

Coding Box Manual

Part 1: Product Overview and Installation

1.1 Product Overview

The coding box is designed to support EEPROM reading and writing of SFP/SFP+/SFP28, XFP, QSFP+/QSFP28/QSFP56, QSFP-DD, OSFP optical module/DAC module, and AOC module, displaying detailed information of EEPROM; Customers can use a coding board and supporting software to read and write codes for the optical module according to their own needs. Easy installation and operation process.

1.2 Operating instructions:

1.2.1 Connect the coding board to the computer via a USB TYPE-C data cable.

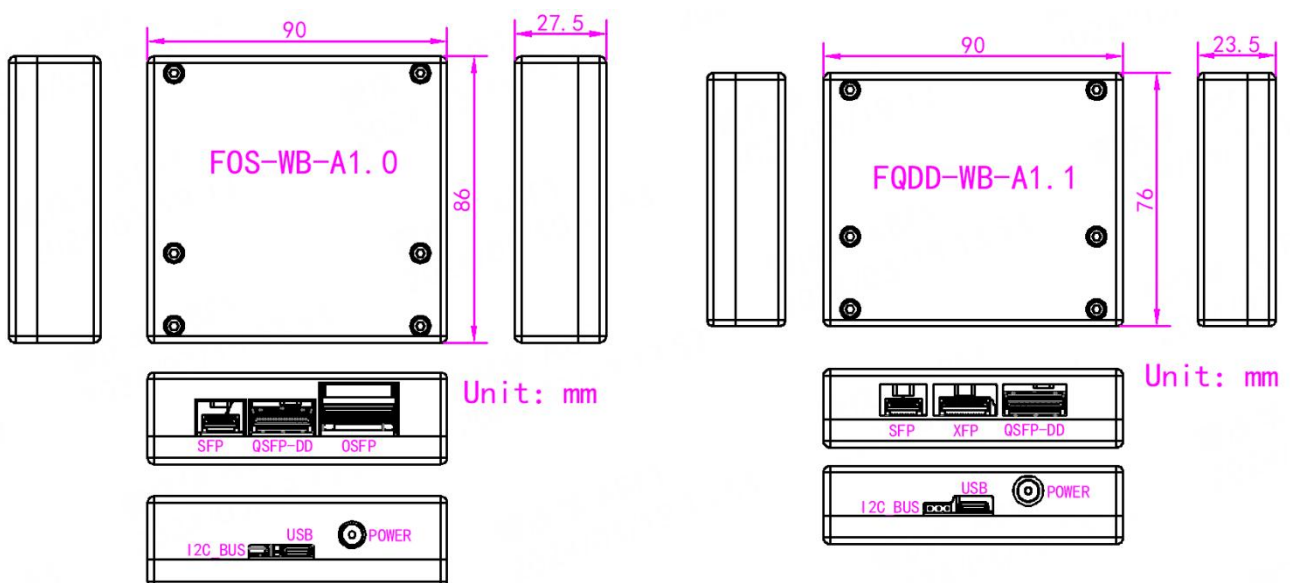
1.2.2 Insert optical module or DAC module.

1.2.3 Open the coding software and start coding. (For detailed instructions on coding, please refer to Part 2)

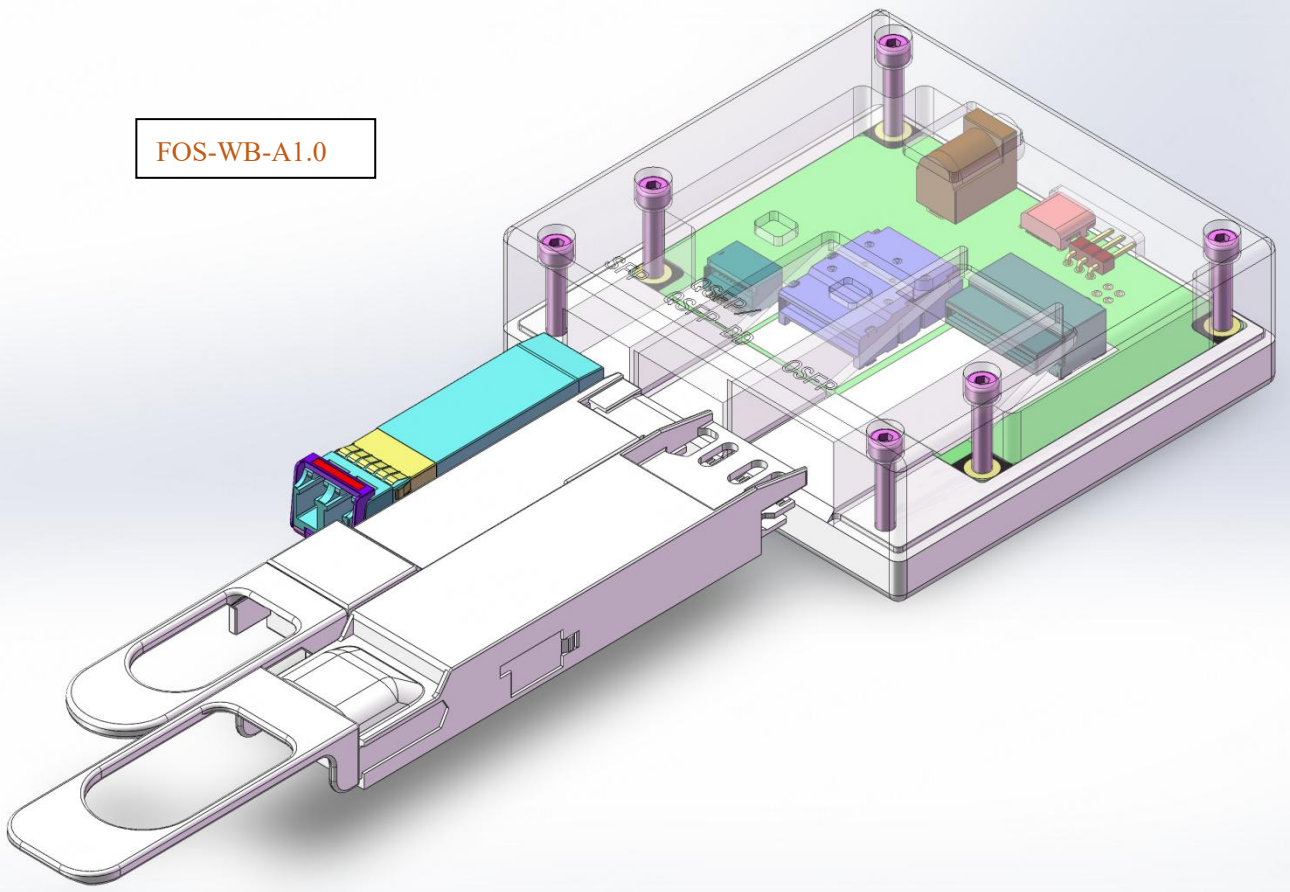
Note1: The coding box does not support multiple modules to write code simultaneously, and only one module can be inserted at the same time when writing code;

Note 2: There is no QSFP base on the coding box. Please insert the QSFP module coding into the QSFP-DD base (refer to the coding box specification for details).

