Object ID	Name	Access T	Deafult Value	Data Type
0x1000	DEVICE TYPE	M RO	0x00020196	UINT32
0x1001	ERROR REGISTER	RO	0x00	UINT8
0x1008	MANUFACTURER DEVICE NAME	RO	AEM_58B10_S18M12	STRING 16
0x1009	MANUFACTURER HARDWARE VERSION	RO	HW_01.01	STRING 8
0x100A	MANUFACTURER SOFTWARE VERSION	RO	SW_01.01	STRING 8
0x1010	STORE PARAMETERS	M RO	1	UINT8
0x1011	RESTORE PARAMETERS	M RW	1	UINT8
0x1018	IDENTITY OBJECT	M RO	4	UINT8
0x10F1	ERROR SETTINGS	RO	2	UINT8
0x10F3	DIAGNOSIS HISTORY	RO	5	UINT8
0x10F8	TIMESTAMP OBJECT	RO P	0	UINT32
0x1600	1ST RECEIVE PDO MAPPING	RO	6	UINT8
0x1A00	1ST TRANSMIT PDO MAPPING	RW	4	UINT8
0x1A01	2ND TRANSMIT PDO MAPPING	RW	3	UINT8
0x1C00	SYNC MANAGER COMMUNICATION TYPE	RO	4	UINT8
0x1C12	SYNC MANAGER 2 PDO ASSIGNMENT	RW	2	UINT16
0x1C13	SYNC MANAGER 3 PDO ASSIGNMENT	RW	1	UINT16
0x1C32	SYNC MANAGER 2 SYNCHRONIZATION	RO	32	UINT8
0x1C33	SYNC MANAGER 3 SYNCHRONIZATION	RO	32	UINT8
0x2000	ENCODER INPUTS	RO	0	UINT8
0x2002	SPEED CALCULATION CONFIGURATION	RO	6	UINT8
0x6000	OPERATING PARAMETERS	M RW	0	UINT16
0x6001	COUNTS PER REVOLUTION	M RW	262144	UINT32
0x6002	TOTAL MEASURING RANGE	M RW	1073741824	UINT32
0x6003	PRESET VALUE	M RW	0	UINT32
0x6004	POSITION VALUE	M RO P	0	UINT32
0x6030	SPEED VALUE	RO	1	UINT8
0x6500	OPERATING STATUS	RO	0x0000	UINT16
0x6501	SINGLE TURN RESOLUTION	RO	262144	UINT32
0x6502	PHYSICAL NUMBER OF TURNS	RO	4096	UINT16
0x6503	ALARM STATUS	RO P	0x0000	UINT16
0x6504	ALARMS SUPPORTED	RO	0x0000	UINT16
0x6505	WARNING STATUS	RO P	0x0000	UINT16
0x6506	WARNINGS SUPPORTED	RO	0x0000	UINT16
0x6507	VERSION OF SW AND PROFILE	RO	0x04010101	UINT32
0x6508	OPERATING TIME (X0.1HOURS)	RO	0	UINT32
0x6509	INTERNAL OFFSET	RO	0	UINT32
0x650A	MODULE IDENTIFICATION	RO	3	UINT8
0x650B	SERIAL NUMBER	RO	product specific	UINT32

DEVICE TYPE				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x1000	DEVICE TYPE	M RO	0x00020196	UINT32

The device type and device profile applied are determined by this object.

bits[0:15]	0196h = 406 (CiA profile)
bit[16:31]	0001h = Single-turn absolute rotary encoder

ERROR REGISTER				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x1001	ERROR REGISTER	RO	0x00	UINT8

Bit[0]	Generic error	1h : error given	
		0h : no error	
Bit[4]	Communication error	1h : error given	
		0h : no error	
Bit[7]	Manufacturer specific error	1h : error given	
		0h : no error	

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

MANUFACTURER DEVICE NAME				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x1008	MANUFACTURER DEVICE NAME	RO	AEM_58B10_S18M12	STRING 16

The device name for the manufacturer is AEM_58B10_S18M12, which consists of a 16-byte character string.

MANUFACTURER HARDWARE VERSION				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x1009	MANUFACTURER HARDWARE VERSION	RO	HW_01.01	STRING 8

Manufacturer Hardware Revision number version and sub version. It is 8 byte chars string

MANUFACTURER SOFTWARE VERSION				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x100A	MANUFACTURER SOFTWARE VERSION	RO	SW_01.01	STRING 8

Manufacturer Software Version number version and sub version. It is 8 byte char string.

OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x1010[0]	number of sub objects	M RO	1	UINT8
0x1010[1]	STORE PARAMETERS	RW	0	UINT32

Table title: **STORE PARAMETERS**

Stores all the parameters. In order to avoid storage of parameters by mistake, storage shall be only executed when a specific signature is written to the appropriate sub-index. The signature that shall be written is "save" (evas) : 65766173h. If a wrong signature is written, the device shall refuse to store.

OBJECT ID	Name	Access Type	Deafult Value	Data Type
RESTORE PARAMETERS				
0x1011[0]	number of sub objects	M RO	1	UINT8
0x1011[1]	RESTORE PARAMETERS	M RW	0	UINT32

Restores all the parameters. In order to avoid restoring of parameters by mistake, storage shall be only executed when a specific signature is written to the appropriate sub-index. The signature that shall be written is "load" (doal) : 64616F6Ch. If a wrong signature is written, the device shall refuse to restore.

IDENTITY OBJECT					
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**	**Description**
0x1018[0]	number of sub objects	M RO	4	UINT8	
0x1018[1]	Vendor ID	M RO	0x00000400h	UINT32	Assigned uniquely to manufacturers by etherCAT (for FENAC its 0x400)
0x1018[2]	Product Code	M RO	0x00007712h	UINT32	XXXXXXXXh = Fenac Product Code
0x1018[3]	Revision Number	M RO	0x00010003h	UINT32	SSSSHHHHh = Software & Hardware version
0x1018[4]	Serial Number	M RO	Product Specific	UINT32	Unique serial number

ERROR SETTINGS				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x10F1[0]	number of sub objects	RO	2	UINT8
0x10F1[1]	local error reaction	RO	0	UINT32
0x10F1[2]	Sync Error Counter Limit	RO	0	UINT32

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

OBJECT ID	Name	Access Type	Deafult Value	Data Type
	DIAGNOSIS HISTORY			
0x10F3[0]	number of sub objects	RO	5	UINT8
0x10F3[1]	maximum messages	RO	0	UINT8
0x10F3[2]	newest message	RO	0	UINT8
0x10F3[3]	newest acknowledge message	RW	0	UINT8
0x10F3[4]	new message available	RO P	0	UINT8
0x10F3[5]	flags	RW	0	UINT16

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

TIMESTAMP OBJECT				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x10F8	TIMESTAMP OBJECT	RO P	0	UINT64

The timestamp variable keeps the time in nano seconds since the device was turned on. Can count up to 18446744073709551615.

1ST RECEIVE PDO MAPPING					
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**	**DESCRIPTION**
0x1600[0]	number of sub objects	RO	6	UINT8	
0x1600[1]	1st receive pdo mapping	RO	0x20000108	UINT32	Setting the value to 1 runs the preset function and resets the 0x6004 Position Value to zero.
0x1600[2]	2nd receive pdo mapping	RO	0x20000208	UINT32	Reserved for Future Use
0x1600[3]	3rd receive pdo mapping	RO	0x20000308	UINT32	Reserved for Future Use
0x1600[4]	4th receive pdo mapping	RO	0x20000408	UINT32	Reserved for Future Use
0x1600[5]	5th receive pdo mapping	RO	0x20000508	UINT32	Reserved for Future Use
0x1600[6]	6th receive pdo mapping	RO	0x20000608	UINT32	Reserved for Future Use

PDO mapping objects are used to "map" other objects in subdirectories. What is meant by Receive (Rx) PDO is that the encoder actually receives data from the PLC. What is meant by Transmit (Tx) PDO is that the data is sent to the PLC by the encoder. This communication is done cyclically.

1ST TRANSMIT PDO MAPPING				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x1A00[0]	number of sub objects	RW	4	UINT8
0x1A00[1]	position_value_0x6004	RW	0x60040020	UINT32
0x1A00[2]	speed_value_0x6030	RW	0x60300110	UINT32
0x1A00[3]	alarm_status_0x6503	RW	0x65030010	UINT32
0x1A00[4]	warning_status_0x6505	RW	0x65050010	UINT32

PDO mapping objects are used to "map" other objects in subdirectories. What is meant by Receive (Rx) PDO is that the encoder actually receives data from the PLC. What is meant by Transmit (Tx) PDO is that the data is sent to the PLC by the encoder. This communication is done cyclically.

