1. Introduction

- Protocol 2.0 supported devices: MX-28, MX-64, MX-106(MX Series with Firmware V39 or above), X Series, DYNAMIXEL Pro
- Protocol 2.0 supported controllers: CM-150, CM-200, OpenCM9.04, OpenCR
- Other: 2.0 protocol from R+ Smart app

2. Instruction Packet

Instruction Packet is the command data sent to the Device.

Header1	Header2	Header3	Reserved	Packet ID	Length1	Length2	Instruction	Param	Param	Param	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	ID	Len_L	Len_H	Instruction	Param 1	…	Param N	CRC_L	CRC_H

2. 1. Header

The field indicates the start of the Packet

2. 2. Reserved

0x00 (0xFD cannot be used)

2. 3. Packet ID

The field that indicates the ID of the Device that should receive the Instruction Packet and process it

1. Range : 0 ~ 252 (0x00 ~ 0xFC), which is a total of 253 numbers that can be used
2. Broadcast ID : 254 (0xFE), which makes all connected devices execute the Instruction Packet
3. 253(0xFD), 255(0xFF) : These are not used in order to avoid duplicate use with Header

2. 4. Packet Length

The length after the Packet Length field (Instruction, Parameter, CRC fields). Packet Length = number of Parameters + 3

2. 5. Instruction

The field that defines the type of command.

Value	Instructions	Description
0x01	Ping	Instruction that checks whether the Packet has arrived to a device with the same ID as Packet ID
0x02	Read	Instruction to read data from the Device
0x03	Write	Instruction to write data on the Device
0x04	Reg Write	Instruction that registers the Instruction Packet to a standby status; Packet is later executed through the Action command
0x05	Action	Instruction that executes the Packet that was registered beforehand using Reg Write
0x06	Factory Reset	Instruction that resets the Control Table to its initial factory default settings
0x08	Reboot	Instruction to reboot the Device
0x10	Clear	Instruction to reset certain information
0x55	Status(Return)	Return Instruction for the Instruction Packet
0x82	Sync Read	For multiple devices, Instruction to read data from the same Address with the same length at once
0x83	Sync Write	For multiple devices, Instruction to write data on the same Address with the same length at once
0x92	Bulk Read	For multiple devices, Instruction to read data from different Addresses with different lengths at once
0x93	Bulk Write	For multiple devices, Instruction to write data on different Addresses with different lengths at once

2. 6. Parameters

1. As the auxiliary data field for Instruction, its purpose is different for each Instruction.
2. Method of expressing negative number data : This is different for each product, so please refer to the e-manual of the corresponding product.

2. 7. CRC

16bit CRC field checks if the Packet has been damaged during communication. Please refer to the CRC calculation code.

3. Status Packet

Header1	Header2	Header3	Reserved	Packet ID	Length1	Length2	Instruction	ERR	PARAM	PARAM	PARAM	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	ID	Len_L	Len_H	Instruction	Error	Param 1	…	Param N	CRC_L	CRC_H

3. 1. Instruction

Instruction of the Status Packet is designated to 0x55 (Status)

3. 2. Error

The field that indicates the processing result of Instruction Packet

Bit 7	Bit 6 ~ Bit 0
Alert	Error Number

- Alert : When there has been a problem in the Device, this field is set as 1. Checking the Hardware error status value of the Control Table can indicate the cause of the problem.
- Error Number : When there has been an Error in the processing of the Instruction Packet.

Value	Error	Description
0x01	Result Fail	Failed to process the sent Instruction Packet
0x02	Instruction Error	Undefined Instruction has been used Action has been used without Reg Write
0x03	CRC Error	CRC of the sent Packet does not match
0x04	Data Range Error	Data to be written in the corresponding Address is outside the range of the minimum/maximum value
0x05	Data Length Error	Attempt to write Data that is shorter than the data length of the corresponding Address (ex: when you attempt to only use 2 bytes of a item that has been defined as 4 bytes)
0x06	Data Limit Error	Data to be written in the corresponding Address is outside of the Limit value
0x07	Access Errer	Attempt to write a value in an Address that is Read Only or has not been defined Attempt to read a value in an Address that is Write Only or has not been defined Attempt to write a value in the ROM domain while in a state of Torque Enable(ROM Lock)

