

WDGA encoder with SAE J139 Field configuration and error register

Dokument: **UL_WA**
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Field configuration:

For field configuration the **PGN 0xEF00** (proprietary A) is used.

Parameter	PGN	DLC	Data							
			Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
Cycle timer and position preset	0xEF00	8	0x01	0xFF	Cycle timer		Position preset			
					(LSB)	(MSB)	(LSB)	(MSB)
Cycle timer only	0xEF00	8	0x01	0xFF	Cycle timer		0xFF	0xFF	0xFF	0xFF
					(LSB)	(MSB)				
Position Preset only	0xEF00	8	0x01	0xFF	0xFF	0xFF	Position preset			
							(LSB)	(MSB)
Software reset	0xEF00	8	0xAA	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF
Set ECU address	0xEF00	8	0x04	New Addr.	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF
Set bitrate	<i>Implementation pending. Default is autobit detection. For fixed setting request customization.</i>									
Set MUPR	<i>Implementation pending. Fixed setting according to order code and/or customization.</i>									
Set TMR										

Example 1: Set cycle timer to 1000ms (0x03E8) , DA: encoder ECU address 0x0A, SA 0x01;
CAN-ID: 0x18EF0A01; DLC=8; Data = 0x01 0xFF 0xE8 0x03 0xFF 0xFF 0xFF 0xFF
New value will be effective immediately.

Example 2: Set Position to 0x00000000 , DA: encoder ECU address 0x0A, SA 0x01;
CAN-ID: 0x18EF0A01; DLC=8; Data = 0x01 0xFF 0xFF 0xFF 0x00 0x00 0x00 0x00
New value will be effective immediately.

Example 3: Set encoder ECU address to 0x0B , DA: encoder ECU address 0x0A, SA 0x01;
CAN-ID: 0x18EF0A01; DLC=8; Data = 0x04 0x0B 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF
New ECU address effective after reset/power unless address claiming procedure fails.

Process data:

For the encoder process data the **PGN 0xFF00** (proprietary B) is used.

The default data mapping is a 32bit position value (Byte0...Byte3) + a 8bit error register (byte4)

For customization of the PNG and/or process data mapping please contact our technical support. Other process data could be for example a 16bit speed value or a 8bit cam register etc.

i **Position value:**

The 32bit position value gives the current angular position within the total measuring range (TMR). The TMR is defined by the measuring units per revolution (MUPR, aka single turn resolution) multi-plied by the number of distinguishable revolutions (NODR, aka multi turn resolution).

Example 1: WDGA 58B-10-1213-CJA-CB5 multiturn encoder

MUPR (singleturn) = $2^{12} = 4046$

NODR (multiturn) = $2^{13} = 8192$

□ TMR = $2^{(12+13)} = 2^{25} = 33554432$

Position value = 0x00000000...0x01FFFFFF with roll-over 0x01FFFFFF □□ 0x00000000

0x00000000...0x00000FFF = first revolution

0x0x00001000...0x0x00001FFF = second revolution

etc.

Example 2: WDGA 36-06-1000-CJA-CB5 singleturn encoder

MUPR (singleturn) = $2^{10} = 1024$

NODR (multiturn) = $2^0 = 1$

□ TMR = $2^{(10+0)} = 2^{10} = 1024$

Position value = 0x00000000...0x000003FF with roll-over 0x0x000003FF □□ 0x00000000

Customized non-binary settings are also available on request, since this can't be represented by our standard order code. Please contact our technical support.

Example:

MUPR = 360

NODR = 10

□ TMR = 3600

Position value = 0x00000000...0x00000E0F with roll-over 0x0x00000E0F □□ 0x00000000

0x00000000...0x00000167 = first revolution

0x0x00000168...0x0x000002CF = second revolution

etc.

Attention: Position value is a continuous value within the TMR. There is no padding to separate the MUPR (singleturn) and NODR (multiturn) into a separate bytes.

i **Error Register:**

The error byte is identical to the CANopen error register (x1001-0):

Bit 0: Generic error

Bit 3: temperature out of tolerance

Bit 4: Communication error

Bits 1,2,5,6,7: not used

Autobit detection:

When powered up, the encoder will enter “autobit detection”, indicated by the red and green flickering of the status LED. In this state the encoder will listen passively on the CAN bus for any valid communication to detect the correct bitrate. Depending on the actual bitrate this might take a view valid messages to receive. When detection was successful the encoder will send its NAME PGN to claim its ECU address and starts transmitting the process data if the address claiming succeeded.

For a fixed bitrate setting, please contact our technical support for customization.