2ND TRANSMIT PDO MAPPING				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x1A01[0]	number of sub objects	RW	3	UINT8
0x1A01[1]	PDO object 1	RW	0x10F3:4, 1	UINT32
0x1A01[2]	PDO object 2	RW	0x6300:01, 8	UINT32
0x1A01[3]	PDO object 3	RW	0x6300:02, 8	UINT32

PDO mapping objects are used to "map" other objects in subdirectories. What is meant by Receive (Rx) PDO is that the encoder actually receives data from the PLC. What is meant by Transmit (Tx) PDO is that the data is sent to the PLC by the encoder. This communication is done cyclically.

	SYNC MANAGER COMMUNICATION TYPE			
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x1C00[0]	number of sub objects	RO	4	UINT8
0x1C00[1]	Sub index 001	RO	1	UINT8
0x1C00[2]	Sub index 002	RO	2	UINT8
0x1C00[3]	Sub index 003	RO	3	UINT8
0x1C00[4]	Sub index 004	RO	4	UINT8

Communication channel number and communication types can be accessed from this object. Communication channels are automatically configured upon startup of the EtherCAT master.

In EtherCAT communication, there are four main data structures used for transferring data between the master device and the slave devices: receive mailbox, send mailbox, receive Process Data Object (PDO), and transmit PDO.

Receive mailbox: A buffer or memory area in the slave device where incoming messages or data from the master device are stored.

Send mailbox: A buffer or memory area in the master device where outgoing messages or data to the slave devices are stored.

Receive PDO: A data structure used to transfer input data from the slave device to the master device. It is a fixed set of data that is transmitted at a fixed rate.

Transmit PDO: A data structure used to transfer output data from the master device to the slave device. It is a fixed set of data that is transmitted at a fixed rate.

The main difference between the receive/send mailbox and the receive/transmit PDO is the type of data they are used to transfer. The receive/send mailboxes are used to transfer arbitrary messages or data between the master and slave devices, while the receive/transmit PDOs are used specifically for transferring input and output data between the devices in a fixed format and at a fixed rate. Additionally, the receive/send mailboxes are typically used for communication between the master and slave devices during configuration and initialization, while the receive/transmit PDOs are used for real-time data exchange during normal operation.

1: Receive mailbox
2: Send mailbox
3: Receive PDO
4: Transmit PDO
(Transmit: Encoder transmits data and PLC receives.)
(Receive: PLC transmits data and Encoder receives.)

SYNC MANAGER 2 PDO ASSIGNMENT				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x1C12[0]	number of sub objects	RW	2	UINT16
0x1C12[1]	Sub index 001	RW	0x1600	UINT16
0x1C12[1]	Sub index 002	RW	0	UINT16

This object is used to allocate sync channel 2 for Receive Process Data Objects (RPDOs).

SYNC MANAGER 3 PDO ASSIGNMENT				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x1C13	SYNC MANAGER 3 PDO ASSIGNMENT	RW	1	UINT16

	SYNC MANAGER 2 SYNCHRONIZATION			
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x1C32[0]	number of elements	RO	32	UINT8
0x1C32[1]	synchronization type	RO	1	UINT16
0x1C32[2]	cycle time	RO	4064674	UINT32
0x1C32[3]	shift time	RO	0	UINT32
0x1C32[4]	synchronization types supported	RO	7	UINT16
0x1C32[5]	minimum cycle time	RO	125000	UINT32
0x1C32[6]	calc and copy time	RO	0	UINT32
0x1C32[7]	minimum delay time	RO	0	UINT32
0x1C32[8]	get cycle time	RW	0	UINT16
0x1C32[9]	delay time	RO	0	UINT32
0x1C32[10]	sync 0 cycle time	RO	0	UINT32
0x1C32[11]	sm event missed	RO	0	UINT16
0x1C32[12]	cycle time too small	RO	0	UINT16
0x1C32[13]	shift time too short	RO	0	UINT16
0x1C32[32]	sync error	RO	0	UINT8

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

OBJECT ID	Name	Access Type	Deafult Value	Data Type
SYNC MANAGER 3 SYNCHRONIZATION				
0x1C33[0]	number of elements	RO	32	UINT8
0x1C33[1]	synchronization type	RO	34	UINT16
0x1C33[2]	cycle time	RO	4064674	UINT32
0x1C33[3]	shift time	RO	0	UINT32
0x1C33[4]	synchronization types supported	RO	7	UINT16
0x1C33[5]	minimum cycle time	RO	125000	UINT32
0x1C33[6]	calc and copy time	RO	0	UINT32
0x1C33[8]	get cycle time	RW	0	UINT16
0x1C33[9]	delay time	RO	0	UINT32
0x1C33[10]	sync 0 cycle time	RO	0	UINT32
0x1C33[11]	sm event missed	RO	0	UINT16
0x1C33[12]	cycle time too small	RO	0	UINT16
0x1C33[13]	shift time too short	RO	0	UINT16
0x1C33[32]	sync error	RO	0	UINT8