3. 3. Parameter

1. As the auxiliary data field for Instruction, its purpose is different for each Instruction.
2. Method of expressing negative number data : This is different for each product, so please refer to the e-manual of the corresponding product

4. Packet Process

4. 1. Processing Order of Transmission

1. Generate basic form of Packet and afterwards Byte Stuffing(0xFD)
   - Inspection range : Everything within the Instruction field to the Parameter field (not the CRC)
   - Processing method : When the pattern “0xFF 0xFF 0xFD” appears, add Byte Stuffing (0xFD) (If “0xFF 0xFF 0xFD” already exists, add a 0xFD to change it to “0xFF 0xFF 0xFD 0xFD”)
2. Packet Length : Modify to Packet Length with Byte Stuffing applied
3. CRC : Calculate CRC with Byte Stuffing applied

4. 2. Processing Order of Reception

1. Search for Header(0xFF 0xFF 0xFD) : Ignore the Byte Stuffing(“0xFF 0xFF 0xFD 0xFD”).
2. Packet ID : If Packet ID is valid, receive additional transmission the size of Packet Length
3. CRC : Calculate with the received Packet with Byte Stuffing included, and once CRC is matched then remove Byte Stuffing

5. Instruction Details

5. 1. Ping

5. 1. 1. Description

- Instruction to check the existence of a Device and basic information
- Regardless of the Status Return Level of the Device, the Status Packet is always sent to Ping Instruction.
- When the Packet ID field is 0xFE(Broadcast ID) : All devices send their Status Packet according to their arranged order.

5. 1. 2. Packet Parameters

NOTE : Status Packet is received from each Device.

Status Packet	Description
Parameter 1	Model Number LSB
Parameter 2	Model Number MSB
Parameter 3	Version of Firmware

5. 1. 3. Example 1

5. 1. 3. 1. Conditions

- ID1(XM430-W210) : For Model Number 1030(0x0406), Version of Firmware 38(0x26)
- Instruction Packet ID : 1

5. 1. 3. 2. Ping Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x03	0x00	0x01	0x19	0x4E

5. 1. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	PARAM2	PARAM3	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x07	0x00	0x55	0x00	0x06	0x04	0x26	0x65	0x5D

5. 1. 4. Example 2

5. 1. 4. 1. Conditions

- ID1(XM430-W210) : For Model Number 1030(0x0406), Version of Firmware 38(0x26)
- ID2(XM430-W210) : For Model Number 1030(0x0406), Version of Firmware 38(0x26)
- Instruction Packet ID : 254(Broadcast ID)

5. 1. 4. 2. Ping Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0xFE	0x03	0x00	0x01	0x31	0x42

5. 1. 4. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	PARAM2	PARAM3	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x07	0x00	0x55	0x00	0x06	0x04	0x26	0x65	0x5D

5. 1. 4. 4. ID 2 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	PARAM2	PARAM3	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x02	0x07	0x00	0x55	0x00	0x06	0x04	0x26	0x6F	0x6D

5. 2. Read

5. 2. 1. Description

- Instruction to read a value from Control Table
- Method of expressing negative number data : This is different for each product, so please refer to the e-manual of the corresponding product

5. 2. 2. Packet Parameters

Instruction Packet	Description
Parameter 1	Low-order byte from the starting address
Parameter 2	High-order byte from the starting address
Parameter 3	Low-order byte from the data length (X)
Parameter 4	High-order byte from the data length (X)

Status Packet	Description
Parameter 1	First Byte

Status Packet	Description
Parameter 2	Second Byte
…	…
Parameter X	X-th Byte

5. 2. 3. Example

5. 2. 3. 1. Conditions

- ID1(XM430-W210) : Present Position(132, 0x0084, 4[byte]) = 166(0x000000A6)

5. 2. 3. 2. Read Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	PARAM1	PARAM2	PARAM3	PARAM4	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x07	0x00	0x02	0x84	0x00	0x04	0x00	0x1D	0x15

5. 2. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	PARAM2	PARAM3	PARAM4	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x08	0x00	0x55	0x00	0xA6	0x00	0x00	0x00	0x8C	0xC0

5. 3. Write

5. 3. 1. Description

- Instruction to write a value on the Control Table
- Method of expressing negative number data : This is different for each product, so please refer to the e-manual of the corresponding product