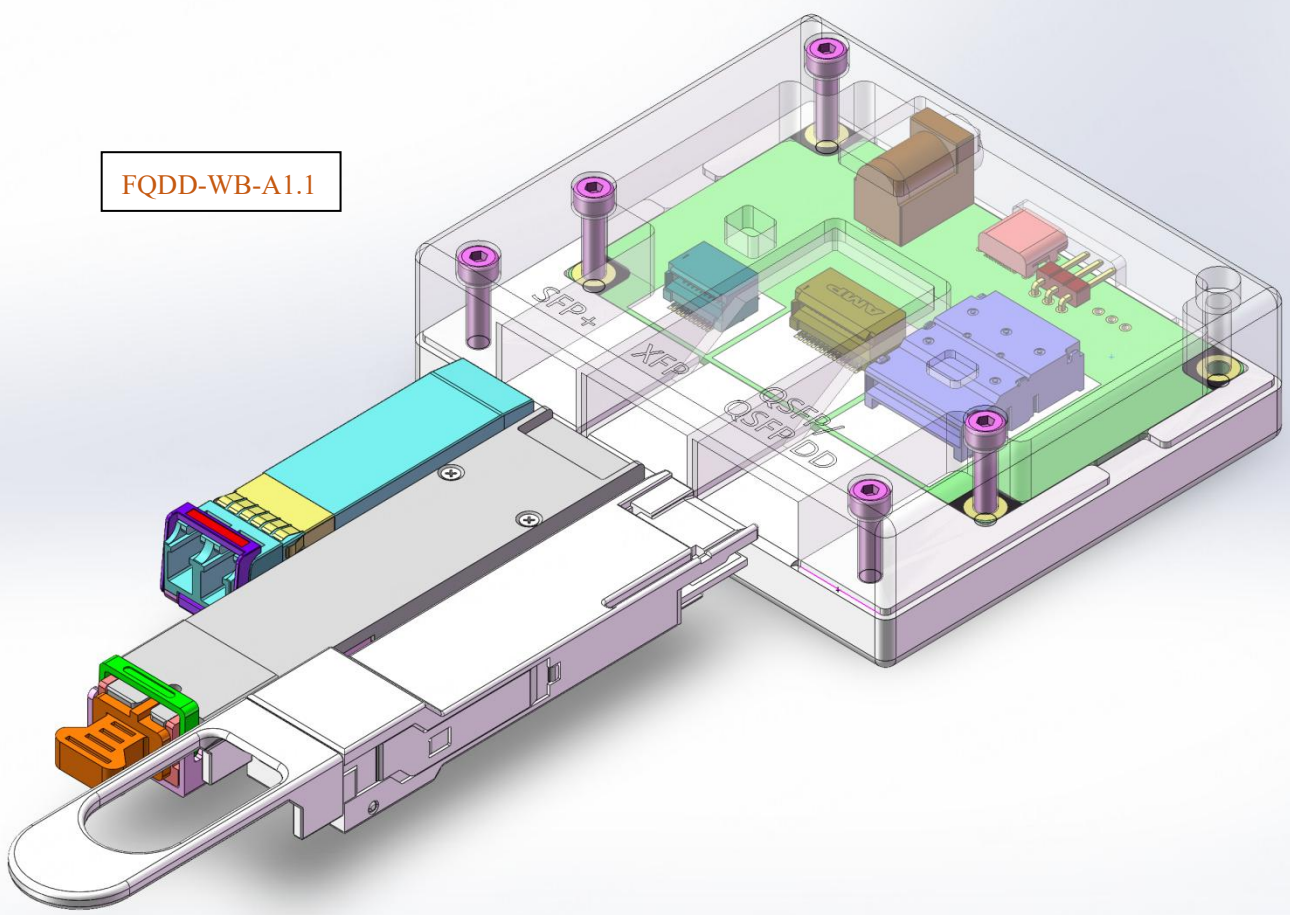
Note 3: There is an I2C bus left on the coding box, SDA, SCL, and GND (GND should be connected firstly) are respectively connected to other main control boards or test boards, this software can be used to read and write modules on other brand coding box; You can also perform corresponding operations on the modules on this coding box through the external control board and supporting software.



FOS-WB-A1.0



FQDD-WB-A1.1



Part 2: Instructions for Coding.

This software is designed based on SFF-8472, INF-8077i, SFF-8636, and CMIS Agreement, and supports EEPROM programming and manufacturer information modification for SFP, XFP, QSFP, QSFP-DD, and OSFP optical modules.

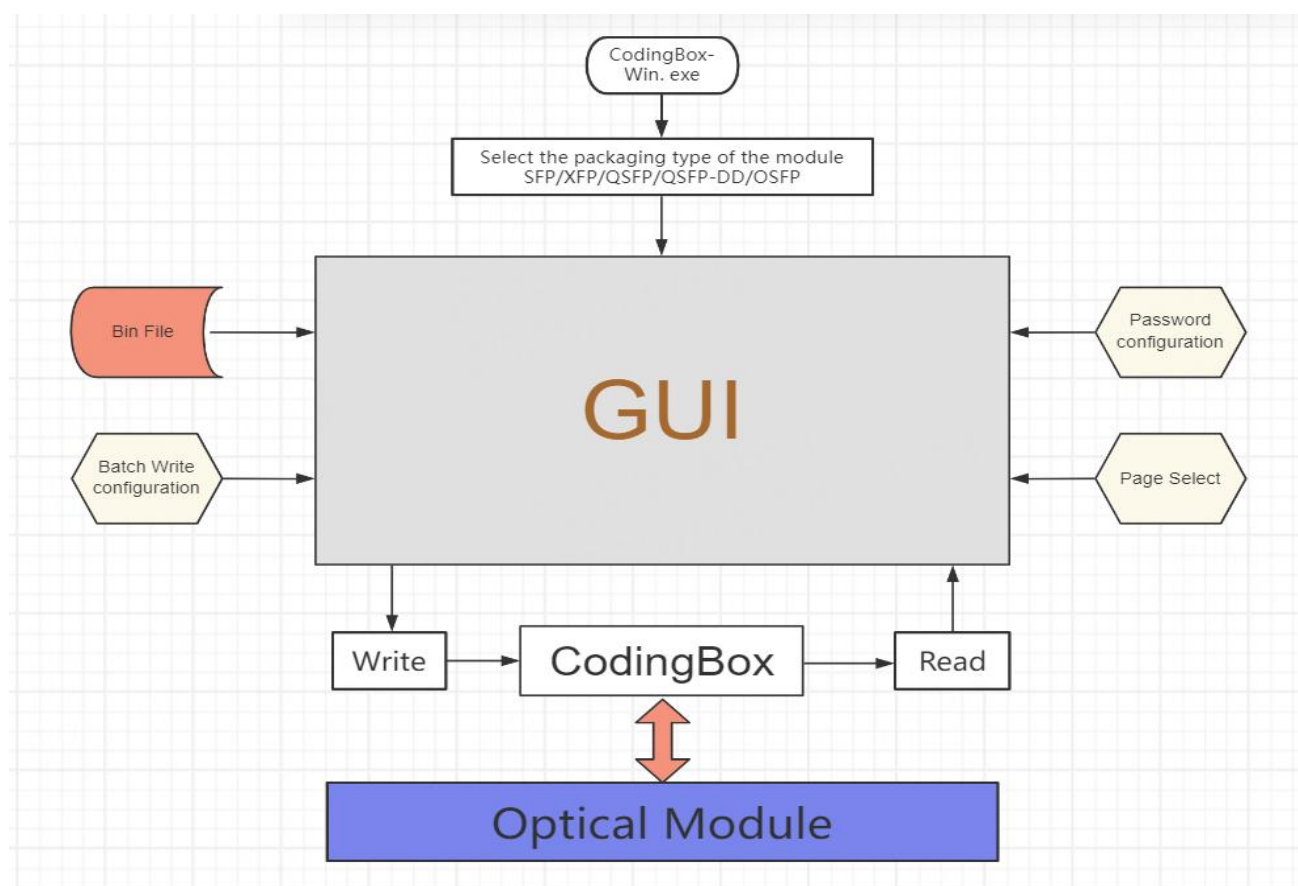
2.0 System Configuration

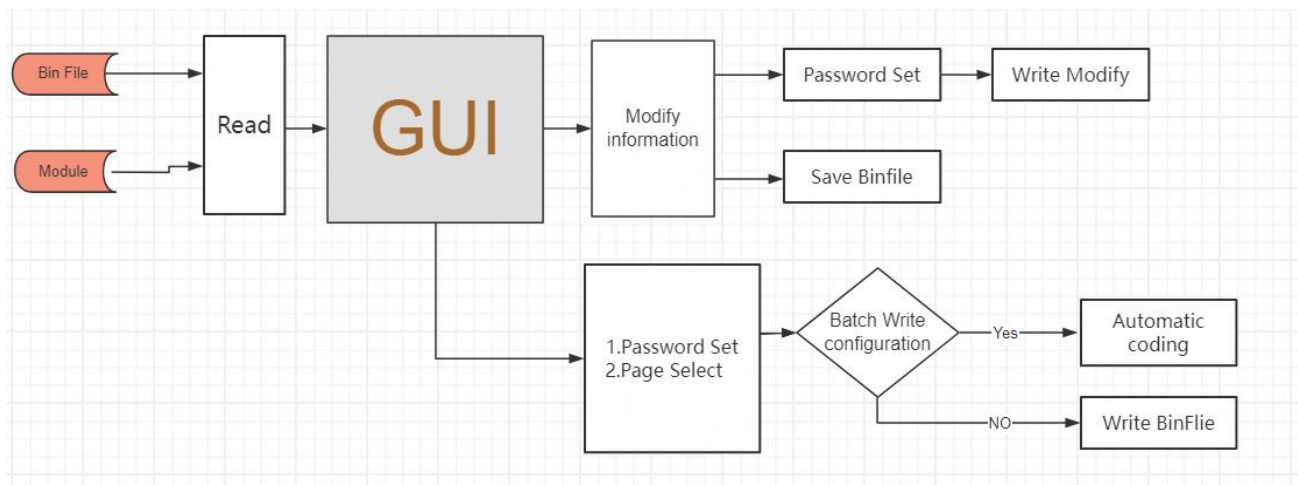
Hardware configuration: This software requires running on Windows PC and its compatible machines, with a Pentium II or higher CPU, ≥ 2 GB of memory, and >60 GB of hard disk.

Operating system: Windows 7 and above, MacOS.

