LONMARK®
Functional Profile: Analog Input
Overview

The Analog Input functional profile is designed to allow all general purpose analog signals to be represented by a common object. Analog Input signals include current (i.e. 4 - 20 ma), voltage, thermocouple, RTD, etc. These signals may actually represent measurements such as flow rate, temperature, capacity, pressure, etc. The Analog Input functional profile is used when integrating devices that do not have the ability to interface directly to LONWORKS, but rather utilize an analog input conversion device that is LONMARK compliant.

![Analog Input Functional Profile](image)

**Figure 1.1 Analog Input Functional Profile**

Example Usage

Devices implementing this function will be sending out SNVTs that are used to control actuator devices. An example of this would be a device controlling value position is monitoring SNVT_lev_percent from a flow meter. The only connectivity required is to the mandatory network variable SNVT_lev_percent.

Object Details

![Analog Input Object Details](image)

**Figure 1.2 Analog Input Object Details**
Mandatory Network Variables

**Analog Percent of Full Scale Output**

```c
network output SNVT_lev_percent nvoAnalog;
```

This input network variable provides a value of an analog input signal from -163.84% to 163.84% of full scale.

**Valid Range**

The valid range is from -163.84% to 163.84%.

**When Transmitted**

Time of transmission is manufacturer defined.

**Update Rate**

The maximum update rate is application specific.

**Default Service Type**

The default service type is acknowledged.

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**Configuration Properties**

None specified.

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**Data Transfer**

None specified.

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**Power-up State**

The network variable `nvoAnalog` should be set to zero scale until the first reading is available.

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**Boundary and Error Conditions**

If the A/D converter is not able to perform then the variable `nvoAnalog` should be set to negative full scale (-163.84%). This value should be interpreted as an invalid reading and that there is a problem with the sensor. For inputs that are below zero scale or above full scale, the variable `nvoAnalog` should track the input signal as far as the hardware will permit. If the input signal is below the electrical limits of the A/D converter, the value for `nvoAnalog` should be set to -163.83%. Any input
that is above the maximum input rail of the A/D converter should be represented as 163.84%.

**Additional Considerations**

If calibration or linearization are required, or if the variable `nvoAnalog (SVNT_lev_percent)` does not have the required resolution, please review the Extended Analog Input functional profile.