm*       *2   |    |   |
| 27 m (88 ft)       Tantalum       0.2 mm         27 m (88 ft)       Tungsten       0.25 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       Imm*       Imm*       Imm*         10 10 11 0 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm*       Imm*       Imm*   |    |   |
| 27 m (88 ft)       Tungsten       0.25 mm         37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         40 m (131 ft)       Tungsten       0.25 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316       0.2 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Vost 19 Displacer         10       1015C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm <sup>*</sup> 10       "U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm <sup>*</sup>   |    |   |
| 37 m (121 ft)       AISI 316       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Tungsten       0.25 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         None         *U815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm <sup>*</sup> *U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm <sup>*</sup> **10150 (200 (25.05.05.05.05.05.05.05.05.05.05.05.05.05   |    |   |
| 37 m (121 ft)       Invar       0.2 mm         37 m (121 ft)       Tungsten       0.25 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       None       *2         * U815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm*       *1         * 'U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm*       *2  |    |   |
| 37 m (121 ft)       Tungsten       0.25 mm         40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       None       *2         *U815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm*       *10815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm*   |    |   |
| 40 m (131 ft)       AISI 316       0.2 mm         40 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer         None       "U815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm"         "U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm"   |    |   |
| 40 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer         None       *10815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm*         *10815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm*   |    |   |
| 45 m (131 ft)       AISI 316       0.2 mm         45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer  |    |   |
| 45 m (131 ft)       Tungsten       0.25 mm         150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       •         •       •       •  |    | * |
| 150 m (492 ft)       AISI 316 (35 m measuring range and ±1 mm accuracy with 150 m 0.2 mm wire for cavern installation)       *2         Pos 19 Displacer       •         •   |    | * |
| Pos 19 Displacer         None         'U815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm*         'U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm*  | *2 | * |
| None         Imm*         Imm*      <   |    |   |
| <ul> <li>*U815C/223/CT/110 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 110 mm*</li> <li>*U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 90 mm*</li> </ul>   |    |   |
| mm"<br>"U815C/223/CT/90 Carbon filled PTFE Hostaflon ™, weight 223 g.; ø 90<br>mm"   |    |   |
| <sup>®</sup> "U815C/223/CT/90 Carbon filled PTFE Hostaflon <sup>™</sup> , weight 223 g.; ø 90 mm <sup>*</sup>  |    |   |
|  |    |   |
| O815C/223/C1/45 Carbon filled PTFE Hostaflon ™, weight 223 g;; Ø 45  |    |   |
| mm*<br>■ "U815C/223/CT/25 Carbon filled PTFE Hostaflon ™, weight 223 g; ø 25   |    | * |
| mm'  |    |   |
| "U815C/260/S/90 AISI 316, weight 260 g.; ø 90 mm (for density measure-<br>ment)"   |    |   |
| "U815C/260/S/45 AISI 316, weight 260 g.; ø 45 mm (for density measure-<br>ment)"   |    |   |
| Pos 20 Servo density measurement   |    |   |
| No density option  |    | T |
| With Servo Density measurement   |    | * |
| Pos 21 Additional options  |    |   |
| None None  |    |   |
| Air purge connection for drum compartment (1/4* BSP entry)   |    | * |
| Pos 22 Tag plate   |    |   |
| No tag plate   |    |   |
| Tag plate (Material: SS)   |    |   |
|  |    |   |

#### Notes:

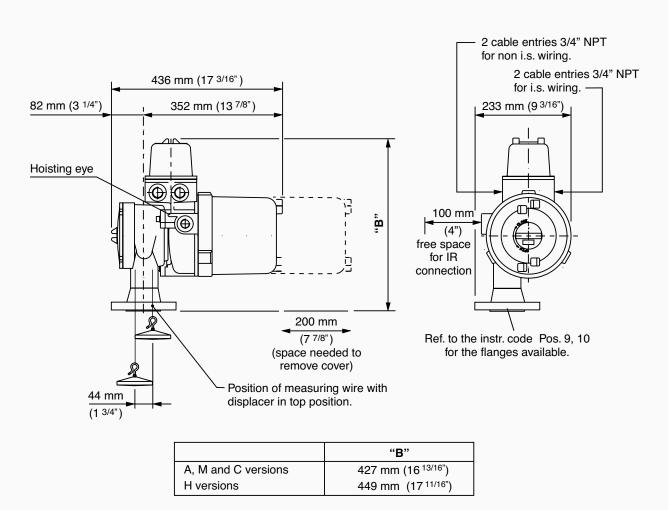
- 1. Applicable for compliance to country specific Legal Metrology certificates ( Like Netherlands, Germany etc.) For witnessed verification specify authority; for more information please contact factory
- 2. Contact factory for longer measuring ranges
- 3. The SmartServo FlexLine will always be delivered from the factory with the latest global approved Firmware for all boards (FlexConn modules). Please check if your local approvals require previous versions of the firmware for the legal metrology relevant FlexConn modules. If that is the case, please take provisions to downgrade the Firmware of the legal metrology relevant boards of the SmartRadar FlexLine!
- 4. The RMA805 "ENRAF Remote Indicator" is a remote display (level and temperature only) and available in combination with option B). This display can be ordered separate.
- 5. The Migration kit is without the Front Cover and the Terminal compartment cover. When also these covers need to be replaced, they must be ordered seperately.

#### Restrictions:

Sum of boards = max 5 Sum of IS terminals = max 12 Sum of nonIS terminals = max 12 \*M Only available when Pos4 = M \*A Only available when Pos4 = A \*B Only when pos 5 NOT X \*C Only when Pos19 = None, E or F \*L Only available when Pos5 = H

#### Global Experience. Locally Applied.

#### **DIMENSIONAL DRAWING**





#### For more information

To learn more about Honeywell's Enraf product ranges, visit www.honeywellenraf.com or contact your Honeywell account manager.

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