2.1 CodingBox Data Flow Chart

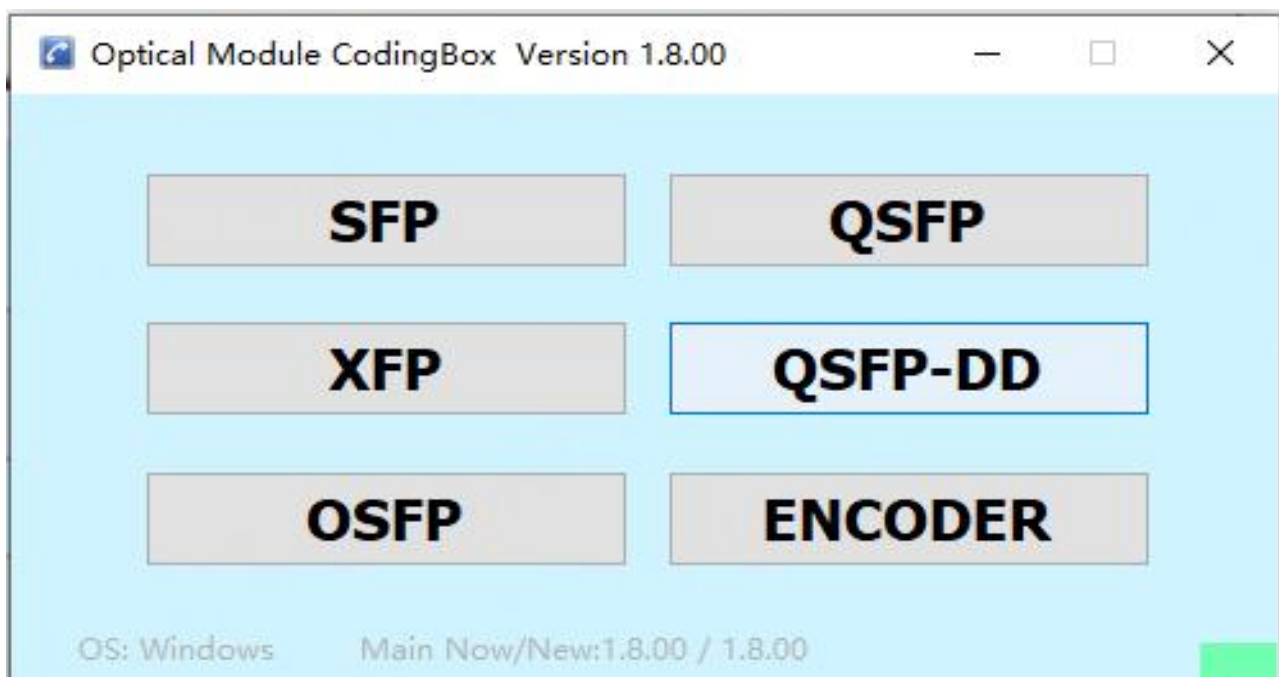
Software Function Block Diagram





2.2 Software Operation

Before running this software, it is necessary to install [LabVIEW2018 Run Time Engine](#) on the computer; When running 'CodingBox-Win. exe', the software will display the following interface:



Select the packaging type of the module, click the corresponding button, and enter the coding software interface. Jump to the following picture, you can write codes and modify information for the module.

Eeprom Programming for SFF-8472

— □ ×

Coding For SFP

EEPROM

EXTEND

3.3V_EN

HW.Txdis

EVB Connected

I2C ACK

EEPROM Read successfully

Checksum OK

Module Ready

03Byte

04Byte

05Byte

06Byte

07Byte

08Byte

09Byte

10Byte

64Byte

65Byte

☐ CopperPassive
☐ Copper Active
☐ 1X LX
☐ 1X SX
☐ 10GBase-SR
☐ 10GBase-LR
☐ 10GBase-LRM
☐ 10GBase-ER

☐ OC-48,short
☐ OC-48,Inter
☐ OC-48,long
☐ SONETReach2
☐ SONETReach1
☐ OC-192,short
☐ EsconSMF LA
☐ EsconMM LED

☐ OC-3 Short
☐ OC-3 Inter
☐ OC-3 long
☐ Unallocated
☐ OC-12 Short
☐ OC-12 Inter
☐ OC-12 long
☐ Unallocated

☒ 1000Base-SX
☐ 1000Base-LX
☐ 1000Base-CX
☐ 1000Base-T
☐ 1000Base-LX
☐ 1000Base-FX
☐ Base-BX10^3
☐ Base-PX^3

☐ EL (inter)
☐ LonglaserLC
☐ ShortlaserSA
☐ M-distance
☐ L-distance
☒ I-distance
☐ S-distance
☐ V-distance

☐ Unallocated
☐ Unallocated
☐ PassiveCable
☐ Active Cable
☐ LongwaveLL
☐ ShortwaveSL
☒ ShortwaveSN
☐ EL (intra)

☐ Single Mode (SM)
☐ Unallocated
☒ Multimode,50um
☒ Multimode,62.5um
☐ Video Coax (TV)
☐ MiniatureCoax(MI)
☐ Twisted Pair (TP)
☐ win Axial Pair(TW)

☒ 100 Mb/s
☐ Extended
☐ 200 Mb/s
☐ 3200 Mb/s
☐ 400 Mb/s
☐ 1600 Mb/s
☐ 800 Mb/s
☐ 1200 Mb/s

☐ linearReceiver
☐ Power Level 2
☐ Cooled Laser
☐ CDR indicator
☐ Page impleme
☐ Power Level 3
☐ Power Level 4
☐ Unallocated

☐ Unallocated
☐ Rx_Los
☐ Signal Detect
☒ Tx_Fault
☒ TX_Disable
☐ Rate_Select
☐ Tunable TX
☐ RDT_EN

92Byte

93Byte

Interface

Distance&Fiber

Rate technology

Vendor_Information

☐ Unallocated
☐ Unallocated
☐ AddtModes
☒ AVG PWR
☐ Externally
☒ Internally
☒ DDMI
☐ Legacy

☐ Unallocated
☐ SFF-8431
☐ SFF-8079
☐ softRate_select
☒ soft RX_Los
☐ soft TX_Fault
☐ softTX_Disable
☒ Alarm/warning

SFP/SFP+

PHY_ID

GBIC/SFP

LC

88/10B

Rev 9.3

PHY_EXT

Connector

Encoding

8472Rev

d 0

9um-SMF

d 55

50um-OM2

d 30

62.5um-OM1

d 0

Copper/OM4

d 0

50um-OM3

Unspecified

Rate_ID

Unspecified

Extended

d 13

Rate*100MBd

d 0

Rate*250MBd

d 0

Rate_Min

OEM

VN

SFP-SX-MM-F

PN

C25GD002DA

SN

110412

Date

850.00

WL

1.0

Rev

0000 00

OUI

Current date

No.	EE_SN	Action	Write area	Password	Identifier	Hostname	Host Time	Result

DDM ON

DDM

H/A

L/A

H/W

L/W

Temp

20.02

100.00

-45.00

95.00

-40.00

Vcc

3.30

3.60

3.00

3.50

3.10

IBias

0.00

70.00

1.00

65.00

1.50

TxPWR

-Inf

-1.00

-10.00

-2.00

-9.00

RxPWR

-40.00

-2.00

-33.01

-3.00

-32.22

LDTemp

1.00

0.00

0.00

0.00

0.00

TECicc

2278.30

0.00

0.00

0.00

0.00

Status

Dat_RD

TxDis

RxLos

TxFault

SFTxDis

Password CTRL

x 0

A2Page

8byte

50

ms

Stand-by

x A2

Dev.addr

120

Length

FSN

x 7B

Reg.addr

Page Select

AOLow

AOT00

AOT00

x 0

x 0

x 10

x 11

Manual mode

Automode

Index Bin File

Read Module

Write Modify

Save BinFile

Write BinFile

BinFile

Eeprom Programming for INF-8077i

— □ ×

Coding for XFP

EEPROM

EXTEND

3.3V_EN

P_Down

EVB Connected

I2C ACK

EEPROM Read successfully

Checksum OK

Module Ready

129Byte

131Byte

132Byte

134Byte

135Byte

136Byte

137Byte

138Byte

139Byte

147Byte

164Byte

220Byte

☐ Reserved
☐ Reserved
☐ Reserved
☐ CLEI Code
☒ Tx Ref Clock
☐ Non-CDR
☐ Power Level
☐ Power Level

☐ Reserved
☐ 10GBase-EW
☐ 10GBase-LW
☐ 10GBase-SW
☐ 10GBase-LRM
☒ 10GBase-ER
☐ 10GBase-LR
☐ 10GBase-SR

☐ Reserved
☐ Reserved
☐ Reserved
☐ Reach 1300 FP
☐ Reach 1550
☐ 1200-SM-LL-L
☐ 1200-MX-SN-I

☐ 1000Base-SX
☐ 1000Base-LX
☐ 2xFC MMF
☐ 2xFC SMF
☐ OC 48-SR
☐ OC-48-IR
☐ OC-48-LR
☐ Reserved

☐ Resvd
☐ Resvd
☐ I-64.5
☐ I-64.3
☐ I-64.2
☐ I-64.1
☐ I-64.1r

☐ Resvd
☐ S-64.5b
☐ S-64.5a
☐ S-64.3b
☐ S-64.3a
☐ S-64.2b
☐ S-64.2a
☐ S-64.1

☐ Resvd
☐ Resvd
☐ G.959.1
☐ L-64.3
☐ L-64.2c
☐ L-64.2b
☐ L-64.2a
☐ L-64.1

☐ Resvd
☐ Resvd
☐ Resvd
☐ Resvd
☐ V-64.3
☐ V-64.2b
☐ V-64.2a

☐ Tx tunable
☐ With APD
☐ Cooled Tx
☐ Wave CTRL
☐ Tx tech
☐ Tx tech
☐ Tx tech
☐ Tx tech

