



## FEATURES

- UNIVERSAL INPUT, 5 kHz, CAN POWER THE SENSOR
- NO NEED OF AMPLIFIERS OR LINEARIZERS
- SEVEN DIGIT RATE WITH PROGRAMMABLE DECIMAL PLACES
- THREE SEVEN DIGIT TOTALS WITH PROGRAMMABLE DECIMAL PLACES. ONE NON-RESETTABLE, TWO RESETTABLE
- SINGLE KFACTOR OR 10 POINT CALIBRATION CURVE
- KFACTORS FROM 0.001 TO 9,999,999
- MILLILITERS, LITERS, GALLONS, CUBIC FEET, CUBIC METERS, ACRE FEET PER SECOND, PER MINUTE, PER HOUR, PER DAY
- ISOLATED 12 BIT ANALOG 4-20 mA PASSIVE OUTPUT
- ISOLATED NO POLARITY 100V/100mA DC/AC OUTPUT THAT CAN BE PROGRAMMED TO BE:
  - RATE ALARM, HIGH OR LOW
  - BATCH OUTPUT WITH A START INPUT
  - TOTAL LIMIT FOR 1 TO 64 DAYS WITH A RESUME INPUT
  - PULSE OUTPUT, UP TO 480 PULSES PER MINUTE (METERING PUMPS)
  - PULSE OUTPUT, UP TO 500 Hz
- 64 DAYS DATALOGGER (TOTAL FOR EACH 24 HOURS)
- ALL SETTINGS STORED IN A NON-VOLATILE MEMORY
- SETTINGS LOCK/UNLOCK FOR SECURITY
- HIGH CONTRAST IN THE ENTIRE TEMPERATURE RANGE
- SIMPLE PROGRAMMING, SMALL SIZE

## APPLICATIONS

- FLOW RATE AND TOTAL MEASUREMENT AND CONTROL
- BATCH APPLICATIONS
- LIMITING THE TOTAL IN ANY ROLLING PERIOD OF 1 TO 64 DAYS, PROGRAMMABLE
- METERING PUMPS PRECISE CONTROL FOR DOSING APPLICATIONS
- SCADA



## DESCRIPTION

AH111 is a low power flow computer / totalizer with an universal input and a variety of outputs. It provides power for many types of sensors and accepts their signal to measure flow rate and total. AH111 has an isolated no polarity 100V/100mA DC/AC output that can be programmed to work as a rate alarm, high or low, with +/- 1 % hysteresis, batch, limit or pulse output. AH111 also has an isolated 12 bit analog 4-20 mA passive output that can be connected to SCADA, PLC or another control device.

Regardless of the type of the output chosen, AH111 stores up to 64 totals for each 24 hours that can be easily viewed on the liquid crystal display.

For better accuracy AH111 provides calibration curve capabilities for up to 10 points. In seconds the operator can switch between a single KFACTOR and the curve of up to 10 points.

The AH111 software implements a version of Our proprietary predictive/adaptive self-adjusting Digital filtering which provides extremely stable Reading at any input frequency plus very fast response to any change in the flow.

AH111 is the perfect solution for flow measurement and control applications that require high accuracy and reliability, high isolation, multi- functionality, small size, industrial grade performance and low maintenance.



## ABSOLUTE MAXIMUM RATINGS\*

Operating temperature	-20 °C to +70 °C The electronics system is industrial (-40 °C to +85 °C) and higher grade . The Liquid Crystal Display (LCD) limits the temperature range.
Power supply voltage	40 VDC
Voltage for the analog output	40 VDC
Sensor consumption	10 mA DC
Digital output current	100 mA DC/AC. Alarm, batch, limit or pulse output
Digital output voltage	100 V DC, 70V AC. Alarm, batch, limit or pulse output

\* NOTE: Stresses above those ratings may cause permanent damage to the device.

## CHARACTERISTICS

Parameter	Conditions	Min	Typical	Max	Units
Power supply	-20 °C to +70 °C	12		36	V DC
Input					
Voltage for the sensor	-20 °C to +70 °C, max 10 mA, Note 1		10		V DC
Threshold, low	Wave or logical signal (CMOS, TTL etc.)		1		V DC
Threshold, high	Wave or logical signal (CMOS, TTL etc.)		1.4		V DC
Coil voltage	Symmetrical signal from the coil (sine, triangle, saw etc)	20			mVpp
NAMUR, low threshold	-20 °C to +70 °C, Powered by GF C111, Note 2		1		mA DC
NAMUR, high threshold	-20 °C to +70 °C, Powered by G FC111, Note 2		2.1		mA DC
Reed switch current	-20 °C to +70 °C, Powered by GFC 111, Note 2			3.5	mA DC
Frequency, HF	Note 7		5 000		Hz
Frequency, MF	Note 7		1 000		Hz
Frequency, LF	Note 7		200		Hz
Analog Output					
Power supply	-20 °C to +70 °C, Note 3	9.5		36	V DC
Resolution	-20 °C to +70 °C, 9.5 – 36 V		4		uA
Error	250 ohm load, 24 V, 25 °C, Note 4			0.05	% FS
Power supply error	9.5-36V, no load, output disabled, 25 °C			0.5	uA/V
Temperature coefficient	-20 °C to +70 °C, 24 V		35		ppm/ °C
Current, output disabled	SET20 = 0.0, 24 V DC supply, 25 °C		3.85		mA
Digital Output					
Output ON resistance	-20 °C to +70 °C, 100 mA			8	ohm
Output OFF leakage	-20 °C to +70 °C, 100 V DC			5	nA
'Low', pulse rate	Note 5			480	p/min
'Low', pulse duration	Note 5		62.5		ms
'Low', pause duration	Note 5	62.5			ms
'High', pulse rate	Note 6			30,000	p/min

Note 1: When powering a 3 wire sensor like open drain/collector pnp/npn sensor. For 2 wire sensors the current is automatically limited when powered by AH111.

