PMH-3 Pressure Module

The *PMH-3* is a highly accurate differential pressure module that provides pressure and airspeed data over a digital RS-485 data interface. The *PMH-3* uses a silicon based pressure sensor with microprocessor based signal compensation over the full temperature range.

The standard version is fully temperature-compensated down to -55°C, power-up is guaranteed above -40°C. With the optional heater, the PMH-3 can power-up at temperatures below -40°C and operate reliably at temperatures below -55°C.

Key Features

- Small, robust, simple
- Silicon differential pressure sensor with high accuracy and low drift
- RS-485 half-duplex data interface, suitable for use in high-noise environments on long cables
- Compatible with Swiss-Airdata line of Air Data Systems
- Fully temperature compensated from -55°C .. +80°C
- Heated version available for low-temperature operation below -55°C
- Very low transport delay
- Easy configuration of output rate, digital filters, baud-rate via maintenance software

Typical Application

- Air Data
- Flight Testing
- UAV, Drones
- Meteorological Applications
- High-Altitude Balloons
- High-Altitude Pseudo Satellites

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Performance

	Value	Details
Pressure Range	±16 hPa dif (~95 KCAS) ±30 hPa dif (~135 KCAS) ±75 hPa dif (~210 KCAS) ±150 hPa dif (~295 KCAS)	
Accuracy	0.1% Full Scale [1] 0.2% Full Scale [1]	For all versions except the ±16 hPa range For the ±16 hPa range
Temperature Range (without heater)	-40°C..+80°C -55°C..+80°C -55°C..+80°C	Power Up Operating Storage
Output Rate	100, 50, 25, 20, 10, 5, 1Hz	Alternatively, the output can be triggered by sending a command
Transport Delay	10ms + (1000ms/rate) + (0.24ms x labels)	Valid at 460'800bps Example at 100Hz, 2 data labels activated: 10ms + (1000ms/100 Hz) + (0.24 x 2) = 20.5ms
Resolution	24 bit	at pressure level
Units	Pa, hPa, kPa, psi, inHg, mmHg m/s, km/h, kts, mph, ft/min m/s, km/h, kts, mph, ft/min	Pressure Speed Rate
Data Labels	Differential pressure (Qc) Calibrate airspeed (CAS)	
Media Compatibility	Clean Air	Non-condensing and non-corrosive gases

Mechanical

	Value	Details
Mass	0.080kg 0.090kg	Standard Version Heated Version
Dimensions (LxWxH)	59 mm x 29 mm x 41.5 mm	excluding connector and pressure fitting
Pressure Fitting	Ø4 mm ID tube	

Electrical

	Value	Details
Interface	RS-485 Half-Duplex	USB via FTDI converter cable
Power Supply	7..36 VDC 22..32 VDC	Standard Version Heated Version
Power Consumption	9 V: 40 mA 28 V: 15 mA	Standard Version or heater disabled
Baud-Rate	57'600 bps 115'200 bps 230'400 bps 460'800 bps	
Connector	Binder 711/4P 09-0082-32-04	PIN-1: Power Input PIN-2: Common Ground PIN-3: RS-485 B PIN-4: RS-485 A

Heated Version

With the optional internal heater, the PMH-3 can power-up at temperatures below -40°C and operate reliably at temperatures below -55°C. The internal heater is temperature controlled.

The heating only switches on at very low temperatures and is fully regulated so that it maintains the internal temperature of the pressure module above -55°C, ensuring proper operation even in adverse external conditions. If the temperature inside the pressure module is above -35°C the heater power is swiched off completely. The actual heating power used below the -35°C may vary between 0% and 100% of the maximum available power for the given supply voltage.

If the heated *PMH-3* is powered up below -40°C it may take some time until the internal temperature reaches the -40°C that is required for a proper start up.

The table below is applicable only for the heated version of the *PMH-3* (*SIM-BF8-A48-rrrHPA-DIF-HTD*).

Table 1. Maximum Available Heating Power

Supply Voltage	Max. Heater Power	Details
32VDC	21W (660mA)	
28VDC	16W (580mA)	Nominal supply voltage
24VDC	12W (500mA)	
22VDC	10W (450mA)	

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Ordering Information

Part-Number	Acronym	Details
SIM-A6C-55D-rrrHPA-DIF	*PMH-3*	Standard version
SIM-A6C-55D-rrrHPA-DIF-HTD	*PMH-3*	Heated version, for very low temperature application

Table 2. Ordering Code for Range of Pressure

rrr	Range	Details
16	±16 hPa	~95 KCAS
30	±30 hPa	~135 KCAS
75	±75 hPa	~210 KCAS
150	±150 hPa	~295 KCAS

Contact Information

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[1] Accuracy is the sum of repeatability, hysteresis, thermal effects in the specified temperature range, the calibration is traceable to DAkkS.