☒ XFI Loopback
☐ LinesideLoopback
☐ Reserved
☐ CDR 11.1 Gb/s
☐ CDR 10.7 Gb/s
☐ CDR 10.5 Gb/s
☐ CDR 10.3 Gb/s
☐ CDR 9.95 Gb/s

☐ Reserved
☐ Reserved
☐ Reserved
☐ AvgPower
☐ BER sport
☐ Reserved
☐ Reserved
☐ Reserved

221Byte

Power Supply

Interface

Vendor_Information

☐ Optional CMU
☐ Wave tunability
☐ Active FEC
☐ Supports VPS
☐ VPS LV
☒ Soft P_down
☒ Soft Tx_Dis
☐ Optional VPS

d 40

Length-SMF-km

3500

Max Power

d 0

Length-E-50um

1500

Max Power_Dn

d 0

Length-50um

500

Max current 5V

d 0

Length-62.5um

700

Max current 3.3V

d 0

Length-Copper

0

Max current 1.8V

d 70

Max CaseTemp

0

Max current -5.2V

d 0

133H

d 187

CC_Base

d 0.1

Wave Tol.

d 99

BR Min

d 111

BR Max

d 103

CC_EXT

XFP

PHY_ID

LC

Connector

PowerLevelB(<3.5W)

PowerLevel

1550nm EML

Tx_Tech

+3.3V Supply Vcc

Aux Input1

Reserved

Aux Input2

OEM

VN

XFP-LR-10KM

PN

102507301005

SN

250730

Date

1550.00

WL

10

Rev

0000 00

OUI

Current date

No.	EE_SN	Action	Write area	Password	Identifier	Hostname	Host Time	Result

DDM Off

DDM

H/A

L/A

H/W

L/W

Temp

23.68

80.00

-10.00

70.00

0.00

Vcc

3.14

3.63

2.97

3.46

3.13

IBias

0.00

130.00

20.00

120.00

30.00

TxPWR

-40.00

4.00

-3.00

2.00

-1.00

RxPWR

-40.00

1.00

-17.80

-1.00

-15.80

LDTemp

0.00

0.00

0.00

0.00

0.00

Status

Dat_RD

TxDis

RxLos

P_Down

SFTxDis

Password CTRL

x 2

A0.Hi

8byte

50

ms

Stand-by

x A0

Dev.addr

120

Length

FSN

x 7B

Reg.addr

Page Select

AOT01

AOT02

x 0

x 0

x 10

x 11

Manual mode

Automode

Index Bin File

Read Module

Write Modify

Save BinFile

Write BinFile

BinFile

Eeprom Programming for SFF-8636

— □ ×

Coding for QSFP
EEPROM
EXTEND

☐ 3.3V_EN
 ☒ LPMODE

EVB Connected
 I2C ACK

EEPROM Read successfully
 Checksum Ok
 Module Ready

129Byte	131Byte	132Byte	133Byte	134Byte	135Byte	136Byte	137Byte	138Byte	147Byte	164Byte	193Byte
PowerClass	40G Active	OC48short	Revsd	1000BaseSX	EL (inter)	Reserved	SingleMode SM	100 MB/s	Tx tunable	SDR	Rx Amp
PowerClass	40GBaseLR4	OC48Inter	Revsd	1000BaseLX	LonglaserLC	Reserved	Multimode, M3	Extended	With APD	DDR	Rx Emp
Rx CDR	40GBaseSR4	OC48long	Revsd	1000BaseCX	Reserved	Reserved	Multimode, M5	200 MB/s	Cooled Tx	QDR	Tx Eq Fix
Tx CDR	40GBaseCR4	40G OTN	Revsd	1000BaseT	Medium	Reserved	Multimode, M6	3200 MB/s	Wave Ctrl	FDR	Tx Eq Aut
CLEI Code	10GBaseSR	Reserved	SAS3.0G	Reserved	L-distance	LongwaveLL	Video Coax (TV)	400 MB/s	Tx tech	EDR	Tx Ad Eq
PowerClass8	10GBaseLR	Reserved	SAS6.0G	Reserved	I-distance	ShortwaveSL	Miniature Coax	1600 MB/s	Tx tech	HDR	SFF-8679
PowerClass	10GBaseLRM	Reserved	SAS 12G	Reserved	S-distance	ShortwaveSN	Twisted Pair (TP)	800 MB/s	Tx tech	REVS	LPMODE
PowerClass	Extended	Reserved	SAS 24G	Reserved	V-distance	EL (intra)	WinAxial Pair(TW)	1200 MB/s	Tx tech	REVS	Reserved

194Byte	195Byte	220Byte	221Byte	Distance&Fiber	Rate technology	Interface&Power Level	OEM	VN
Tx Squelch	Page20-21	Reserved	Soft reset	d 0 Length-SMF*km	850nm VCSEL	QSF28	100G-QSFP-SR4-F	PN
Tx Squelch Dis	Tx Loss	Reserved	TC read	d 35 Length-OM3*2m	d 255 Rate*100MBd	MPO 1x12	1702250001	SN
Rx Output Dis	Tx Squelch	TXSuppor	SFF-8079	d 0 Length-OM2*1m	d 103 Rate*250MBd	256B/257B-FEC	180301	Date
Rx Squelch Dis	Tx_FAULT	Avg PWR	RateSelect	d 0 Length-OM1*1m	d 10 WaveTol	100GBASE-SR4	850.00	WL
Rx CDR Loss	Tx Dis	Voltage	Init Flag	d 50 Copper/OM4	d 150 CC_BASE	PowerClass3(<2.5W)	01	Rev
Tx CDR Loss	Rate_Select	Temp	Reserved	d 70 MaxCase Temp	d 0 141Byte	Reserved	0000 00	OUI
Rx CDR On	Page 01	Reserved	Reserved					
Tx CDR On	Page 02	Reserved	Reserved					

No.	EE SN	Action	Write area	Password	Identifier	Hostname	Host Time	Result

DDM ON	Lane1	Lane2	Lane3	Lane4	Unit
IBias	6.01	6.01	6.00	6.02	mA
TxPWR	-0.48	-0.49	-0.50	-0.48	dBm
TxDIs	TxDIs	TxDIs	TxDIs	TxDIs	CTRL
RxPWR	-40.00	-40.00	-40.00	-40.00	dBm
RxLos	RxLos	RxLos	RxLos	RxLos	Flag
TE/Vcc	23.41	3.33			C/V
Status	DAT_RD	INTL	RESET	LPMODE	CTRL

Password CTRL

x 2 A0.Hi

8byte
 50 ms

x 78 Reg.addr

FSN
 Manual mode
 Automode

Page Select

☒ A0T00
 ☐ A0T02

Index Bin File

Stand-by
 Read Module
 Write Modify
 Save BinFile
 Write BinFile

BinFile

Eeprom Programming for CMIS

— □ ×

Coding for CMIS
EEPROM
EXTEND

☐ 3.3V_EN
 ☒ LPMODE

EVB Connected
 I2C ACK

EEPROM Read successfully
 Checksum Ok
 Module Ready

210Byte	Copper Cable Attenuation	Interface&Power Level	Cable Assembly Link Length	Vendor Information
Unsupport Lane1	d 0 Attenuation at 5GHz	QSF28	* 0.1 LengthMultiplier	OEM
Unsupport Lane2	d 0 Attenuation at 7GHz	MPO 1x16	d 0 BaseLength	QSF28 400G SR8
Unsupport Lane3	d 0 Attenuation at 12.9GHz	850nm VCSEL	Vendor CLEI & OUI	V5DE1F000F2
Unsupport Lane4	d 0 Attenuation at 25.8GHz	PowerClass5(<10.0W)	CLEI	250630
Unsupport Lane5	d 0 FarEndConfig	10 MaxPower * W	0000 00	OUI
Unsupport Lane6				01
Unsupport Lane7				
Unsupport Lane8				

Custom monitor	Aux1MonObservable	Controlled per lane	TxDIsModuleWide	Supported (8 lanes)	BanksSupport	* 0.1 Multiplier	d 0 FW_MajorRev
LDTemp monitor	Aux2MonObservable	Regular timing	TxDIsDisableFast	<input checked="" type="checkbox"/> Page03hSupported	<input checked="" type="checkbox"/> BanksSupport	d 0 Length-SMF*km	d 1 FW_MinorRev
LDTemp monitor	Aux3MonObservable	Regular timing	RxLOSIsFast	<input checked="" type="checkbox"/> DiagPagesSupported	<input checked="" type="checkbox"/> BanksSupport	d 0 Length-OM5*2m	d 1 HW_MajorRev
UnSupported	TimingPage15h	Pavg	RxLOSType	<input type="checkbox"/> VDMPagesSupported	<input type="checkbox"/> BanksSupport	d 50 Length-OM4*2m	d 0 HW_MinorRev
UnSupported	EPPSSupported	Pavg	RxpowerType	<input type="checkbox"/> NetpPagesSupported	<input type="checkbox"/> BanksSupport	d 35 Length-OM3*2m	850.00 WL
Tx input lanes 1-4	TxInputClocking	Reserved	RxOutputEqType	d 217 ModSelWaitTime	<input type="checkbox"/> BanksSupport	d 0 Length-OM2*1m	10 WL.Tol
Uncooled transmitter	CoolingImplemented	PIN detector	OptDetectorType				

