THE INSTRUCTION USING OF ETHERCAT SLAVE

1. Revision

Revision	Date	Description
0.0.1	06/28/2023	Initialize instruction

2. Purpose

TBD

3. Glossary

TBD

4. Object dictionary

Object dictionary can be accessed using PDOs. These are three main groups in which the address space is divided into:

1. Communication Area
2. Md80 address list
3. Md80 control

4.1. Communication area

0x7000 - md80_Command

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x7000	0x01	md80_dev_no	UINT8	-	WO	0 - 3	0	-
0x7000	0x02	command	UINT8	-	WO	-	0	-
0x7000	0x03	size	UINT8	-	WO	0 - 23	0	-
0x7000	0x04	timestamp	UINT32	-	WO	-	0	-
0x7000	0x05	dataSet0	UINT32	-	WO	-	0	-
0x7000	0x06	dataSet1	UINT32	-	WO	-	0	-
0x7000	0x07	dataSet2	UINT32	-	WO	-	0	-
0x7000	0x08	dataSet3	UINT32	-	WO	-	0	-
0x7000	0x09	dataSet4	UINT32	-	WO	-	0	-

The command table:

Value	Command	Note

Value	Command	Note
0	None	-
1	BUS_FRAME_PING_START	Scan the md80s
2	BUS_FRAME_CANDLE_CONFIG_BAUDRATE	Not support
3	BUS_FRAME_MD80_ADD	Add the motor id.
4	BUS_FRAME_MD80_GENERIC_FRAME	-
5	BUS_FRAME_MD80_CONFIG_CAN	Not support
6	BUS_FRAME_BEGIN	Start control motor
7	BUS_FRAME_END	Stop control motor
8	BUS_FRAME_UPDATE	Not support
9	BUS_FRAME_RESET	Not support

0x60001 - md80_Respond

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x6001	0x01	md80_dev_no	UINT8	-	RO	0 - 3	0	-
0x6001	0x02	command	UINT8	-	RO	-	0	-
0x6001	0x03	size	UINT8	-	RO	0 - 23	0	-
0x6001	0x04	timestamp	UINT32	-	RO	-	0	-
0x6001	0x05	dataSet0	UINT32	-	RO	-	0	-
0x6001	0x06	dataSet1	UINT32	-	RO	-	0	-
0x6001	0x07	dataSet2	UINT32	-	RO	-	0	-
0x6001	0x08	dataSet3	UINT32	-	RO	-	0	-
0x6001	0x09	dataSet4	UINT32	-	RO	-	0	-

4.2. Md80 address

0x6000 - md80_addrs: The list address of motor detected after request scan.

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x6001	0x01	md80_0	UINT32	-	RO	10 - 2000	0	-
0x6001	0x02	md80_1	UINT32	-	RO	10 - 2000	0	-
0x6001	0x03	md80_2	UINT32	-	RO	10 - 2000	0	-
0x6001	0x04	md80_3	UINT32	-	RO	10 - 2000	0	-

4.3. MD80 Control

0x7001 - md80_0_DataControl: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x7001	0x01	Position	UINT8	-	WO	0 - 628	0	read
0x7001	0x02	Velocity	UINT8	-	WO	-	0	rad/s
0x7001	0x03	Torque	UINT8	-	WO	TBD	0	Nm
0x7001	0x04	Mode	UINT32	-	WO	TBD	0	-
0x7001	0x05	enable	UINT32	-	WO	0 - 1	0	bool

0x7002 - md80_1_DataControl: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x7002	0x01	Position	UINT8	-	WO	0 - 628	0	read
0x7002	0x02	Velocity	UINT8	-	WO	-	0	rad/s
0x7002	0x03	Torque	UINT8	-	WO	TBD	0	Nm
0x7002	0x04	Mode	UINT32	-	WO	TBD	0	-
0x7002	0x05	enable	UINT32	-	WO	0 - 1	0	bool

0x7003 - md80_2_DataControl: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x7003	0x01	Position	UINT8	-	WO	0 - 628	0	read
0x7003	0x02	Velocity	UINT8	-	WO	-	0	rad/s
0x7003	0x03	Torque	UINT8	-	WO	TBD	0	Nm
0x7003	0x04	Mode	UINT32	-	WO	TBD	0	-
0x7003	0x05	enable	UINT32	-	WO	0 - 1	0	bool

0x7004 - md80_3_DataControl: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x7004	0x01	Position	UINT8	-	WO	0 - 628	0	0.01 rad/bit
0x7004	0x02	Velocity	UINT8	-	WO	-	0	rad/s
0x7004	0x03	Torque	UINT8	-	WO	TBD	0	Nm
0x7004	0x04	Mode	UINT32	-	WO	TBD	0	-
0x7004	0x05	enable	BOOLEAN	-	WO	0 - 1	0	bool

0x6002 - md80_0_DataReturn: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x6002	0x01	Mode	UINT8	-	RO	TBD	0	read
0x6002	0x02	Position	UINT16	-	RO	-	0	rad/s
0x6002	0x03	Velocity	UINT16	-	RO	TBD	0	Nm
0x6002	0x04	Torque	UINT16	-	RO	TBD	0	-
0x6002	0x05	Temperature	UINT8	-	RO	TBD	0	TBD
0x6002	0x06	Error	UINT8	-	RO	TBD	0	TBD
0x6002	0x07	enabled	BOOLEAN	-	RO	TBD	0	TBD

0x6003 - md80_1_DataReturn: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x6003	0x01	Mode	UINT8	-	RO	TBD	0	read
0x6003	0x02	Position	UINT16	-	RO	-	0	rad/s
0x6003	0x03	Velocity	UINT16	-	RO	TBD	0	Nm
0x6003	0x04	Torque	UINT16	-	RO	TBD	0	-
0x6003	0x05	Temperature	UINT8	-	RO	TBD	0	TBD
0x6003	0x06	Error	UINT8	-	RO	TBD	0	TBD
0x6003	0x07	enabled	BOOLEAN	-	RO	TBD	0	TBD

0x6004 - md80_2_DataReturn: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x6004	0x01	Mode	UINT8	-	RO	TBD	0	read
0x6004	0x02	Position	UINT16	-	RO	-	0	rad/s
0x6004	0x03	Velocity	UINT16	-	RO	TBD	0	Nm
0x6004	0x04	Torque	UINT16	-	RO	TBD	0	-
0x6004	0x05	Temperature	UINT8	-	RO	TBD	0	TBD
0x6004	0x06	Error	UINT8	-	RO	TBD	0	TBD
0x6004	0x07	enabled	BOOLEAN	-	RO	TBD	0	TBD

0x6005 - md80_3_DataReturn: TBD

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units

Index	Subindex	Name	Data Type	SDO	PDO	Range	Default	Units
0x6005	0x01	Mode	UINT8	-	RO	TBD	0	read
0x6005	0x02	Position	UINT16	-	RO	-	0	rad/s
0x6005	0x03	Velocity	UINT16	-	RO	TBD	0	Nm
0x6005	0x04	Torque	UINT16	-	RO	TBD	0	-
0x6005	0x05	Temperature	UINT8	-	RO	TBD	0	TBD
0x6005	0x06	Error	UINT8	-	RO	TBD	0	TBD
0x6005	0x07	enabled	BOOLEAN	-	RO	TBD	0	TBD

5. Sequence initialize slave.

TBD

6. Sample

TBD