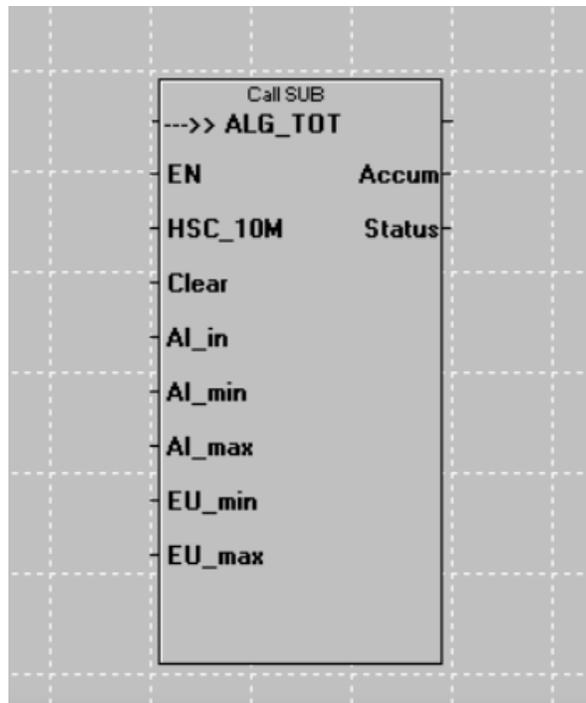


Analog Totalizer
ALG_TOT
User-Defined Function Block (UDFB)

Description:

This UDFB functions as an Analog Totalizer. This is a common requirement for applications where fluid volume needs to be totalized, and an analog sensor is used for liquid flow. It is not used in applications using a pulse type flow sensor.

The UDFB has an incoming and outgoing power rail, 8 Inputs and 2 Outputs. The incoming power rail should be connected to an ALW_ON contact so it is always executed. The Inputs and Outputs are described as follows:



Inputs

En – Enable (BOOL)

The Enable Signal allows totalizing to occur. When EN is FALSE, the UDFB Accumulator remains at its current value. When EN is TRUE, the UDFB Accumulator is allowed to accumulate.

HSC_10M (UDINT)

This is a variable that is tied to the Accumulator in a High-speed Counter which is configured for Totalizing in Internal mode using the 10MHz Clock. This variable should be memory mapped to the appropriate register in the OCS depending on the HSC in use. For example, %AI401 as a UDINT is the default memory location for the Accumulator in High-speed Counter #1 in an XL4. See the User's Manual for your OCS model to determine the proper %AI Accumulator register.

Inputs (continued)

Clear (BOOL)

The Clear input sets the Accumulator to 0. While the Clear input is TRUE, the Accumulator will remain at a value of 0

AI_in (INT)

This is the analog input that is the analog source for the totalizer. It typically would be memory mapped directly to the %AI register for the OCS analog input.

AI_min (INT)

This is the minimum decimal value for the analog input. For a typical OCS built-in analog input configured for a range of 0-10V or 4-20mA, this would typically be a value of 0.

AI_max (INT)

This is the maximum decimal value for the analog input. For a typical OCS built-in analog input configured for a range of 0-10V or 4-20mA, this would typically be a value of 32,000.

EU_min (REAL)

This is the minimum floating-point value in Engineering Units for the analog input. This is most typically 0. For instance, for a liquid flow sensor measuring 0-1000 gal/min, the **EU_min** value would be 0.

EU_max (REAL)

This is the maximum floating-point value in Engineering Units for the analog input. For instance, for a liquid flow sensor measuring 0-1000 gal/min, the **EU_max** value would be 1000.

Outputs

Accum – Accumulator (LREAL)

This is the Accumulator of the Analog Totalizer expressed as a LREAL double-precision floating point value. It most typically represents liquid volume scaled to Engineering Units. For instance, in an application with an analog flowmeter measuring gallons/minute, the Accumulator will represent liquid volume in gallons.

Status (INT)

The Status output provides feedback to the application as to the state of the UDFB. If the UDFB is Enabled (EN = TRUE), the Status value will be 0 decimal. If the UDFB is NOT Enabled (EN = FALSE), the Status value will be -1 decimal.