Note 2: If the 2 wire sensor uses external power, the external voltage must be 10 V DC or less.

Note 3: The minimum voltage for the 4-20 mA output to operate is  $V = 9.5 + R \text{ load [ohm]} * 0.020$  [V DC]

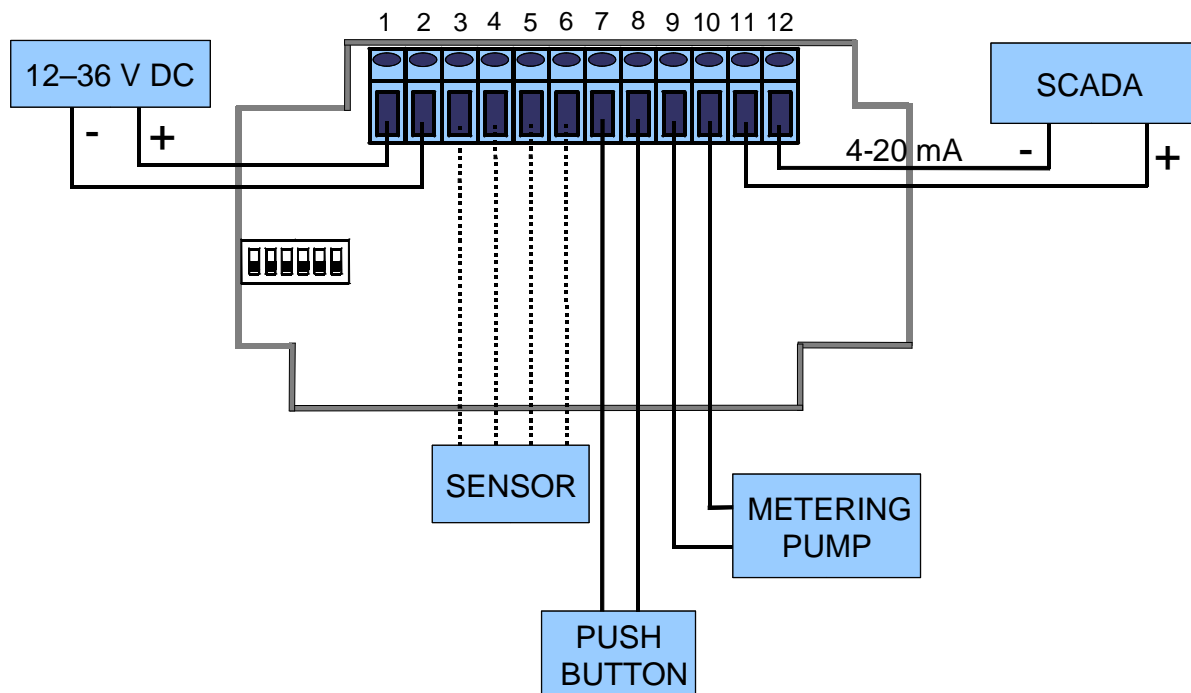
## APPLICATION

### ❖ ELECTRICAL

The wiring diagram is shown below.

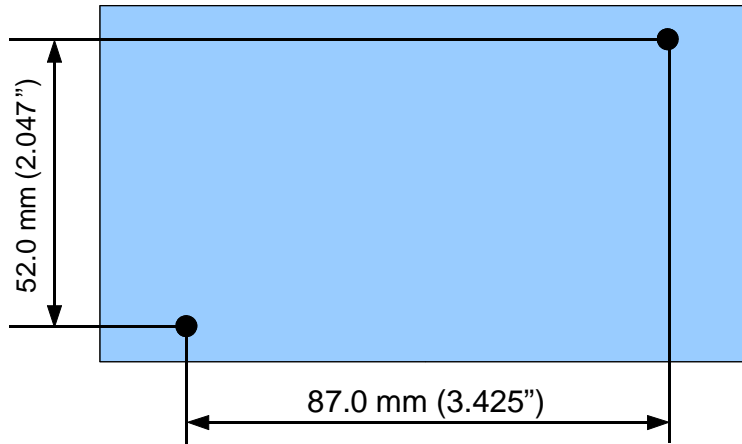
NOTE: There is no isolation between the sensor input, the power supply and the push button input. Terminals 2, 5 and 8 are shorted inside the device. It is the user's responsibility to consider this fact and implement appropriate wiring in the user's specific application.

- 1 – Power supply plus
- 2 – Power supply minus
- 3 – Power for the sensor, plus
- 4 – Signal/Coil
- 5 – Power for the sensor, minus
- 6 – Coil, only
- 7 – Push button plus
- 8 – Push button minus
- 9, 10 – Digital output, no polarity
- 11 – Analog output plus
- 12 – Analog output minus



## MECHANICAL

Mounting AH111 on a wall requires an area of 120 x 65 mm (4.73 x 2.56 inches) and two screws:



NOTE: The cable grips and the cables need additional space

## ORDERING

For ordering please use the following G Instruments part numbers:

Description	G Instruments PN
AH111 flow computer without power supply (external isolated 12 – 36 V DC needed)	30401
AH111 flow computer without power supply, lid only, no enclosure	30192
AH111 flow computer with GPS115 (115 VAC power supply)	30402
AH111 flow computer with GPS220 (220 VAC power supply)	30403
AH111 flow computer with GPS122 (85-264 VAC power supply)	30229