

Function blocks for *WIN*bloc analog modules

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FC100

Function block for scaling analog input values

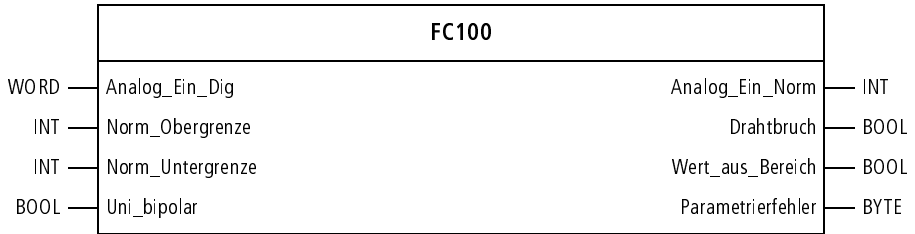


Figure1: Function block FC100

Specification of operands

Name	Specification
Inputs	
Analog_Ein_Dig	Digital input value
Norm_Obergrenze	Specification of upper limit for scaling, i.e. upper limit of measuring range.
Norm_Untergrenze	Specification of lower limit for scaling, i.e. lower limit of measuring range.
Uni_bipolar	unipolar at Bit = 0, bipolar at Bit = 1
Outputs	
Analog_Ein_Norm	Scaled analog input value
Drahtbruch	Wire break at Bit =1
Wert_aus_Bereich	Established analog input value is outside the measuring range.
Parametrierfehler	Parameter fault: The analog input value is above the upper limit for scaling or below the lower limit for scaling.

Specification

This function block is used for the transformation (scaling) of digitalised analog input values into process relevant analog input values.

A 12 Bit-analog input value „Analog_Ein_Dig“ (measuring range: 0 to 4096 Bit) is transformed into input values „Analog_Ein_Norm“ depending on the corresponding application (measuring range: e.g. 0 to 25 000 rpm; -10/0 to 10 V DC; 0/4 to 20mA). A reference between the corresponding upper and lower limits is established.

The measurement can be done either unipolar (0 to 25 000 rpm) or bipolar (-10/0 to 10 V DC).

The upper and lower limits of the process relevant input values provide the upper and lower limits for scaling (e.g. Norm_Obergrenze = 25 000 rpm; Norm_ Untergrenze = 0 rpm).

Apart from the transformation of the digitalised analog input value the device also indicates a wire break and a parameter fault. Furthermore, a Bit is set when the scaled analog input value is outside the measuring range.

FC101

Function block for the digitalisation of scaled analog output values

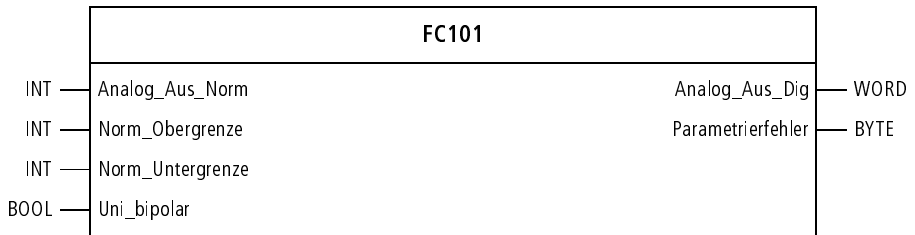


Figure2: Function block FC101

Specification of operands

Name	Specification
Inputs	
Analog_Aus_Norm	Scaled analog output value
Norm_Obergrenze	Specification of upper limit for scaling, i.e. upper limit of measuring range.
Norm_Untergrenze	Specification of lower limit for scaling, i.e. lower limit of measuring range.
Uni_bipolar	unipolar at Bit = 0, bipolar at Bit = 1
Outputs	
Analog_Aus_Dig	Digitalised analog output value
Parametrierfehler	Parameter fault: The digitalised analog output value is above the upper limit for scaling and below the lower limit for scaling.

Specification

The function block is used for the digitalisation of scaled analog output values, i.e. the transformation of process relevant analog output values into digitalised output values.

A process relevant output value „Analog_Aus_Norm“ (measuring range: e. g. 0 to 25 000 rpm; -10/0 to 10 V DC; 0/4 to 20mA) is digitalised, i.e. transformed into a 12 Bit-analog output value „Analog_Aus_Dig“ (measuring range: 0 to 4096 Bit). A reference between the corresponding upper and lower limits is established.

The measurement can be done either unipolar (0 to 25 000 rpm) or bipolar (-10/0 to 10 V DC).

The upper and lower limits of the process relevant input values provide the upper and lower limits for scaling (e.g. Norm_Obergrenze = 25 000 rpm; Norm_ Untergrenze = 0 rpm).

FC102

Function block for scaling analog input values

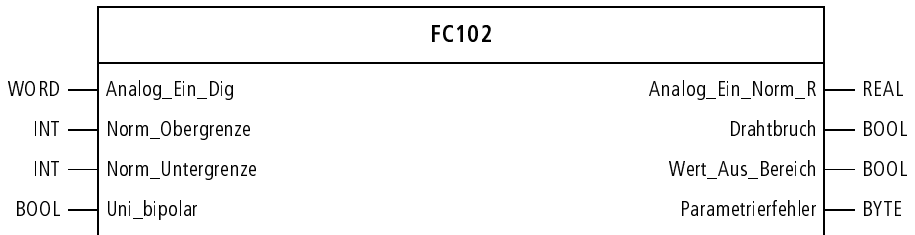


Figure3: Function block FC102

Specification of operands

Name	Specification
Inputs	
Analog_Ein_Dig	Digital input value
Norm_Obergrenze	Specification of upper limit for scaling, i.e. the upper limit of the measuring range.
Norm_Untergrenze	Specification of lower limit for scaling, i.e. lower limit of measuring range.
Uni_bipolar	unipolar at Bit = 0, bipolar at Bit = 1
Outputs	
Analog_Ein_Norm_R	Scaled analog input value
Drahtbruch	Wire break at Bit=1
Wert_aus_Bereich	Established analog input value is outside the measuring range.
Parametrierfehler	Parameter fault: The analog input value is above the upper limit for scaling or below the lower limit for scaling.

