TaskScript Fact Sheet: TaskIT Current Loop Network Sensor

Currrent loop sensor with native integration into the IP network, through its Ethernet Interface. Operates as Web Client, sending data to the server for easy integration into host network: can take its own IP address from DHCP and has no problems with firewalls.
Provided with basic behavior (i.e. collect N different 4-20mA Current inputs, takes moving average over time and sends to server every minute);
Measuring range: maps 4.0 to 20.0 mA analog input range to 0 to 4000 digital range (resolution: 4 µA)
Can be ModBUS Slave or Master, through its RS-485 interface; Can access local I/O, both analog and digital.
Behavior can be changed through its Development System (PC based) using its powerful Model-Based language: TaskScript. No coding is required!

Built with a standard TaskIT controller TS87J60-ETH-USB, integrated with a specific Analog Front End daughter board.

The basic logic, implemented in the standard version supports the following behavior:

- Collects the Current loop readings over the 5 channels and converts them into digital values, in oversampling fashion
- Continuously computes Moving Average and decimates, to reach 4 µA resolution
- Sends readings to remote server (URL is configurable) once a minute.

Analog front end designed for 2 wire interface Current Loop, with current limiter. Detection of open loop (reading < 0) and sensor short circuit (reading > 4000).

More sophisticated behavior can be implemented at factory upon Customer request; furthermore customers can build their own behavior using the TaskScript Model Based graphical language. The IDE supports development of applications in graphical mode, with textual programming. A powerful debug utility is available, supporting both the design phase (i.e. when no periphery is available) through simulation and the in-field phase, where the real signals are exchanged with the physical periphery.

The controller comes with 40 I/Os, 1 SPI port and one extra serial interface (USB). For more detail about using those resources within the BLE Base station application please look up the fact sheet of the TS87J60-ETH-USB controller.

With respect to the internet architecture, the Base station operates in Client role, sending advertisement data in the Query string sent along with the GET. In this way the node can be placed within any private network with no security risks; the Base station can have its own fixed IP address, or can use a DHCP provided address with no configuration need at network level.

Main Technical Characteristics

Power supply	24 V DC (I < 200 mA) via 3.5 screw connector(powers both the device and the 5 current loop transducer)
Power	< 5 W
Case	DIN rail, 4U horizontal, with 3.5 screw or connectors
Digital I/O	Up to 24
Fast Timers - counters	Up to 2 inputs (f <= 3MHz)
USB port for development and for serial interface in production	1 USB-B connector
Ethernet port	1 RJ45 connector
SPI	1 internal port, both master and slave
TCP-IP features	Unique MAC address; supports both static and dynamic IP, from local DHCP – application configurable
HTTP features	Both Web server and client role; data sent via GET query string, i.e. http://<url>/prog.php?Id=123&D1=234&D2=345..
Sensor features	5 channels; Optimized for 4-20mA. 4 µA resolution, range 0 to 4000. Decimated sample rate >= 1s/sec
Current Loop features	Powers transducer via 2 wires loop (high voltage = 20 V, current limited) – 3 wires connection is also allowed