No.	EE SN	Action	Write area	Password	Identifier	Hostname	Host Time	Result

DDM ON	Lane1	Lane2	Lane3	Lane4	Lane5	Lane6
IBias	0.00	0.00	0.00	0.00	0.00	0.00
TxPWR	-40.00	-40.00	-40.00	-40.00	-40.00	-40.00
TxDIs	TxDIs	TxDIs	TxDIs	TxDIs	TxDIs	TxDIs
RxPWR	-40.00	-40.00	-40.00	-40.00	-40.00	-40.00
RxLos	RxLos	RxLos	RxLos	RxLos	RxLos	RxLos
TE/Vcc	42.11	3.35	PwrDn	RESET	LPMODE	

Password CTRL

x A0 Dev.addr

8byte
 50 ms

x 7A Reg.addr

FSN
 Manual mode
 Automode

Page Select

☒ A0T00
 ☐ A0T01
 ☐ A0T03

Index Bin File

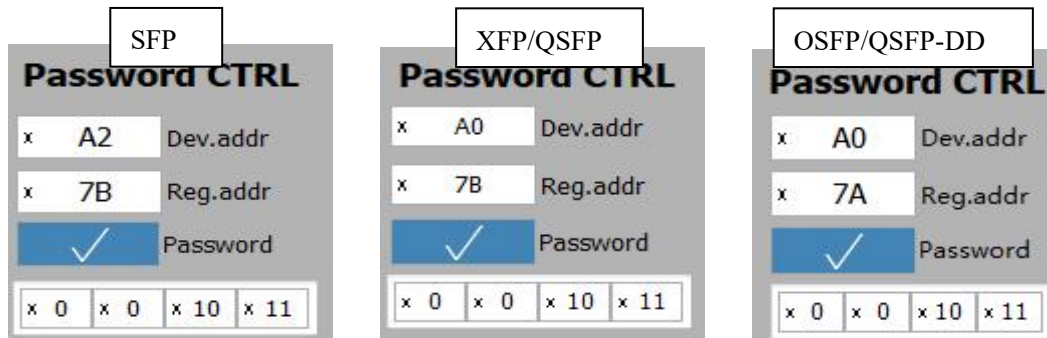
Stand-by
 Read Module
 Write Modify
 Save BinFile
 Write BinFile

BinFile

2.3 Module Password Management

2.3.1 Enter a four digit hexadecimal password and set a password entry point (for example, QSFP module, default password entry is A0. [7B~7E], Set Dev.addr=0xA2 and Reg.addr=0x7B)

2.3.2 Select "Password" option. After inserting the module into the CodingBox, the coding software will automatically write the password into the module, as the following picture.



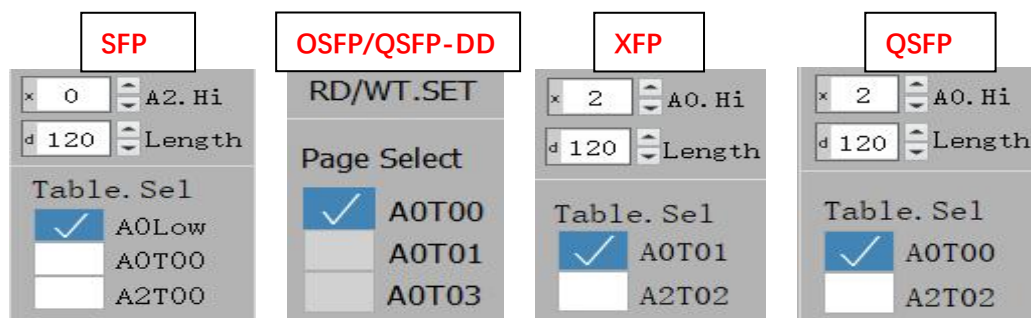
Note 3: Unencrypted optical module no need to set password, do not select "Password", just skipping.

2.4 Set the target page for writing to the module EEPROM

2.4.1 Page is defined as follows

A0Low: A0LowPage [000-128]Bytes; A0T00: A0.Page00 [128-255]Bytes;
A0T01: A0.Page01 [128-255]Bytes; A0T02: A0.Page02 [128-255]Bytes;
A0T03: A0.Page03 [128-255]Bytes; A2T00: A2.Page00 [128-255]Bytes;

2.4.2 Users can set the Page to be written according to the actual situation. The default settings are as below:



2.5 Select the code file to write

Click the file button 

Select a Bin file or drag it into the file path bar, and the software will read the content of the selected Bin file;

2.6 Insert Custom High Bit Code

A0 code and A2 code are separate code files, and the function of inserting custom high bit codes can be used to write A0 and A2 codes at once; Ignoring this function when writing a single code file.

2.6.1 Place a 128byte A2/A0 high bit code, Select the A0T0/A2T0 option to enable inserting custom codes.

2.6.2 Click the file button to select the Bin file or drag the Bin file into the file path bar. When writing, the content of the Bin file selected by the software is written into the module;

2.7 Automatic code writing delay setting

QSFP56, QSFP-DD, OSFP and other high-speed and high-power modules take a long time to start up. If the module is inserted and the code is written immediately, the code writing may fail; When writing code, you need to add enough delay Times (The specific delay time is related to the module design.) and wait for the module to enter a stable state before writing code.

2.8 Nine coding methods

2.8.1 Manual coding mode:

2.8.1.1 Click on the "AutoMode" option bar and select "Manual mode";

2.8.1.2 Load code file (refer to operation 2.5);

2.8.1.3 Click the "Write BinFile" button, and the software will write the information of the selected Bin file into the selected table;

2.8.2 Automatic code writing→fixed SN mode:

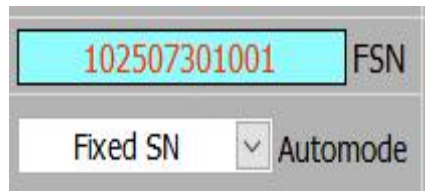
2.8.2.1 Click on the "AutoMode" option bar and select "Fixed SN";

2.8.2.2 Load code file (refer to operation 2.5), Enter SN in the FSN text box;

2.8.2.3 Insert the optical module and the software automatically triggers the Write BinFile operation after detecting successful i2C communication.

2.8.2.4 After the code writing is successful, the FSN remains unchanged.

2.8.2.5 Write code for the next module repeat the 2.8.2.3 operation.



2.8.3 Automatic code writing→SN+1 mode:

2.8.3.1 Click on the "AutoMode" option bar and select "SN+1";

2.8.3.2 Load code file (refer to operation 2.5), Enter SN in the FSN text box;

2.8.3.3 Insert the optical module and the software automatically triggers the Write BinFile operation after detecting successful i2C communication.

2.8.3.4 After the code writing is successful, the FSN automatically increases by 1, if the code writing fails, the FSN remains unchanged.

2.8.3.5 Write code for the next module repeat the 2.8.3.3 operation.

2.8.4 Automatic coding→SN+1 & index bin file mode:

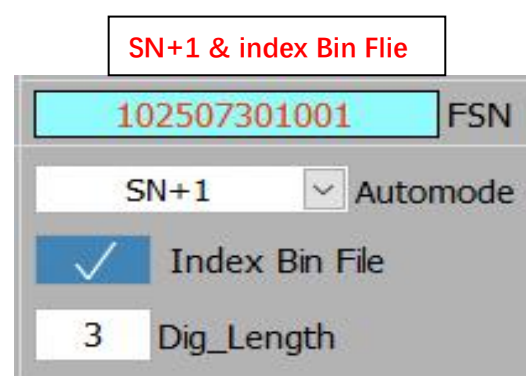
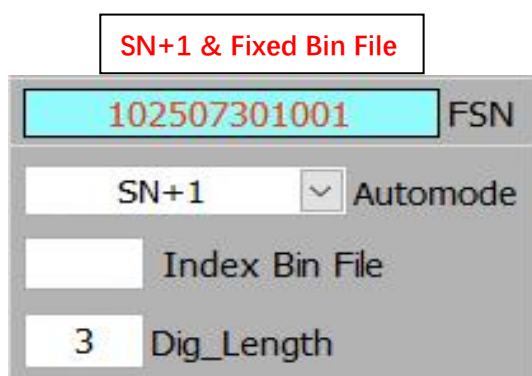
2.8.4.1 Click on the "AutoMode" option bar and select "SN+1", Check "Index Bin File";

2.8.4.2 Load code file (refer to operation 2.5), Enter SN in the FSN text box;

2.8.4.3 Insert the optical module, the software detects that the i2C communication is successful, The 'BinFile' control automatically loads Bin files with the same name as FSN in the selected folder, and triggers the Write BinFile operation;

2.8.4.4 After the code writing is successful, the FSN automatically increases by 1, if the code writing fails, the FSN remains unchanged.

