



AccuMind[®]

Universal Flow Computer



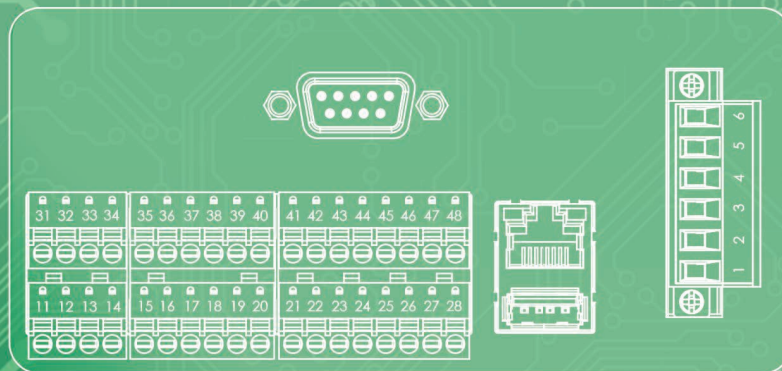
CMC TECHNOLOGIES

PTY LIMITED ACN: 085 991 224, ABN: 47 085 991 224

Engineering &
Industrial
Instrumentation

Phone: +61 2 9669 4000
Fax: +61 2 9669 4111
Email: sales@cmctechnologies.com.au
Web Site: <http://www.cmctechnologies.net.au>

Unit 19, 77 Bourke Road,
Alexandria, NSW, 2015
AUSTRALIA



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 electronical 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)
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■ 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 output and quantity) 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
	PB									Profibus DP Slave via external DIN rail module
	PN									Profinet Slave via external DIN rail module
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