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

	ENCODER INPUTS			
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x2000	Number of elements	RO	6	UINT8
0x2000[1]	sensor input byte 1	RW	0	UINT8
0x2000[2]	sensor input byte 2	RW	0	UINT8
0x2000[3]	sensor input byte 3	RW	0	UINT8
0x2000[4]	sensor input byte 4	RW	0	UINT8
0x2000[5]	sensor input byte 5	RW	0	UINT8
0x2000[6]	sensor input byte 6	RW	0	UINT8

sensor input byte 1 : Preset function request done when activated.

sensor input byte 2 : Preset value will be added to current position.

sensor input byte 3 : Preset value will be subtracted from the position.

sensor input byte 4 : RESERVED FOR FUTURE USE

sensor input byte 5 : RESERVED FOR FUTURE USE

sensor input byte 6 : RESERVED FOR FUTURE USE

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

OBJECT ID	Name	Access Type	Deafult Value	Data Type
SPEED CALCULATION CONFIGURATION				
0x2002	Number of elements	RO	6	UINT8
0x2002[1]	operation control	RW		
0x2002[2]	format measuring units	RW		
0x2002[3]	t1 update time in ms	RW		
0x2002[4]	t2 integration time in t1	RW		
0x2002[5]	upper limit warning in rpm	RW		
0x2002[6]	lower limit warning in rpm	RW		

OPERATING PARAMETERS						
OBJECT ID	Name	Access Type	Deafult Value	Data Type	DESCRIPTION	
0x6000	OPERATING PARAMETERS	M RW	0	UINT16	b[0] Code Sequence CW/CCW	value increases with the CW rotation.
						value increases with the CCW rotation.
					b[2] Scaling Enabler : It activates the parameters that adjust the resolution, such as 0x6001 and 0x6002.	0: Scaling function enabled.
						1: Scaling function disabled.

	COUNTS PER REVOLUTION			
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x6001	COUNTS PER REVOLUTION	M RW	262144 0x00040000h	UINT32

Measuring units per revolution. Counts change for every single turn. Can be set any value lower than TOTAL MEASURING RANGE object (0x6002h)

	TOTAL MEASURING RANGE			
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6002	TOTAL MEASURING RANGE	M RW	1073741824 0x40000000h	UINT32

Overall measurement range of the encoder (ST or ST+MT) .
Default value is 1073741824 which is 2 to the 30.

PRESET VALUE				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6003	PRESET VALUE	M RW	0	UINT32

The encoder is set to the desired position. This is usually used to equalize the zero position of the machine with the zero position of the encoder. After presetting, internal position value is assigned to offset object (0x6509h)

Click here to see 0x6509h

POSITION VALUE				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6004	POSITION VALUE	M RO P	0	UINT32

This object shall provide the output position value for the communication objects

SPEED VALUE				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6030	SPEED VALUE	RO P	0	INT16

The speed value is given as 16-bit signed data. Max +32767 Min -32768 values can be seen. The value in this object can be displayed in the formats

(CPS) counts per second,

(CP10ms) counts per 10 milliseconds,

(CP100ms) counts per 100 milliseconds,

(RPM) revolutions per minute,

(RPS) revolutions per second.

In the factory setting, the display is in RPM format. Therefore, if the displayed value is 60, it indicates that the shaft is rotating at 60 revolutions per minute. The display format can be changed using the 0x2002 object.

OPERATING STATUS				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x6500	OPERATING STATUS	RO	0x0000	UINT16

This object shall provide the operating status of the encoder. It gives information on encoder internal programmed parameters. This object gets its value from Operating Parameter (0x6000h)

To see Operating Parameter (0x6000h)

b[0] Code Sequence CW/CCW	0: The position value increases with the CW rotation.
	1: The position value increases with the CCW rotation.
b[2] Scaling Enabler : It activates the parameters that adjust the resolution, such as 0x6001 and 0x6002.	0: Scaling function enabled.
	1: Scaling function disabled.