2.8.4.5 Write code for the next module repeat the 2.8.4.3 operation.



2.8.5 Scan Barcode to write → Fixed Bin file mode:

2.8.5.1 Click on the "AutoMode" option bar and select "Scan Barcode";

2.8.5.2 Load code file (refer to operation 2.5);

2.8.5.3 Insert the optical module, scan the barcode SN to FSN with the barcode scanner, and trigger the Write BinFile operation;

2.8.5.4 After the code writing is successful, the FSN is automatically selected and cleared, if the code writing fails, the FSN remains unchanged.

2.8.5.5 Write code for the next module repeat the 2.8.5.3 operation.

2.8.6 Scan Barcode to write → SN index Bin file mode:

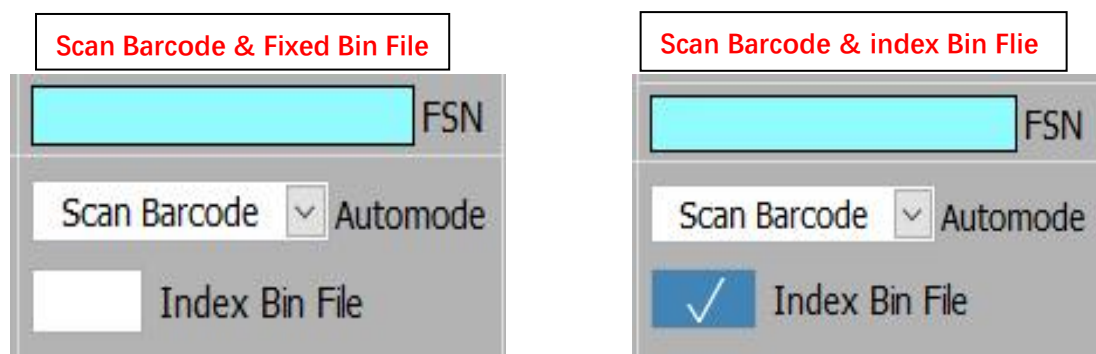
2.8.6.1 Click on the "AutoMode" option bar and select "Scan Barcode", Check "Index Bin File";

2.8.6.2 Load code file (refer to operation 2.5);

2.8.6.3 Insert the optical module, scan the Barcode SN to FSN with the barcode scanner, The 'BinFile' control automatically loads Bin files with the same name as FSN in the selected folder, and trigger the Write BinFile operation;

2.8.6.4 After the code writing is successful, the FSN is automatically selected and cleared, if the code writing fails, the FSN remains unchanged.

2.8.6.5 Write code for the next module repeat the 2.8.6.3 operation.



2.8.7 Automatic code writing→SN List mode:

2.8.7.1 Click on the "AutoMode" option bar and select "SN List";

2.8.7.2 Load code file (refer to operation 2.5);

2.8.7.3 Insert the optical module and the software automatically triggers the Write BinFile operation after detecting successful i2C communication.

2.8.7.4 After the code writing is successful, The software automatically loads the next serial number from the serial number list to FSN, if the code writing fails, the FSN remains unchanged.

2.8.7.5 Write code for the next module repeat the 2.8.7.3 operation.

2.8.8 Automatic code writing→SN List mode & index Bin file mode:

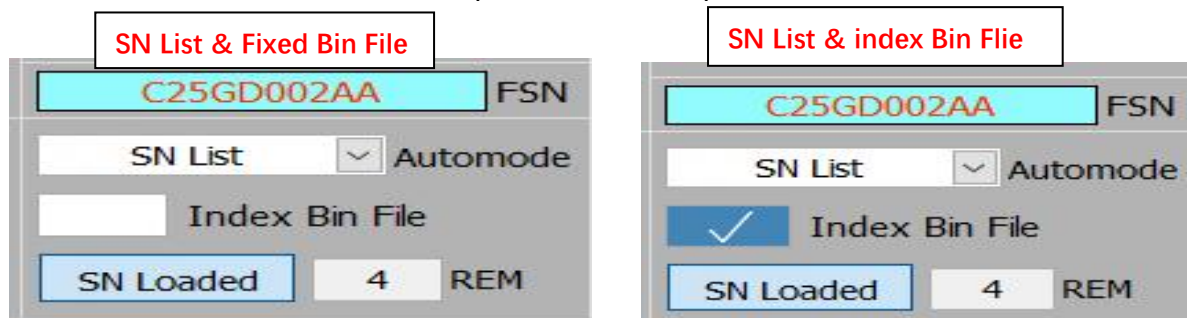
2.8.8.1 Click on the "AutoMode" option bar and select "Scan Barcode", Check "Index Bin File";

2.8.8.2 Load code file (refer to operation 2.5);

2.8.8.3 Insert the optical module, The 'BinFile' control automatically loads Bin files with the same name as FSN in the selected folder, and trigger the Write BinFile operation;

2.8.8.4 After the code writing is successful, The software automatically loads the next serial number from the serial number list to FSN, if the code writing fails, the FSN remains unchanged.

2.8.8.5 Write code for the next module repeat the 2.8.8.3 operation.



2.8.9 Automatic code writing → Dirwalk mode:

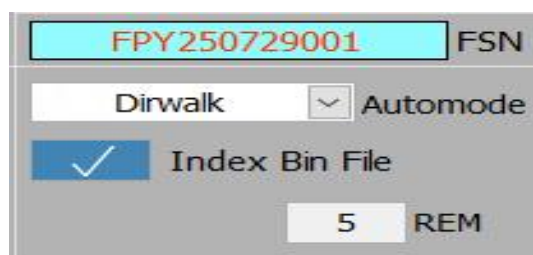
2.8.9.1 Click on the "AutoMode" option bar and select "Dirwalk";

2.8.9.2 Load code file (refer to operation 2.5);

2.8.9.3 Insert the optical module, The 'BinFile' control automatically loads Bin files with the same name as FSN in the selected folder, and trigger the Write BinFile operation;

2.8.9.4 After the code writing is successful, The software automatically selects the next file from the selected folder and loads the file name into FSN, if the code writing fails, the FSN remains unchanged;

2.8.9.5 Write code for the next module repeat the 2.8.9.3 operation.



2.8.10 Automatic code writing → Internal SN mode of module:

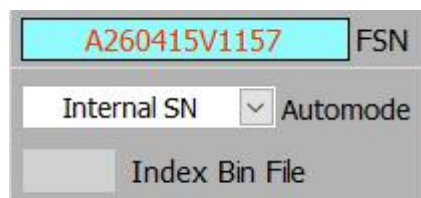
2.8.10.1 Click on the "AutoMode" option bar and select "Internal SN";

2.8.10.2 Load code file (refer to operation 2.5);

2.8.10.3 Insert the optical module, Software reading module SN to FSN, and trigger the Write BinFile operation;

2.8.10.4 After the code writing is successful, the FSN is automatically cleared, if the code writing fails, the FSN remains unchanged.

2.8.10.5 Write code for the next module repeat the 2.8.10.3 operation.



2.8.11 The successful pop-up prompt reads "Writing successful, please replace the module". After unplugging the module or waiting for 10 seconds, the prompt will automatically disappear; If it fails, it will prompt "Write Code failed;...".



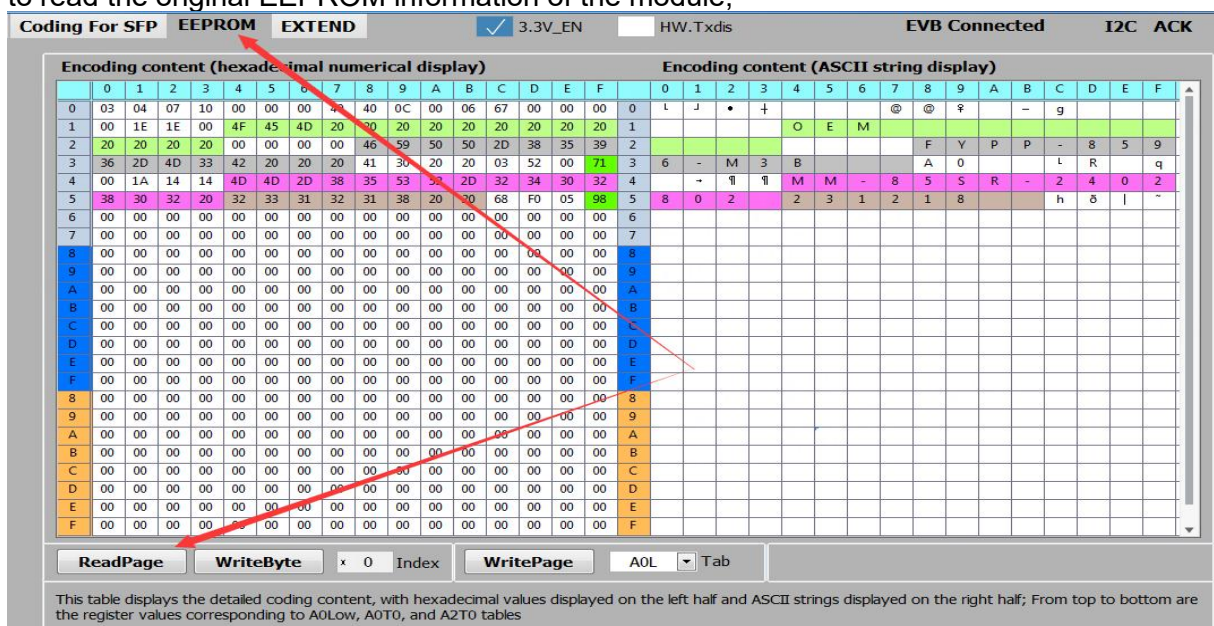
Note4: To write code in the ten modes of 2.8.1-10, you need to complete 2.3 - 2.4.

