AAM 38F
USER MANUAL

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Document information
Revised
06/2024 - Template updated
12/2018 - Template updated
06/2016 - First release

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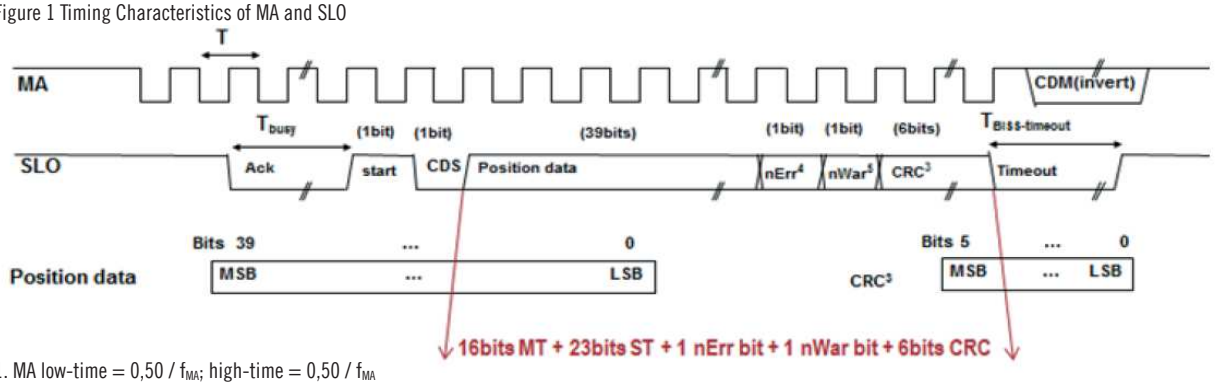
BISS-C TIMING DIAGRAM

Parameter	Symbol	Value			Unit	Note
		Min	Typical	Max		
MA frequency	f_{MA}	0,08	–	10	MHz	1
Busy	T_{busy}	2 / f_{MA} + 3,35 µs	–	2,5 / f_{MA} + 3,75 µs	µs	2
Timeout	$t_{Biss\text{-}timeout}$	1,5 / f_{MA}	–	1,5 / f_{MA} + 90 ns	ns	2

Figure 1 Timing Characteristics of MA and SLO



1. MA low-time = 0,50 / f_{MA}; high-time = 0,50 / f_{MA}
2. Refer to Figure 1 for timing description
3. CRC Polynomial = Invert of (X6 + X1 + X0)
4. nErr bit is active low. (Combine all the Error Status and reflect in nERR bit)
5. nWar bit is active low. (Combine all the Warning Status and reflect in nERR bit)
6. After encoder initialization duration of 500 ms upon power-up, perform an alarm clear command before starting to interface with the encoder.

REGISTER COMMUNICATION AND ASSIGNMENT

Refer to the BiSS-C Interface Protocol Description document for detailed information.
http://biss-interface.com/download/biss-c-protocol-description-english/

MEMORY MAP (NON-VOLATILE MEMORY)

There are a total of 10 register banks user areas (register bank 0 to register bank 9) that are accessible by users.
The memory data is kept in nonvolatile memory.

BiSS-C		Remarks
Bank	Address	
0	00 ...3Fh	User area
1	00 ...3Fh	
2	00 ...3Fh	
3	00 ...3Fh	
4	00 ...3Fh	
5	00 ...3Fh	
6	00 ...3Fh	
7	00 ...3Fh	
8	00 ...3Fh	
9	00 ...3Fh	
–	40h	Bank selection
	48 ... 77h	Slave Register (Refer to the Slave Register Description – user area)

Note: EDS bank is not available.

SLAVE REGISTER DESCRIPTION

Address 72 (0x48) - Error status [7...0]

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
NA			MLSErr Error	Multi-turn Counting Error	Single-Turn Counting Error	MemoryErr Error	XCErr Error

Address 73 (0x49) - Warning status [7...0]

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
NA						LisErr Warning	LEDErr Warning

Address 74 (0x4A) - Encoder Clear Command

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
NA				Warning clear command*	Error clear command*	Single-turn clear command*	Multi-turn clear command*

* Encoder Clear Command operation
a. Write 1 to execute one time clear command
b. Only one command should be accessed for each time

ALARM DEFINITION

N	Alarms	Alarms definition
1	XCErr Error	To indicate multi-turn block hardware miscount 1 = Hardware miscount occur 0 = No hardware miscount
2	MemoryErr Error	To indicate eeprom content loading status upon encoder power up 1 = Fail to load EEPROM memory data 0 = Success to load EEPROM memory data
3	Single-turn Counting Error	To check integrity of single-turn position 1 = Error in single-turn position 0 = No error in single-turn position
4	Multi-turn Counting Error	To check integrity of multi-turn position 1 = Error in multi-turn position 0 = No error in multi-turn position
5	MLSErr Error	To detect error in MLS (Mcode) generation 1 = MLS code error 0 = MLS code good
6	LedErr Warning	To indicate if LED current is out of operating range 1 = LED out of operating range 0 = LED within operating range
7	LisErr Warning	To check integrity of ADC Sin & Cos signals by means of Lissajous specifications 1 = Lissajous out of specification 0 = Lissajous within specification

NOTE: After encoder initialization duration of 500 ms upon power-up, perform an alarm clear command before starting to interface with the encoder.

GENERAL INSTALLATION NOTES

The transducer must be used in accordance with its specifications. It is a precision measuring instrument and not a safety device.

Personnel responsible for mounting and commissioning the device must be qualified and carefully follow installation instructions.
It is strongly recommended to avoid any mechanical or electrical modifications for safety reasons. Any modifications will void the warranty.

To ensure proper functioning, avoid subjecting the device to stress or impact.

Ensure that the mechanical coupling of the transducer is designed as specified in the technical datasheet and that the product is installed according to the instructions provided.

Additionally, check that the operating environment is free from corrosive agents (such as acids) or substances that are incompatible with the device and its IP rating.

Ensure the device is properly grounded. If necessary, provide an additional external connection.

Products with variant codes (a number or combination of numbers after ".") may have different mechanical, electrical, or connection requirements than standard products. Please refer to the additional documentation.

Installation and wiring should only be performed by trained personnel in a POWER-OFF condition.

To prevent short-circuits, insulate any unused wires at varying lengths. Do not connect unused pins on the connector.

Before switching on, verify the voltage range applicable for the device.

Place power and signal cables in a way that avoids capacitive or inductive interferences that may cause device malfunction.
Also, keep the transducer cable far from power lines or any other cable with high noise levels.

The user who integrates the transducer into their appliance must comply with CE/UKCA regulations and is responsible for marking the end machine/device.

Failure to observe these usage and installation precautions may void the warranty.

Eltra disclaims any liability for damages or injuries resulting from non-compliance with these directives.

The products should be stored in their original packaging in a dust-free, dry and temperature-regulated location that is free from chemical influences or mechanical shock/vibrations.

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