5. 3. 2. Packet Parameters

Instruction Packet	Description
Parameter 1	Low-order byte from the starting address
Parameter 2	High-order byte from the starting address
Parameter 2+1	First Byte
Parameter 2+2	Second Byte
…	…
Parameter 2+X	X-th Byte

5. 3. 3. Example

5. 3. 3. 1. Conditions

- ID1(XM430-W210) : Write 512(0x00000200) to Goal Position(116, 0x0074, 4[byte])

5. 3. 3. 2. Write Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	P2	P3	P4	P5	P6	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x09	0x00	0x03	0x74	0x00	0x00	0x02	0x00	0x00	0xCA	0x89

5. 3. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x04	0x00	0x55	0x00	0xA1	0x0C

5. 4. Reg Write

5. 4. 1. Description

- Instruction that is similar to Write Instruction, but has an improved synchronization characteristic
- Write Instruction is executed immediately when an Instruction Packet is received.
- Reg Write Instruction registers the Instruction Packet to a standby status, and sets Control table Registered Instruction to ‘1’.
- When an Action Instruction is received, the registered Packet is executed, and sets Control Table Registered Instruction to ‘0’.

5. 4. 2. Packet Parameters

Instruction Packet	Description
Parameter 1	Low-order byte from the starting address
Parameter 2	High-order byte from the starting address
Parameter 2+1	First Byte
Parameter 2+2	Second Byte
…	…
Parameter 2+X	X-th Byte

5. 4. 3. Example

5. 4. 3. 1. Condition

- ID1(XM430-W210) : Write 200(0x000000C8) to Goal Velocity(104, 0x0068, 4[byte])

5. 4. 3. 2. Reg Write Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	P2	P3	P4	P5	P6	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x09	0x00	0x04	0x68	0x00	0xC8	0x00	0x00	0x00	0xAE	0x8E

5. 4. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x04	0x00	0x55	0x00	0xA1	0x0C

5. 5. Action

5. 5. 1. Description

- Instruction that executes the Packet that has been registered using Reg Write Instruction
- When controlling multiple devices using Write Instruction, there will be a difference in the time of execution between the first device that receives the Packet and the last device that receives the Packet.
- By using Reg Write and Action Instruction, one can operate multiple devices simultaneously.

5. 5. 2. Example

5. 5. 2. 1. Condition

- ID1(XM430-W210) : Instruction has been already registered by the Reg Write Instruction.

5. 5. 2. 2. Action Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x03	0x00	0x05	0x02	0xCE

5. 5. 2. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x04	0x00	0x55	0x00	0xA1	0x0C

5. 6. Factory Reset

5. 6. 1. Description

- Instruction that resets the Control Table to its initial factory default settings.
- In case of when **Packet ID** is a Broadcast ID `0xFE` and **Option** is Reset All `0xFF`, Factory Reset Instruction(0x06) will **NOT** be activated.
  - This feature is applied from MX(2.0) FW42, X-series FW42 or above.

5. 6. 2. Parameters

Instruction Packet	Description
Parameter 1	0xFF : Reset all 0x01 : Reset all except ID 0x02 : Reset all except ID and Baudrate

5. 6. 3. Example

5. 6. 3. 1. Conditions

- ID1(XM430-W210) : Apply reset with option 0x01(Reset all except ID)

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5. 6. 3. 2. Factory Reset Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x04	0x00	0x06	0x01	0xA1	0xE6

5. 6. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x04	0x00	0x55	0x00	0xA1	0x0C

5. 7. Reboot

5. 7. 1. Description

- Instruction to reboot the device

5. 7. 2. Example

5. 7. 2. 1. Conditions

- ID1(XM430-W210)

5. 7. 2. 2. Reboot Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x03	0x00	0x08	0x2F	0x4E

5. 7. 2. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x04	0x00	0x55	0x00	0xA1	0x0C

5. 8. Clear

5. 8. 1. Description

- This instruction resets certain information of Dynamixel
- Applied Products : MX with Protocol 2.0 (Firmware v42 or above), Dynamixel X-series (Firmware v42 or above)