2.9 Modifying Module Manufacturer Information

- 2.9.1 Click the "Read Module" button to read the original manufacturer information of the module;
- 2.9.2 Set the information that needs to be modified in the software interface, such as VN, PN, SN, date, wavelength, etc.;
- 2.9.3 Click the "Write Modify" button to save the currently modified information;

2.10 Custom modification module EEPROM information

- 2.10.1 Click the "EEPROM" button to switch to the EEPROM interface, click the "ReadPage" button to read the original EEPROM information of the module;



- 2.10.2 Click Table (hexadecimal value in the left half; ASCII format string in the right half) to select the cells that need to be edited and modify the data;

- 2.10.3 Click the "Write Byte" button to save the data edited in the current cell;

ADD: 1/2/3/4F, Deliwei Industrial Park, Longhua New District, Shenzhen, China 518109

T: +86-755-29048607 F: +86-755-29048624

<https://www.opticres.com>

Page 12 of 20

EN_CodingBox Manual Rev A5

sales@opticres.com

2.10.4 Click the "WritePage" button to save all data in the Table (control Pg.Sel sets the saving range);

2.11 Save Code Information

2.11.1 Click the "Read EEPROM" button to read out the original EEPROM information of the module, and select the table that needs to be saved;

2.11.2 Click the "Save BinFile" button, and the software will save the retrieved code information as a Bin file.

2.12 DDM threshold reading and writing

2.12.1 Click the "Read" button to read the DDM threshold of the module;

2.12.2 Edit the thresholds in the table, such as temperature, voltage, bias current, etc.;

2.12.3 Click the "Write" button to write the modified threshold;

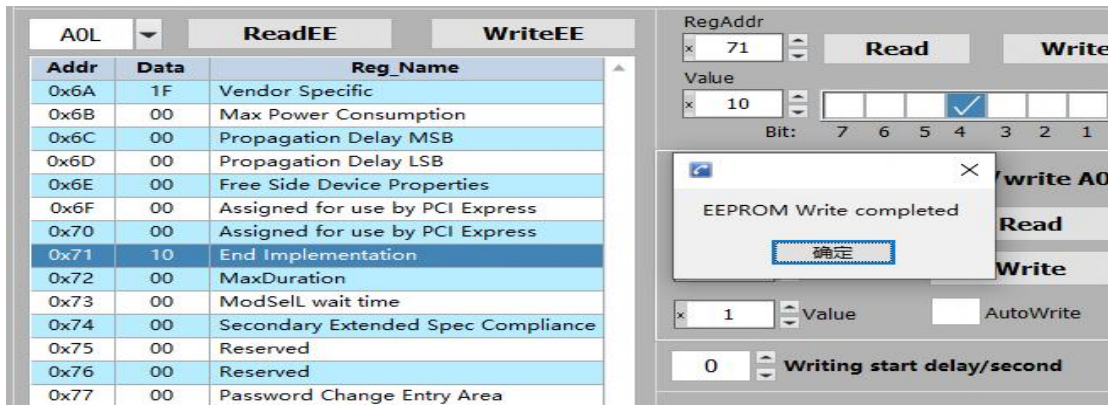
Read	Write	DDM Threshold			
	H/Alarm	L/Alarm	H/Waring	L/Waring	
Temp	100.00	-10.00	90.00	-5.00	
Vcc	3.60	2.90	3.50	3.00	
IBias	100.00	1.00	90.00	2.00	
TxPWR	6.00	-4.00	5.00	-3.00	
RxPWR	-16.93	-26.02	-8.00	-24.95	
LDTemp	0.00	0.00	0.00	0.00	
TEC Icc	0.00	0.00	0.00	0.00	

2.13 Module EEPROM page operation

2.13.1 The module EEPROM page operation function mainly reads and writes module registers in batches. Users can edit register values in the register table. Click the Page option bar to select or manually enter the page that needs to be set, and click the "ReadEE" button. The software will read the corresponding data in the module EEPROM and load it into the register table.

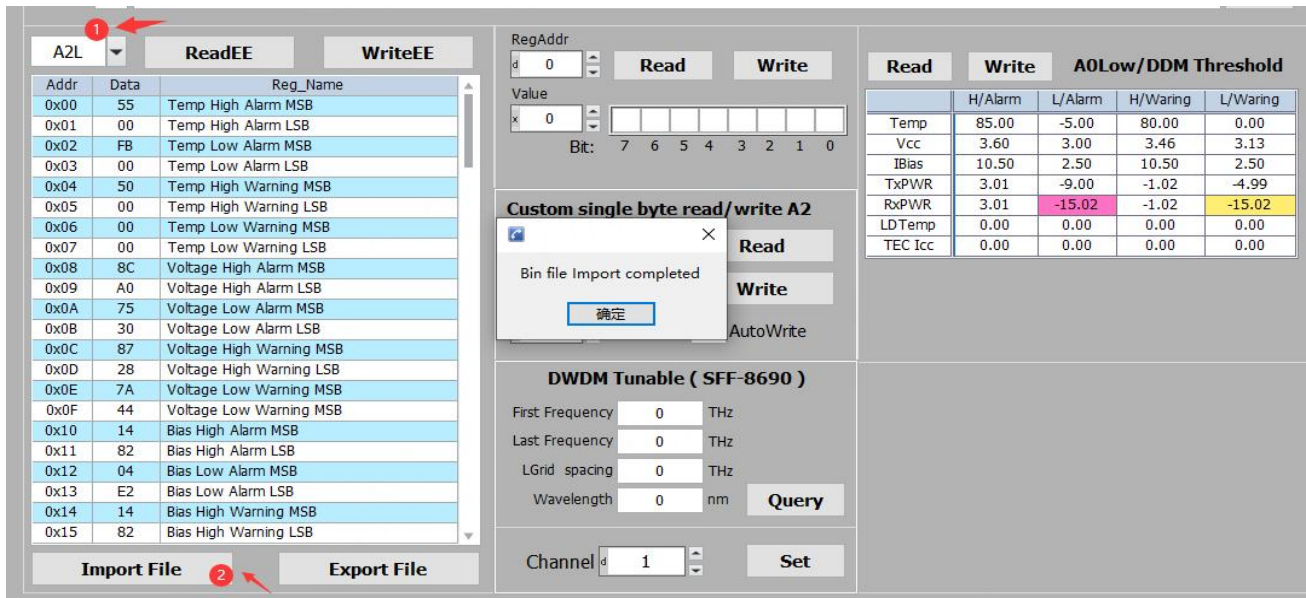
Reg Name	Value
A0L	
A0T0	Vendor Specific
A0T2	Max Power Consumption
A0T3	Propagation Delay MSB
0x6D	00 Propagation Delay LSB
0x6E	00 Free Side Device Properties
0x6F	00 Assigned for use by PCI Express
0x70	00 Assigned for use by PCI Express
0x71	10 End Implementation
0x72	00 MaxDuration
0x73	00 ModSell wait time
0x74	00 Secondary Extended Spec Compliance
0x75	00 Reserved
0x76	00 Reserved

2.13.2 Click the "WriteEE" button, and the software will batch write the values in the current register table into the module registers;



2.14 Custom import and export of Bin files within the table

2.14.1 Select the table to be operated on, click the "Import File" button, select the corresponding Bin file, and the software will read the data and load it into the register table. Users can edit the register values in the register table. It can also be written into the module EEPROM, refer to 2.13.2;



