

WV36M/CAN

**Absolute Rotary Encoder with CAN interface
SAE J1939**

User manual

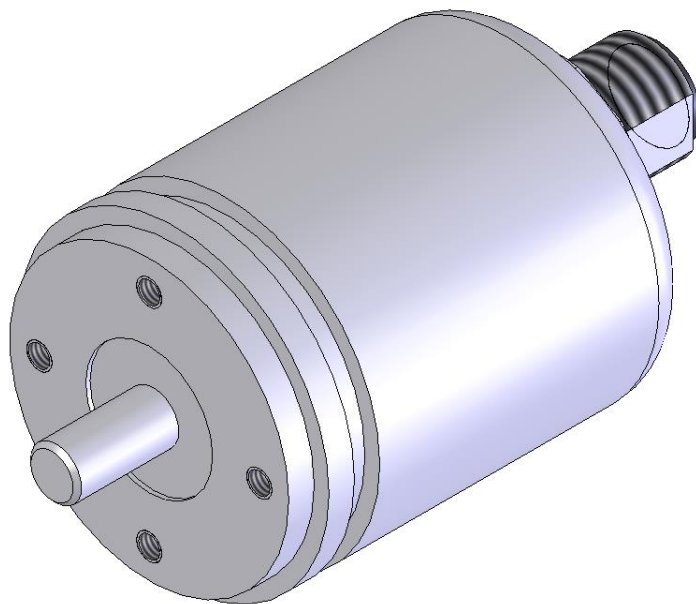


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1 PGN Default Definitions

Repetition Rate	50 ms
Baud rate	250 k (Default)
Node ID	32
Positive Counting Direction	Clockwise (looking down at shaft)
Velocity Filter	On
Termination Resistor	Off

1.1 Position Data, PGN 61184

Data Page	0
PDU Format	255 (0xFF)
PDU Specific	170 (0xAA)
Data Length	8 bytes

1.2 Encoder Message

Byte	Description
Byte 1	Encoder Absolute Position – Byte 1 (LSB)
Byte 2	Encoder Absolute Position – Byte 2
Byte 3	Encoder Absolute Position – Byte 3
Byte 4	Encoder Absolute Position – Byte 4 (MSB)
Byte 5	Encoder Velocity – Byte 1 (LSB) - Steps/sec
Byte 6	Encoder Velocity – Byte 2- Steps/sec (MSB)
Byte 7	Byte Container 1 – constant
Byte 8	Byte Container 2 – constant

1.3 Encoder Cyclic Message

Identifier	CAN Data	Description
18FFAA20	4E B8 64 0A 0F 02 00 00	Bytes 1 – 4: Encoder absolute position 0x0A64B84E = 174372942 Bytes 5 – 6: Encoder speed 0x020F = 527 rpm Byte 7 – 8: constant

2 Read Definitions

Identifier	CAN Data	Description
18EA20XX	01 EF 00 XX XX XX XX XX	Read request direction of rotation
18EF0020	01 00 00 00 00 00 00 00	Encoder response Index 01 direction of rotation = 0x0000 =CW
18EA20XX	02 EF 00 XX XX XX XX XX	Read request steps per revolution
18EF0020	02 00 10 00 00 00 00 00	Encoder response Index 02 resolution = 0x00001000 = 4096 steps/revolution
18EA20XX	03 EF 00 XX XX XX XX XX	Read request total resolution
18EF0020	03 00 00 00 80 00 00 00	Encoder response Index 03 total resolution = 0x80000000 = 2147483648 steps
18EA20XX	04 EF 00 XX XX XX XX XX	Read request Offset Value
18EF0020	04 00 00 00 00 00 00 00	Encoder response Index 04 Preset = 0
18EA20XX	05 EF 00 XX XX XX XX XX	Read request cycle time
18EF0020	05 32 00 00 00 00 00 00	Encoder response Index 05 PGN 65450 cycle time (position, speed, diagnosis) = 0x0032 = cyclic communication 50 ms
18EA20XX	07 EF 00 XX XX XX XX XX	Read request baud rate
18EF0020	07 04 00 00 00 FF FF FF	Encoder response* Baud rate 0x04 = 250 kBaud
18EA20XX	08 EF 00 XX XX XX XX XX	Read request encoder address
18EF0020	08 20 00 00 00 FF FF FF	Encoder response Address/Node ID 0x20 = 32
18EA20XX	09 EF 00 XX XX XX XX XX	Read request termination resistor
18EF0020	09 00 00 00 00 FF FF FF	Encoder response Termination resistor off

