

Smart Embedded Systems (SES)

HART-IP Advanced Physical Layer (APL) Small Form factor Surface Mount Module

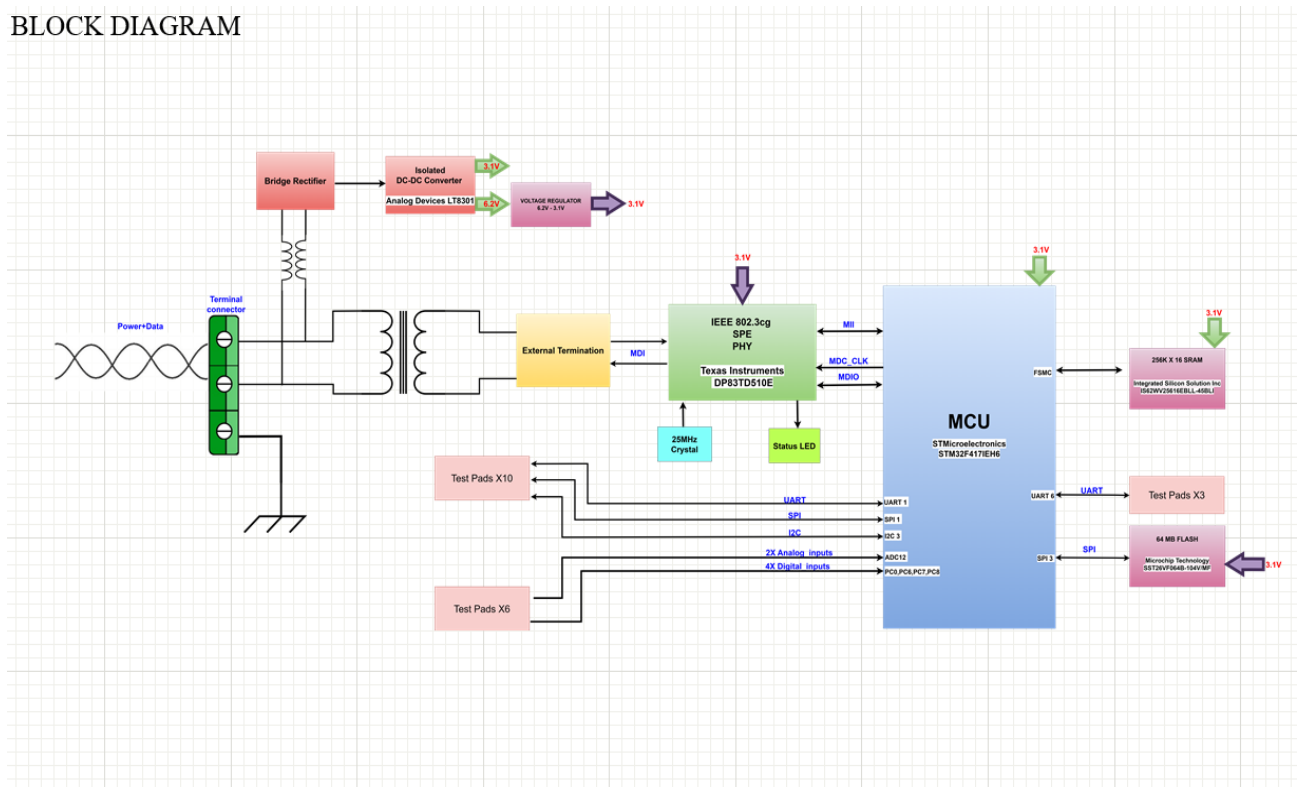
(Preliminary)

HART-IP based APL module makes it easier to convert your existing HART transmitters to support APL interface and reap the benefits of a connected Field Device. If you are a HART Transmitter manufacturer and considering to migrate your design to APL, SES APL module can be an easy migration path for your existing designs and SES can help you with the migration. The hardware design can be customized, and firmware can be modified for the customer's features. SES can also provide design help to develop FDI package for the APL transmitter designs.



HART-IP Transmitter

BLOCK DIAGRAM



Product features:

- Loop Powered from an SPAA port (0.54W maximum)
- Module size 44mm x 30 mm.
- Low power consumption design to be suitable for with Intrinsic Safety designs.
- Serial Port available for HART interface to connect to existing HART Transmitters
- Can easily convert existing HART Transmitters to APL.
- Can act as HART Gateway/Bridge or as a HART-IP Transmitter or mimic the connected HART device.
- Design will use T1L Physical layer chip from Texas Instruments DP83TD510E.
- Implemented with STM32F417 ARM Cortex M4 processor with 1 MB Flash for program memory.
- External Analog I/O for connections to external sensors or PGA
- Serial TX/RX provided for external HART or MODBUS devices.
- I2C and SPI flash are available for device logs, FDI package and other necessary data.
- Secure Intelligent Firmware update for reliable operation
- HART-IP with recommended secure Protocols supported.
- Upgradable to the other protocols such as ProfiNet and Ethernet-IP (in the works)
- Small Form surface mountable module

Specifications

- Module size 44mm x 30 mm.
- Designed for harsh environments (Temperature -40C to +85C)
- Designs will incorporate IS design principles for safety including supplementary insulation where required.
- Maximum Power 540 milli Watts
- Available Power for Sensors circuits: 100- 135 milli watts
- Designed compliant to following EMC test standards below. **Test results are pending.**
 - IEC 61000-4-4 electrical fast transient (EFT) (± 4 kV)
 - IEC 61000-4-2 ESD (± 4 kV contact discharge)
 - IEC 61000-4-2 ESD (± 8 kV air discharge)
 - IEC 61000-4-6 conducted immunity (10V/m)
 - IEC 61000-4-3 radiated immunity (Class A)
 - EN55032 radiated emissions (Class B)

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