5. 8. 2. Parameters

- P1 ~ P5 : Fixed values

5. 8. 3. Example

5. 8. 3. 1. Conditions

- ID1(XM430-W210) : Resets multi turn revolution information

5. 8. 3. 2. Clear Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	P2	P3	P4	P5	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x08	0x00	**0x10**	**0x01**	0x44	0x58	0x4C	0x22	0xB1	0xDC

5. 8. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x04	0x00	0x55	0x00	0xA1	0x0C

5. 9. Sync Read

5. 9. 1. Description

- Instruction to read data from multiple devices simultaneously using one Instruction Packet
- The Address and Data Length of the data must all be the same.
- If the Address of the data is not continual, an Indirect Address can be used.
- Packet ID field : 0xFE (Broadcast ID)

5. 9. 2. Parameters

Instruction Packet	Description
Parameter 1	Low-order byte from the starting address

Instruction Packet	Description
Parameter 2	High-order byte from the starting address
Parameter 3	Low-order byte from the data length(X)
Parameter 4	High-order byte from the data length(X)
Parameter 4+1	ID of the 1st Device
Parameter 4+2	ID of the 2nd Device
…	…
Parameter 4+X	ID of the X-th Device

NOTE : Status Packet is received from each Device.

Status Packet	Description
Parameter 1	Frist Byte
Parameter 2	Second Byte
…	…
Parameter X	X-th Byte

5. 9. 3. Example

5. 9. 3. 1. Conditions

- ID1(XM430-W210) : Present Position(132, 0x0084, 4[byte]) = 166(0x000000A6)
- ID2(XM430-W210) : Present Position(132, 0x0084, 4[byte]) = 2,079(0x0000081F)

5. 9. 3. 2. Sync Read Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	P2	P3	P4	P5	P6	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0xFE	0x09	0x00	0x82	0x84	0x00	0x04	0x00	0x01	0x02	0xCE	0xFA

5. 9. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	PARAM2	PARAM3	PARAM4	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x08	0x00	0x55	0x00	0xA6	0x00	0x00	0x00	0x8C	0xC0

5. 9. 3. 4. ID 2 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	PARAM2	PARAM3	PARAM4	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x02	0x08	0x00	0x55	0x00	0x1F	0x08	0x00	0x00	0xBA	0xBE

5. 10. Sync Write

5. 10. 1. Description

- Instruction to control multiple devices simultaneously using one Instruction Packet
- The Address and Data Length of the data must all be the same.
- If the Address of the data is not continual, an Indirect Address can be used.
- Packet ID field : 0xFE (Broadcast ID)

5. 10. 2. Parameters

Instruction Packet	Description
Parameter 1	Low-order byte from the starting address
Parameter 2	High-order byte from the starting address
Parameter 3	Low-order byte from the data length(X)
Parameter 4	High-order byte from the data length(X)
Parameter 5	[1st Device] ID
Parameter 5+1	[1st Device] 1st Byte
Parameter 5+2	[1st Device] 2nd Byte
…	[1st Device]…
Parameter 6+X	[2nd Device] X-th Byte

Instruction Packet	Description
Parameter 6	[2nd Device] ID
Parameter 6+1	[2nd Device] 1st Byte
Parameter 6+2	[2nd Device] 2nd Byte
…	[2nd Device]…
Parameter 6+X	[2nd Device] X-th Byte
…	…

5. 10. 3. Example

5. 10. 3. 1. Conditions

- ID1(XM430-W210) : Write 150(0x00000096) to Goal Position(116, 0x0074, 4[byte])
- ID2(XM430-W210) : Write 170(0x000000AA) to Goal Position(116, 0x0074, 4[byte])

5. 10. 3. 2. Sync Write Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	P2	P3	P4
0xFF	0xFF	0xFD	0x00	0xFE	0x11	0x00	0x83	0x74	0x00	0x04	0x00

P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	CRC1	CRC2
0x01	0x96	0x00	0x00	0x00	0x02	0xAA	0x00	0x00	0x00	0x82	0x87

5. 11. Bulk Read

5. 11. 1. Description

- Similar to Sync Read, this is an Instruction to read data from multiple devices simultaneously using one Instruction Packet
- This Instruction can be used even if the Address and Data Length of the data for each device are not all the same.
- The same ID cannot be used multiple times in the Parameter. In other words, it can only read once from each individual device.
- If the Address of the data is not continual, an Indirect Address can be used.
- Packet ID field : 0xFE (Broadcast ID)