Specification

This function block is used for the transformation (scaling) of digitalised analog input values into process relevant analog input values. The output of the scaled analog output values is executed in the REAL data format.

A 12 Bit-analog input value „Analog_Ein_Dig“ (measuring range: 0 to 4096 Bit) is transformed into input values „Analog_Ein_Norm_R“ depending on the corresponding application (measuring range: e.g. 0 to 25 000 rpm; -10/0 to 10 V DC; 0/4 to 20mA). A reference between the corresponding upper and lower limits is established.

The measurement can be done either unipolar (0 to 25 000 rpm) or bipolar (-10/0 to 10 V DC).

The upper and lower limits of the process relevant input values provide the upper and lower limits for scaling (e.g. Norm_Obergrenze = 25 000 rpm; Norm_ Untergrenze = 0 rpm).

Apart from the transformation of the digitalised analog input value the function block also indicates a wire break and a parameter fault. Furthermore, a Bit is set when the standardised analog input value is outside the measuring range.

FC103

Function block for the digitalisation of scaled analog output values

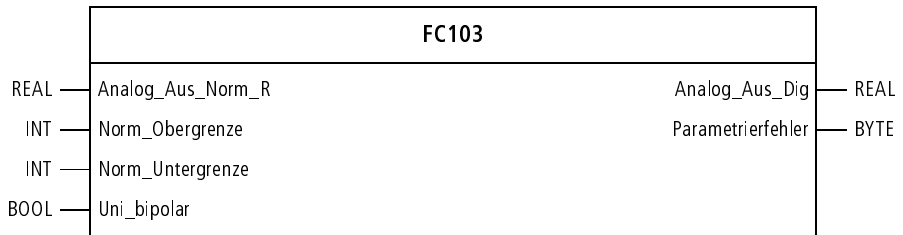


Figure4: Function block FC103

Specification of operands

Name	Specification
Inputs	
Analog_Aus_Norm_R	Scaled analog output value
Norm_Obergrenze	Specification of upper limit for scaling, i.e. upper limit of measuring range.
Norm_Untergrenze	Specification of lower limit for scaling, i.e. lower limit of measuring range.
Uni_bipolar	unipolar at Bit = 0, bipolar at Bit = 1
Outputs	
Analog_Aus_Dig	Digitalised analog output value
Parametrierfehler	Parameter fault: The digitalised output value is above the upper limit for scaling or below the lower limit for scaling.

Specification

This function block is used for the digitalisation of scaled analog output values, i.e. the transformation of process relevant analog output values into digitalised output values. The specification of the scaled analog output values is executed in REAL data format.

A process relevant output value „Analog_Aus_Norm_R“ (measuring range: e. g. 0 to 25 000 rpm; -10/0 to 10 V DC; 0/4 to 20mA) is digitalised, i.e. transformed into a 12 Bit-analog output value „Analog_Aus_Dig“ (measuring range: 0 to 4096 Bit). A reference between the corresponding upper and lower limits is established.

The measurement can be done either unipolar (0 to 25 000 rpm) or bipolar (-10/0 to 10 V DC).

The upper and lower limits of the process relevant input values provide the upper and lower limits for scaling (e.g. Norm_Obergrenze = 25 000 rpm; Norm_Untergrenze = 0 rpm).

FC104

Function block for scaling digitalised input values for Thermo modules

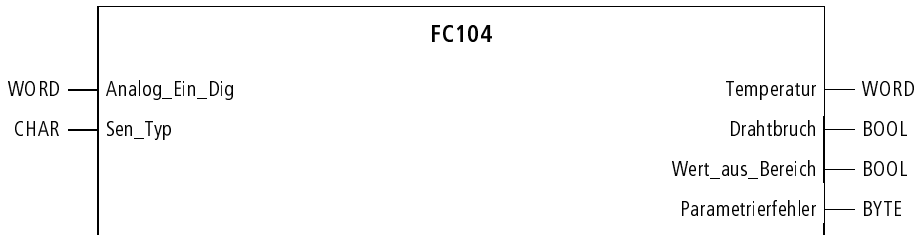


Figure5: Function block FC104

Specification of operands

Inputs	Specification
Analog_Ein_Dig	Digital input values
Sen_Typ	Selection of sensor type: P = PT100 K = Thermo element Type K J = Thermo element Type J R = Thermo element Type R S = Thermo element Type S T = Thermo element Type T N = Thermo element Type N E = Thermo element Type E B = Thermo element Type B
Outputs	
Temperatur	Established temperature
Drahtbruch	Wire break at Bit = 1
Wert_aus_Bereich	Established temperature value is outside the measuring range of the specified sensor.
Parametrierfehler	Parameter fault (incorrect specification of sensor type) at Bit 0 = 1

Specification

This function block is used for the transformation of a digitalised analog input value „Analog_Ein_Dig“ into a temperature specification in °C „Temperatur“ whereas these are calculated in dependence from the applied sensor type „Sen_Typ“. The function block shows a wire break and a possible parameter fault. Furthermore, a Bit is set when the value range of the Thermo element is exceeded or below specification, i.e. when a digitalised value is shown on the analog input which is outside the measuring range of the Thermo element.



The established temperature value for the sensor type PT100 is represented with a pre-decimal place. A value of 1005 corresponds with a temperature of 100,5°C.