



RS-232 BAROMETER

RS232-TENKI



DESCRIPTION

This RS-232 device provides an on-board barometer for excellent measurement of atmospheric pressure, and, optionally, an external temperature and humidity sensor connected through a 4-screw terminal. Variations in air pressure, and optionally the temperature and humidity values, are transmitted to a computer via a standard RS-232 connection port. The RS232-TENKI is robustly built for harsh environments. It's circuitry is protected using a layer of silicon for superior resistance against dust, corrosion and humidity. The power input is reverse polarity proof and a 15 kV circuitry protects the RS-232 connection against high-voltage transients.

This product uses a simple ASCII communication protocol that can be very easily implemented using most programming languages. Download our detailed documentation using this link

https://www.dracal.com/wp-content/uploads/2021/01/rs232_tenki_p_sht_manual_en_r4.pdf

APPLICATIONS

- Meteorological measurements
- OEM integration
- Manufacturing
- Engineering
- Navigation
- Transport

DATA INTEGRATION

Command-line tools for direct data access and integration

SPECIFICATIONS			
Parameter	Condition	Value	Units
Atmospheric pressure			
Operating pressure range	–	15 to 115	kPa
Over pressure	Max.	400	kPa
ADC resolution	–	10	bits
resolution		±0.1	kPa
Accuracy	-40°C to 70°C 15 to 115 kPa	±1.5	%
Response time	t63%	2	ms
Factory temperature compensation	–	-40 to 70	°C
External temperature (option)			
Sensor type	SHT15	–	°C
Temperature range ^[2]	–	-40 to 125	
Humidity range	Non-condensing	0 to 100	%RH
Cable length	Max. , shielded	8	m
Power supply			
Supply voltage	Nominal	12	Vdc
Supply voltage ^[3]	Min., max	7, 17	Vdc
Current consumption	At 12 V	≅18	mA
External sensor voltage		5	V
External sensor current ^[4]		1 to 100	mA

SPECIFICATIONS			
Parameter	Condition	Value	Units
Communication			
Protocol		ASCII	
Communication parameters		9600, 8, 1, None, None	
Connector type		RS-232, DB9-F, DCE	
RS-232 cable		Not included	
RS-232 input voltage	Min., max.	-25 to 25	V
RS232 output voltage	Min., typ.	5, 5.4	V
Housing			
Dimensions	Approx.	2.75 L x 1.70 W x 0.925 H	
Colour	–	Black	–
Weight	–	48	g
Temperature operating range	–	-40 to 70	°C
Humidity operating range ^[1]	Non-condensing	10 to 90	%RH
Material	–	ABS	–
IP rating	–	50 ^[1]	–

^[1] If water condensation or splashing is possible, protect the sensor and the cable converter using extra precautions. Extra housing may be required depending on the application.

^[2] External temperature and humidity ranges depend on the materials used for the sensor's assembly.

^[3] The overvoltage protection starts acting above 18v.

^[4] The external sensor output is typically used to supply voltage to a SHTxx type sensor with a current draw of less than 1mA.

TERMINAL BLOCKS PIN-OUT

Silk screen reference	Function
Power supply terminal block 2-pin	
+++	Positive terminal
---	Negative terminal
External sensor terminal block 4-pin	
GND	External sensor negative terminal
VCC	External sensor positive terminal
SCL	Clock signal for external sensor
SDA	Data signal for external sensor



Terminal blocks

RS-232 PIN-OUT

DB9 Pin	Signal name	Type
2	RXD	Output
3	TXD	Input
5	Signal GND	N/A



RS-232 Connector

CAUTION: Keep in mind that electromagnetic interferences (EMI) may adversely reduce the precision of the sensor. Avoid using this unit close to EMI sources such as or, transformers, high voltage and fluorescent light.

NOTE: This product is not waterproof and must be protected if contact with water is possible. If the probe is inadvertently splashed or submerged in water for a few seconds, unplug the unit, shake it up and let it dry.

TIP: The barometer is very sensitive to air pressure. The use of a USB extension cable may increase the barometer precision if you intend to read small variations of pressure. If you directly plug the barometer to a PC, remember that through the USB connector, a small pressure or vacuum from the PC fan(s) may slightly deviate your readings.

TIP: Avoid installing the sensor in a location where considerable vibrations may be present. Large vibrations can introduce extra inaccuracy in the pressure readings.

TIP: As for any precision measurement equipment, it is advised to power on the unit at least 5 minutes before using it.

AVAILABLE CHANNELS

(Consult the product manual for detailed information)

CHANNEL ID*	DESCRIPTION	TYPE	NATURE
1	P, Atmospheric pressure (kPa)	Pressure	Real
2	Ta, Temperature (SHTxx)	Temperature	Real
3	U, Relative humidity (SHTxx)	Humidity	Real
4	Td, Dew point	Dew point	Virtual

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Warning: This product is not designed for use in, and should not be used for, human applications.

Note: While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions.

Note: Data may change without notification, and you are strongly advised to obtain copies of the most recently issued datasheet.

ORDERING

PRODUCT(S)

PART NUMBER	OPTION	DESCRIPTION
601007	RS232-Tenki	RS-232 Atmospheric pressure sensor

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