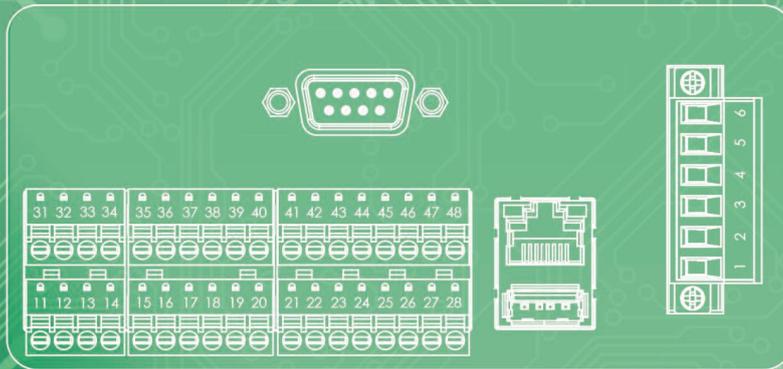




AccuMind[®]

Universal Flow Computer



Rear side of the AccuMind®

■ AccuMind® Flow Computer

When selecting a suitable flow computer, the user is often faced with the problem that the required calculation is not available at all or that a suitable device must be selected from a large number of hardware and software variants with different operating philosophies. Costly and time-consuming errors are pre-programmed.

The AccuMind® offers numerous calculation algorithms in one device with a uniform operating philosophy. Despite the complexity, the setup of the device is very simple. The first step is to select the desired application. Depending on the application, only those values are entered in the parameterization menu that are necessary for the device to function properly. In the last step, the display contents can be freely arranged according to the user's wishes within wide limits.

Do you prefer a "plug-and-play" solution? Then simply order the device with the parameters set.

The list of already established as well as novel features and functions includes:

- ... Calculation of properties of **water** and **steam** according to IAPWS-97;
- ... **calculation of the properties of gaseous media** (density, viscosity, speed of sound, heat capacity etc.);
- ... calculation methods for **natural gases** and sensors according to **international standards** (AGA-8 (DC/GC), SGERG-88, AGA-NX19, ISO 20765-1 combined with AGA-3, AGA-5, AGA-7, AGA-10, AGA-11);
- ... support for a wide range of **flow sensors** (differential pressure based primary elements, volume and mass flow meters, turbines, ultrasonic, vortex etc.);
- ... **increased accuracy** for primary elements (orifice plates, venturi, nozzles etc.) by elimination of linearity errors;
- ... operate your flow sensor even at flows outside of calibrated limits and increase accuracy due to **digital communication**;
- ... store and renew **calibration data** for the sensors inside the AccuMind®;
- ... the possibility for the user to **freely adjust the content of the display**;
- ... a **comprehensive interface concept** incl. **Ethernet** interface suitable also for control and maintenance;
- ... a free configurable capacitive **touch screen display** offers a robust and aging-resistant interface for the user.



■ Technical Specification

Calculation Methods

Fluids

| | |
|----------------------|--|
| Water & Steam | IAPWS-97 |
| Technical Gases | Ideal and real gas computation methods (Redlich-Kwong(-Soave), Peng-Robinson etc.) |
| Natural Gases | AGA-8 (DC, GC methods); SGERG-88; AGA-NX19; ISO20765-1 (gas properties) |
| Heat Transfer Fluids | Constantly growing list with usual heat transfer fluids |

Sensors

| | |
|-------------------------------|---|
| Standard Orifices | ISO 5167-2 with realtime correction of non linearity; AGA-3 ("Orifice Metering of Natural Gas") |
| Nozzles, Venturi Tubes, Cones | ISO 5167-3/4/5 with realtime correction of non linearity |
| Averaging Pitot Tubes | Computation acc. to ISO 5167; Simplified procedure |
| Vortex | proprietary calculation method |
| Turbine Flow Meters | proprietary calculation method, optional AGA-7 |
| Ultrasonic Flow Meters | proprietary calculation method, optional AGA-10 |
| Mass Flow Meters | proprietary calculation method depending on sensor technology, optional AGA-11 |