5. 11. 2. Parameters

Instruction Packet	Description
Parameter 1	[1st Device] ID
Parameter 2	[1st Device] Low-order byte from the starting address
Parameter 3	[1st Device] High-order byte from the starting address
Parameter 4	[1st Device] Low-order byte from the data
Parameter 5	[1st Device] High-order byte from the data
Parameter 6	[2nd Device] ID
Parameter 7	[2nd Device] Low-order byte from the starting address
Parameter 8	[2nd Device] High-order byte from the starting address
Parameter 9	[2nd Device] Low-order byte from the data
Parameter 10	[2nd Device] High-order byte from the data
…	…

NOTE : Status Packet is received from each Device.

Status Packet	Description
Parameter 1	1st Byte
Parameter 2	2nd Byte
…	…
Parameter X	X-th Byte

5. 11. 3. Example

5. 11. 3. 1. Condition

- ID1(XM430-W210) : Present Voltage(144, 0x0090, 2[byte]) = 119(0x0077)
- ID2(XM430-W210) : Present Temperature(146, 0x0092, 1[byte]) = 36(0x24)

5. 11. 3. 2. Bulk Read Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	P2	P3	P4	P5
0xFF	0xFF	0xFD	0x00	0xFE	0x0D	0x00	0x92	0x01	0x90	0x00	0x02	0x00

P6	P7	P8	P9	P10	CRC1	CRC2
0x02	0x92	0x00	0x01	0x00	0x1A	0x05

5. 11. 3. 3. ID 1 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	PARAM2	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x01	0x06	0x00	0x55	0x00	0x77	0x00	0xC3	0x69

5. 11. 3. 4. ID 2 Status Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	ERR	PARAM1	CRC1	CRC2
0xFF	0xFF	0xFD	0x00	0x02	0x05	0x00	0x55	0x00	0x24	0x8B	0xA9

5. 12. Bulk Write

5. 12. 1. Description

- Similar to Sync Write, this is an Instruction to control multiple devices simultaneously using one Instruction Packet
- This Instruction can be used even if the Address and Data Length of the data for each device are not all the same.
- The same ID cannot be used multiple times in the Parameter. In other words, it can only write once for each individual device.
- If the Address of the data is not continual, an Indirect Address can be used.
- Packet ID field : 0xFE (Broadcast ID)

5. 12. 2. Parameters

Instruction Packet	Description
Parameter 1	[1st Device] ID
Parameter 2	[1st Device] Low-order byte from the starting address
Parameter 3	[1st Device] High-order byte from the starting address
Parameter 4	[1st Device] Low-order byte from the data length(X)
Parameter 5	[1st Device] High-order byte from the data length(X)
Parameter 5+1	[1st Device] 1st Byte
Parameter 5+2	[1st Device] 2nd Byte
…	…
Parameter 5+X	[1st Device] X-th Byte
Parameter 6+X	[2nd Device] ID
Parameter 7+X	[2nd Device] Low-order byte from the starting address
Parameter 8+X	[2nd Device] High-order byte from the starting address
Parameter 9+X	[2nd Device] Low-order byte from the data length(X)
Parameter 10+X	[2nd Device] High-order byte from the data length(X)
Parameter 10+X+1	[2nd Device] 1st Byte
Parameter 10+X+2	[2nd Device] 2nd Byte
…	…
Parameter 10+X+Y	[2nd Device] Y-th Byte
…	…

5. 12. 3. Example

5. 12. 3. 1. Condition

- ID1(XM430-W210) : Set Max Voltage Limit(32, 0x0020, 2[byte]) to 160(0x00A0)
- ID2(XM430-W210) : Set Temperature Limit(31, 0x001F, 1[byte]) to 80(0x50)

5. 12. 3. 2. Bulk Write Instruction Packet

H1	H2	H3	RSRV	ID	LEN1	LEN2	INST	P1	P2	P3	P4	P5	P6	P7
0xFF	0xFF	0xFD	0x00	0xFE	0x10	0x00	0x93	0x01	0x20	0x00	0x02	0x00	0xA0	0x00

P8	P9	P10	P11	P12	P13	CRC1	CRC2
0x02	0x1F	0x00	0x01	0x00	0x50	0xB7	0x68