9600/1200 BPS USB HART MODEM
(Preliminary)

Smart Embedded Systems (SES), Inc., a Silicon Valley Company, is producing the industry's first Dual speed HART® USB modem. SES, one of the pioneers in firmware based modems, has developed a very compelling and cost effective, patented dual speed Modem technology/solution for Industrial Automation applications. Our USB modem design is incompliance (registration pending) with HART "C8PSK and FSK Physical Layer Specifications" as defined in HART 6 Specification. With our 9600 bps modem, we support the Industry standard HART Communication Protocol (HART Stack 7.0) while offering at least 5 times the number of packets per second as well as the current FSK 1200 bps.

Features:

- 9600/1200BPS USB HART Modem
- 1500 VRMS Electrical Isolation between HART and USB circuits
- USB 1.1 and 2.0 compatible
- Integral standard USB type "A" connector
- Integral heavy duty HART Mini grabber connectors
- Certified to meet HART Physical Layer Spec **HCF_SPEC-60 and HCF_SPEC-54**
- USB powered, no external power supply or batteries needed
- Universal – works will all registered HART devices
- 36" (inches) USB cable length
- Easy to install Virtual Serial Port for any Windows-based application
- Compact size 3.14" x 2.0" x 1.37" (80mm x 51mm x 35mm)
- Rugged ABS plastic enclosure
- Custom cable lengths on request
- HART Modem Test Program included
- Fieldcomm Group Registration (pending)
- CE Compliance (pending)
- 1 Year warranty

HART C8PSK (9600) Modem Characteristics

- Coherent 8 Phase Shift Keying (PSK) Bits per symbol : 3 bits
- 8 Symbols per HART C8PSK Specifications
- Carrier Frequency : 3200Hz. ±1%
- Data Rate: up to 9600 BPS
- Supports Normal Analog Wiring

HART FSK Modem Characteristics

Binary Frequency Shift Keying Bits per symbol:

Mark = 1200Hz; Space = 2200Hz ±1%

Data Rate: 1200 BPS

Supports Normal Analog Wiring

Enclosure

Material   High strength ABS Plastic
Dimensions   3.14" x 2.0" x 1.37" (81mm x 51mm x 37mm)
Total Unit Weight 3 oz. (85 g)

Cables

HART Cable Length 4 feet (1.2 m) with Mini-Grabber style connectors
USB Cable Length 36 inches (0.9 m)
USB Cable Connector USB Type A

HART

Interface	Capacitive and transformer coupling
Output	600 mVpp
Leakage	< 10 uA
Isolation Voltage	1500 VRMS
Connections	Across loop resistor or HART device
Specifications	HART 4, HART 5, HART 6, HART 7, HART Physical Layer Spec HCF_SPEC-60 HCF_SPEC-54
Fieldcomm Group	Registration Pending

Computer

Operating System   Windows
                                        7, 8, 10

USB

Specifications   USB 1.1, USB 2.0
Power   USB port provides
                                power to unit
Current Draw   20mA

Environmental

Operating Temperature 0^0C to 50^0C
                                (32^0F to 122^0F)

Storage Temperature -40^0C to 85^0C
                                (-40^0F to 185^0F)
Humidity   0% to 99% (non-Condensing)

Compliances

CE Certification   Pending

Applications:

A. Process control and factory automation
B. Temperature sensors
C. Flow transmitters
D. Level transmitters
E. Pressure transmitters

SES has been awarded five patents related to its soft modem technology

for HART devices: 9106488, 9184965, 9203665, 9281978 and 10153928.

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