

# **PROGRAM DESCRIPTION**

## **G4**

**Program: G4MI\_101.0.117.0**

This description is valid for:

**G4 Multi Channel Force Instrument** with application program **101.0.117.0**

See also the following descriptions

**G4 Multi Channel Force Instrument, Technical Manual PM/DT/HE/RM**

([www.vishaypg.com/doc?35148](http://www.vishaypg.com/doc?35148))

If these descriptions in any case are contradictory, this description is valid.

## Function

### Input error functionality

If one transducer is broken, the corresponding input will report an error and the display will show the error indication and no calculated values. In the communication, the error code register for the function block will indicate the error and the status register for the function block will indicate which input that has the initial error.

In order to make it possible to still run the system, the value that should be produced by the faulty transducer is replaced by the value of 'nearest' (hopefully working) transducer. Even if the display only shows the error indication and no values, the values sent to the communication lines (serial and fieldbus) and on the possible analogue outputs will be the replaced (simulated) values. The level supervision functionality will also work with the replaced (simulated) values.

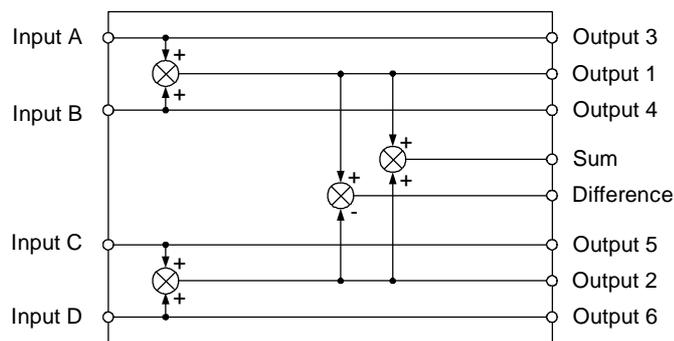
Normal error and status registers in the communication will show if and what errors are detected. If no communication is used an possible error is detected by configuring an digital output as an 'In Process' output. If any error this output will be deactivated.

The 'Input Error Functionality' works with two and four channel function blocks. It allows one transducer (or input) in each pair (A-B or C-D) to be faulty in order to substitute the faulty value with the value from the other input in the pair. If two transducers in one pair is faulty no substitution will occur.

If any substitution is made, this will be indicated in the status register for the function block

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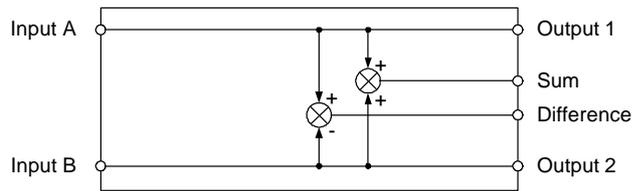
### Examples. Four channel function block.



If input C is faulty the value is replaced by input D which means that input C and output 5 will have the same value as input D and output 6, and the value of output 2 will in fact be two times input D value.

One transducer in each pair (A – B and C - D) can be faulty and will be substituted by the other.

**Example.** Two channel function block.



If input A is faulty the value is replaced by input B which means that input A and output 1 will have the same value as input B and output 2, and the value of output Sum will in fact be two times input B value (the value of output Difference will be 0).

### Function Block Status Register

Status for a Function Block.

One bit (bit 5) has been added to indicate if an input is substituted.

Bits set to 1 in this register have the following meaning:

Bit no	Function	Comment
0	Input A faulty	There are an error on Input A. See 'Block X: Error code'.
1	Input B faulty	There are an error on Input B. See 'Block X: Error code'.
2	Input C faulty	There are an error on Input C. See 'Block X: Error code'.
3	Input D faulty	There are an error on Input D. See 'Block X: Error code'.
4		
5	Input Substituted	One (or possible two in a 4-channel function block) input is substituted with the value from the nearest input.
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