SINGLE TURN RESOLUTION				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x6501	SINGLE TURN RESOLUTION	RO	262144	UINT32

Single-turn resolution and Measuring step. ST resolution of the encoder

PHYSICAL NUMBER OF TURNS				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6502	PHYSICAL NUMBER OF TURNS	RO	4096	UINT16

Number of distinguishable revolutions. MT resolution of the encoder

ALARM STATUS

OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6503	ALARM STATUS	RO P	0x0000	UINT16

Bit Field	Description	Device Support
0	Position error	0:OFF 1:ON
[1:11]	RESERVED	
12	EEPROM Error	0:OFF 1:ON
[13:15]	RESERVED	

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

ALARMS SUPPORTED				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6504	ALARMS SUPPORTED	RO	0x0000	UINT16

Bit Field	Description	Device Support
0	Position error	0 (Not Supported)
1	Comissining Diagnostics	0 (Not Supported)
[2:11]	RESERVED	
12	EEPROM Error	0 (Not Supported)
[13:15]	Manufacturer errors	0 (Not Supported)

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

WARNING STATUS				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6505	WARNING STATUS	RO P	0x0000	UINT16

Bit Field	Description	Device Support
0	Max Frequency / Rotational Speed out of range	0 (OFF)
1	LED current out of range	0 (OFF)
[2:11]	RESERVED	
12	Frequency / Rotational Speed out of range allowed	0 (OFF)
13	Temperature out of range	0 (OFF)
14	RESERVED	
15	Supply voltage out of range	0 (OFF)

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

WARNINGS SUPPORTED				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x6506	WARNINGS SUPPORTED	RO	0x0000	UINT16

Bit Field	Description	Device Support
0	Max Frequency exceeded	0 (Not Supported)
1	Min LED current reached	0 (Not Supported)
2	CPU watchdog status	0 (Not Supported)
3	Max Operation Time	0 (Not Supported)
4	Battery Low	0 (Not Supported)
5	Referance is not reached	0 (Not Supported)
[6:11]	RESERVED	
12	Frequency out of range	0 (Not Supported)
13	Temperature out of range	0 (Not Supported)
14	RESERVED	
15	Supply voltage out of range	0 (Not Supported)

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

VERSION OF SW AND PROFILE				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6507	VERSION OF SW AND PROFILE	RO	0x04010101	UINT32

The first two bytes are the software version number. The next two bytes contain the device profile.

Bits Fields	default value	default versions
[24:31] decimal part of sw version	01h	sw ver. 1.1
[16:23] fractal part of sw version	01h	
[8:15] decimal part of profile version	01h	profile ver. 1.4
[0:7] fractal part of profile version	04h	

profile version		sw version		SW + Profile Version
04h	01h	01h	01h	04010101h

OPERATING TIME (X0.1HOURS)				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6508	OPERATING TIME (X0.1HOURS)	RO	0	UINT32

Every 6 minutes (every 0.1 hour) the counter here increases by one

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

INTERNAL OFFSET				
OBJECT ID	Name	Access Type	Deafult Value	Data Type
0x6509	INTERNAL OFFSET	RO	0	UINT32

The offset value is calculated to make the position value zero when preset.

THIS OBJECT IS NOT IMPLEMENTED YET. ADDED FOR FUTURE USE

MODULE IDENTIFICATION				
OBJECT ID	**Name**	**Access Type**	**Deafult Value**	**Data Type**
0x650A	MODULE IDENTIFICATION	RO	3	UINT8
sub 1	manufacturer offset value	RO	0x00000000	UINT32
sub 2	minimum position value	RO	0x00000000	UINT32
sub 3	maximum position value	RO	0x3FFFFFFF	UINT32

OBJECT ID	Name	Access Type	Deafult Value	Data Type
	SERIAL NUMBER			
0x650B	SERIAL NUMBER	RO	product specific	UINT32

ABBREVIATIONS	
UINT8	Unsigned Integer with 8 bits. Min: 0 Max : 255
UINT16	Unsigned Integer with 16 bits. Min: 0 Max: 65535
UINT32	Unsigned Interger with 32 bits. Min: 0 Max : 4294967295
UINT64	Unsigned Integer with 64 bits : Min:0 Max: 18446744073709551615
STRING 8	String with 8 charachters
STRING 16	String with 16 charachters

RO	**R**ead **O**nly
RO P	**R**ead **O**nly **P**roccess Data
M RO	**M**andatory **R**ead **O**nly
M RO P	**M**andatory **R**ead **O**nly **P**roccess Data
RW	**R**ead **W**rite
M RW	**M**andatory **R**ead **W**rite