Interfaces

| | |
|-----------------|--|
| User Interface | 4.3" TFT color display, 480 × 272 pixels, 16:9 ratio incl. capacitive touch |
| Bus Interfaces | Always available: Modbus TCP; Ordering option: Modbus RTU and/or M-Bus, Profibus or Profinet |
| FSK-Modem | Compatible with HART-capable field devices; bidirectional use |
| Analog Inputs | Four current inputs 0/4 ... 20 mA and two RTD-inputs (3 and 4 wires) |
| Frequency/Pulse | Two inputs, electrically isolated |
| Analog Outputs | Two outputs 0/4 ... 20 mA, electrically isolated, applied value selectable |
| Switch Outputs | One mechanical relay (6A; 230 V AC) and two electrical relays (120 mA; 60 V DC or 40 V AC) |

Power Supply

| | |
|----------------------------|---|
| AC Power Supply | 100 ... 250 V AC ±10 %; 50 ... 60 Hz ±5 % |
| AC Power Supply (optional) | 18 ... 30 V DC ±10 % |
| Power Consumption | max. 20 VA |

Housing

| | |
|------------|--|
| Dimensions | Housing for panel mounting; internal parts: protection class IP20; 135 W × 65 H × 120 D (in mm ³); display: protection class IP44; 144 W × 83 H × 14 D (in mm ³) |
|------------|--|

■ Ordering Codes – AccuMind®

| AccuMind | | | | | | | | | | |
|--|-----|--|--|--|--|--|--|--|--|---|
| Housing & User Interface | | | | | | | | | | |
| | PM | | | | | | | | | Panel mounting, 4.3" TFT touch display |
| | WM | | | | | | | | | Wall mounting, IP65, 4.3" TFT touch display |
| | WMA | | | | | | | | | As "WM"; additional internal isolation amplifier, which provides a third analog output. This output delivers the unchanged analog input signal, which is present at the third analog input. |
| Operating Modes | | | | | | | | | | |
| | HB | | | | | | | | | Heat flow computer for steam, water and heat transfer fluids (mass flow, heat flow and heat totalizing) and ideal gas calculation |
| | QL | | | | | | | | | QAL1 incl. ideal gas calculation |
| | TG | | | | | | | | | Technical gases (mass flow, heat totalizing; computing of gas properties) |
| | NG | | | | | | | | | Natural gases (AGA-8 (DC92/G1/G2), AGA-NX19, SGERG-88, gas properties ISO-20765-1) |
| Power Supply | | | | | | | | | | |
| | AC | | | | | | | | | Wide range supply (integrated), 100 ... 250 V AC (50 ... 60 Hz) |
| | DC | | | | | | | | | DC supply, 18 ... 30 V DC |
| Functional Extension | | | | | | | | | | |
| | NA | | | | | | | | | None |
| | AZ | | | | | | | | | AccuFlo®Zero for automated zero-point calibration on standard HART-compatible differential pressure transmitters |
| | LS | | | | | | | | | Controller for LSE-HD air purging unit |
| | LA | | | | | | | | | Controller for LSE-HD air purging unit with integrated automated zero-point calibration |
| 1st Interface (via spring clamp terminals) | | | | | | | | | | |
| | MS | | | | | | | | | Modbus Slave RTU |
| | MB | | | | | | | | | M-Bus |
| | PB | | | | | | | | | Profibus DP Slave via external DIN rail module |
| | PN | | | | | | | | | Profinet Slave via external DIN rail module |
| 2nd Interface (via D-Sub socket, only available for housing option "PM") | | | | | | | | | | |
| | NA | | | | | | | | | None |
| | MS | | | | | | | | | Modbus Slave RTU |
| Custom Settings | | | | | | | | | | |
| | FC | | | | | | | | | Device with standard parameters (no custom setup) |
| | CP | | | | | | | | | Customized setup |
| | CC | | | | | | | | | Device with standard parameters and factory calibration certificate (5 points, no custom setup) |
| | CA | | | | | | | | | Device with custom setup and factory calibration certificate (5 points, with custom setup) |
| Tag Number | | | | | | | | | | |
| | DI | | | | | | | | | Tag number in display |
| | KK | | | | | | | | | Tag number in display and on enclosed metal plate |

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