



Supplement to Operating Instructions

MG3 Digital - ZS2 Connection with Process Field Bus (Extended Functions)

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Version : 1.0

Order number

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Versions		
Version	Date	Basis of Revision
1.0	2005-03	new

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1 General Information

 Information	<p>This supplement contains additional designations for the operation of the MG3D.</p> <p>It is a unit with the operating instructions MG3D..</p>
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2 Reading Measurement Points from a Graphical Measuring Waveform

Through the CANopen – protocol MGD provides the opportunity to read single test points of a measuring waveform directly. Theoretically every measuring waveform can be read completely from the unit, but this is recommended only if the unit works in laboratory and there is enough time between two subsequent measurements. It is just possible to read the waveform with lower sample rate or read only a specified time interval to optimize transmission time.

During upload of the test points a new measurement should be prohibited to be sure that waveform characteristics as well as status information will not get corrupted.

The following table shows all necessary parameters and values of the according CANopen protocol.

Index	Subidx	Description	Access	Map	Data Type
0x2102		Test point Channel 1	-	-	RECORD
	0	Number of Parameters	ro		UINT8
	1	Quantity (19 - I, 20 - U, 7 - s3, 8 - F, 9 - p)	rw		UINT8
	2	Index (Number of test points in waveform 0..DataMax - 1)	rw		UINT16
	3	DataMax (Total number of waveform points)	ro		UINT16
	4	SampleTime (Waveform in μ s)	ro		UINT16
	5	Value (Absolut value of test point)	ro		REAL
	255	Object information	ro		UINT32
0x2103		Test point Channel 2	-	-	RECORD
	0	Number of parameters	ro		UINT8
	1	Quantity (19 - I, 20 - U, 7 - s3, 8 - F, 9 - p)	rw		UINT8
	2	Index (Number of test points in waveform 0..DataMax - 1)	rw		UINT16
	3	DataMax (Total number of waveform points)	ro		UINT16
	4	SampleTime (Waveform in μ s)	ro		UINT16
	5	Value (Absolut value of test point)	ro		REAL
	255	Object information	ro		UINT32

Before test points of a measuring waveform could be read it is mandatory to write the parameters *Quantity* and *Index*.

Quantity specifies the physical type and *Index* the selected test point of the waveform array, starting with zero. After writing the parameter *Quantity* the information *DataMax* and *SampleTime* are available for read-back. These parameters provide information about the number of measuring points of the waveform as well as the time interval between 2 measuring points in μsec .

After receiving status information the parameter index could be written starting from 0 to $\text{DataMax} - 1$ in user-defined intervals. Subsequently the content of *Value* could be read.



Info

If the parameter *Index* was written out of valid range, the content of *Value* is a hexadecimal number 0x7F800000, which is not a valid floating-point number! Therefore it is indispensable to check the content of *Value* on these byte sequence, before executing other floating-point operations (assignment, calculation, ...). Otherwise floating-point exceptions could occur in your application!

After all required points of the measuring waveform have been read, the parameter *Index* could be written again to repeat the described procedure for the next measuring waveform.

If the parameter *Index* is written with an invalid value, an error message for range violation will be caused and the default value 19 (current waveform) will be set.

To read a defined time interval, the beginning and the end of the interval can be calculated like in the following formula:

$$\text{Index}_{\text{Interval_beginning}} = \text{Interval_beginning} [\mu\text{sec}] / \text{SampleTime},$$

$$\text{Index}_{\text{Interval_end}} = \text{Interval_end} [\mu\text{sec}] / \text{SampleTime}.$$