3 Write Definitions

Identifier	CAN Data	Description
00EF20XX	01 00 00 00 00 XX XX XX	Index 01 direction of rotation = 0x0000 =CW
00EF20XX	02 00 10 00 00 XX XX XX	Index 02 resolution = 0x00001000 = 4096 steps/revolution
00EF20XX	03 00 00 00 20 XX XX XX	Index 03 total resolution = 0x20000000 = 536870912 steps
00EF20XX	04 00 00 00 00 XX XX XX	Index 04 Preset = 0
00EF20XX	05 00 00 00 00 XX XX XX	Index 05 PGN 65450 cycle time (position, speed, diagnosis) = 0x0000 = cyclic communication stopped
00EF20XX	07 03 00 00 00 XX XX XX	Baud rate 0x03 = 125 kBaud*
00EF20XX	08 20 00 00 00 XX XX XX	Address/Node ID 0x20 = 32

Identifier	CAN Data	Description
00EF20XX	09 00 00 00 00 XX XX XX	Termination resistor = off
00EF20XX	FA 73 61 76 65 XX XX XX	Save parameter with Reset
00EF20XX	FC 6C 6F 61 64 XX XX XX	Restore factory settings with save and reset

4 Parameter Index Definitions

4.1 Parameter Index 01 – Counting Direction

Data Type	Unsigned 16
Access	ReadWrite
Default	0 = CW
Function	Counting Direction
Values	Bit 0 direction of rotation 0 ⇒ CW, clockwise 1 ⇒ CCW, counter-clockwise

4.2 Parameter Index 02 – Resolution

Data Type	Unsigned 32
Access	ReadWrite
Default	0x00001000 = 4096 steps/revolution
Function	Steps per Turn
Values	>4096 and must be equal to 2 ⁿ

4.3 Parameter Index 03 – Total Range

Data Type	Unsigned 32
Access	ReadWrite
Default	0x80000000 = 2147483648 steps
Function	Resolution/turn * # of turns
Values	Must be equal to 2 ⁿ

4.4 Parameter Index 04 – Preset

Data Type	Unsigned 32
Access	ReadWrite
Default	0
Function	Allows the zero point to be set at a current position
Values	0

4.5 Parameter Index 05 – Cyclic Timer

Data Type	Unsigned 16
Access	ReadWrite
Default	50 (50 ms)
Function	Cyclic Timer
Values	0 ⇒ Stop Cyclic Transmission n ⇒ Frequency of Cyclic Transmission (n*ms)

4.6 Parameter Index 07 – Baud rate

Data Type	Unsigned 16	
Access	ReadWrite	
Default	0x04 = 250 kBaud	
Function	Set baud rate	
Values	Baud rate in kBit/s	Byte
	20	00h
	50	01h
	100	02h
	125	03h
	250	04h
	500	05h
	800	06h
	1000	07h

4.7 Parameter Index 08 – NodeID

Data Type	Unsigned 8
Access	ReadWrite
Default	32
Function	Change NodeID
Values	1 - 126

4.8 Parameter Index 09 – Termination Resistor

Data Type	Unsigned 8
Access	ReadWrite
Default	0
Function	Cyclic Timer
Values	1 ⇒ On 0 ⇒ Off

4.9 Parameter Index FA – Save

Data Type	Unsigned 32
Access	Write
Default	FA 73 61 76 65 XX XX XX
Function	Save Current Settings and Reset Encoder
Values	FA 73 61 76 65 XX XX XX

4.10 Parameter Index FC – Restore

Data Type	Unsigned 32
Access	Write
Default	FC 6C 6F 61 64
Function	Restore to Factory Settings
Values	FC 6C 6F 61 64

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