2.15.2 Click the "Export File" button, and the software will export the data in the table to a local file.

2.15 DWDM Tunable Function

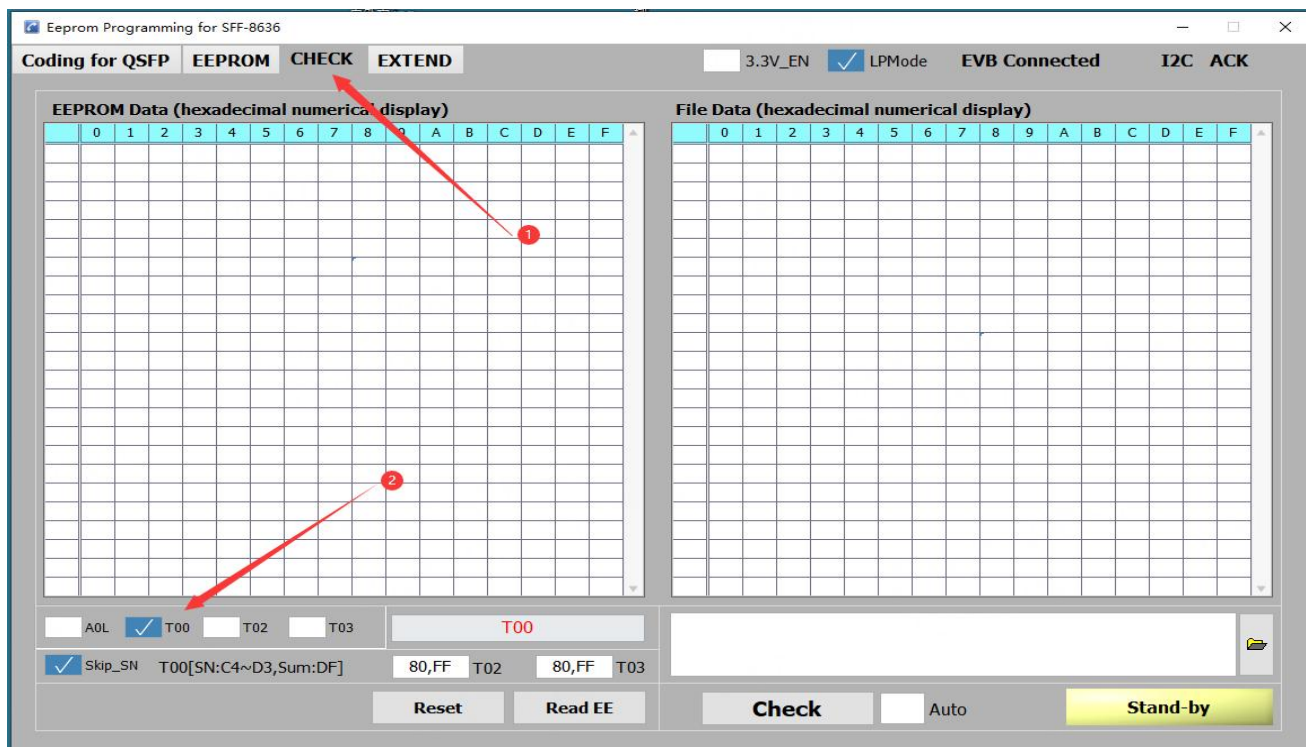
2.15.1 Click the "Query" button to query the Tnuable information of the current module;

2.15.2 Enter the channel number in the Channel settings box, click the "SET" button, and the software will automatically update the relevant registers;

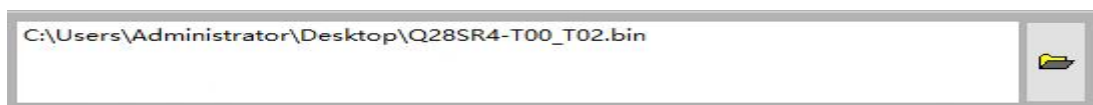
[illegible]

2.16 Compare Function

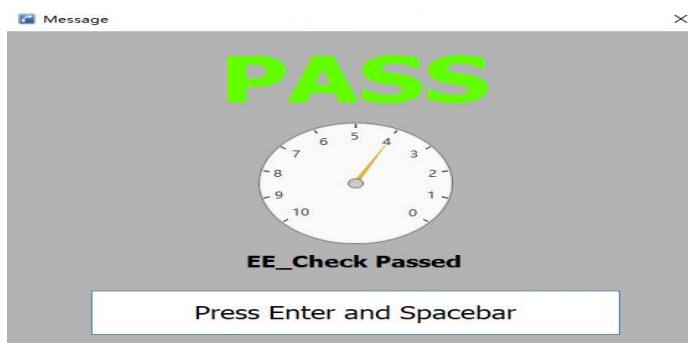
2.16.1 Click the "CHECK" button to switch to the CHECK interface, click the table selection button to select the Page to be compared, and click the "Read EE" button to read the EEPROM information of the module;



2.16.2 Click the file button to select the Bin file or drag the Bin file into the file path bar, and the software will automatically load the file content into the File_data table;



2.16.3 Click the "Check" button, and the software will start comparing the contents of two tables. If the contents are consistent, a pop-up will prompt "PASS". Otherwise, an error message will appear and the inconsistent positions will be highlighted in red within the table;



EEPROM Data (hexadecimal numerical display)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	11	CC	0C	80	00	00	00	40	40	02	02	07	FF	00	00	23
01	00	00	1E	00	4F	45	4D	31	20	20	20	20	20	20	20	20
02	20	20	20	20	07	44	7C	51	53	46	50	32	38	2D	31	
03	30	30	47	2D	53	52	34	20	31	41	42	68	07	D0	46	14
04	02	00	FF	D6	49	4E	47	42	43	38	32	39	31	39	32	30
05	32	20	20	20	32	30	30	38	32	31	20	20	38	00	67	47
06	43	4F	55	49	41	37	46	50	41	41	58	43	56	52	2D	53
07	31	30	56	33	31	20	00	00	00	00	00	00	00	41	20	

File Data (hexadecimal numerical display)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	11	CC	0C	80	00	00	00	40	40	02	02	07	FF	00	00	23
01	00	00	1E	00	4F	45	4D	20	20	20	20	20	20	20	20	20
02	20	20	20	20	07	44	7C	51	53	46	50	32	38	2D	31	
03	30	30	47	2D	53	52	34	20	31	41	42	68	07	D0	46	03
04	02	00	FF	D6	49	4E	47	42	43	38	32	39	31	39	32	30
05	31	20	20	20	32	30	30	38	32	31	20	20	38	00	67	46
06	43	4F	55	49	41	37	46	50	41	41	58	43	56	52	2D	53
07	31	30	56	33	31	20	00	00	00	00	00	00	00	41	20	
08	57	4F	54	52	44	32	30	46	41	41	19	38	86	31	36	30
09	2D	39	34	30	32	2D	39	30	30	20	20	20	20	30	30	35
0A	43	4F	55	49	41	37	46	50	41	41	58	43	56	52	2D	53

EE_Check Failed! : T00 Check Failed!

确定

2.16.4 Extension setting instructions: Skip_SN (skip storing SN bytes during comparison), T00/T03 (set the comparison range for the corresponding table)

☒ Skip_SN T00[SN:C4~D3,Sum:DF]

A0Page00 Skip SN[C4~D3] and checksum[DF] bytes

Sum:DF] 80,FF T02 80,FF T03

Set the register range for Page02 comparison

2.16.5 Automatic comparison function, check the "Check" button, and the software will automatically trigger the CHECK action after detecting the inserted module.

Check

☒ Auto

2.17 CMIS MSA GUI

2.17.1 Click the "Extend" button to switch to the Extend interface, and click the "CMIS.MSA_GUI" button to open the CMIS.MSA_RG_Control sub interface in the software;

2.17.2 Click the "Application" button to switch to the CMIS APP configuration interface.

CMIS_MSA_GUI

MSA INFO APPLICATION Update Page

Auto	TE/A	sc	IBias	Txpower	RxPower	DataPathState	TxFailure	TxLOS	TxCDR	TxAdpFit	RxLOS	RxCDCR
Lane1	36.79	0.00	-40.00	-40.00	-40.00	Activated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR
Lane2	3.29	0.00	-40.00	-40.00	-40.00	Deactivated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR
Lane3		0.00	-40.00	-40.00	-40.00	Deactivated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR
Lane4		0.00	-40.00	-40.00	-40.00	Deactivated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR
Lane5		0.00	-40.00	-40.00	-40.00	Deactivated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR
Lane6		0.00	-40.00	-40.00	-40.00	Deactivated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR
Lane7		0.00	-40.00	-40.00	-40.00	Deactivated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR
Lane8		0.00	-40.00	-40.00	-40.00	Deactivated	TXFailure	TxLos	TxCDCR	TxAdpFit	RxLos	RxCDCR

Application1~8 Application9~15 Read App Set App

Media Type: MMF

HostInterfaceID	MediaInterfaceID	HostMediaLaneCount	HostLaneAssignment	MediaLaneAssignment
APP1	400GAUI-8 C2M	400GBASE-SR8	x 88	x 1
APP2	200GAUI-4 C2M	200GBASE-SR4	x 44	x 11
APP3	End of list	Undefined	x 0	x 0
APP4	Undefined	Undefined	x 0	x 0
APP5	Undefined	Undefined	x 0	x 0
APP6	Undefined	Undefined	x 0	x 0
APP7	Undefined	Undefined	x 0	x 0
APP8	Undefined	Undefined	x 0	x 0

3.3V_EN LPMode

EXTEND

RegAddr 0 Read Write

Value 0

Bit: 7 6 5 4 3 2 1 0

A0T2/DDM Threshold

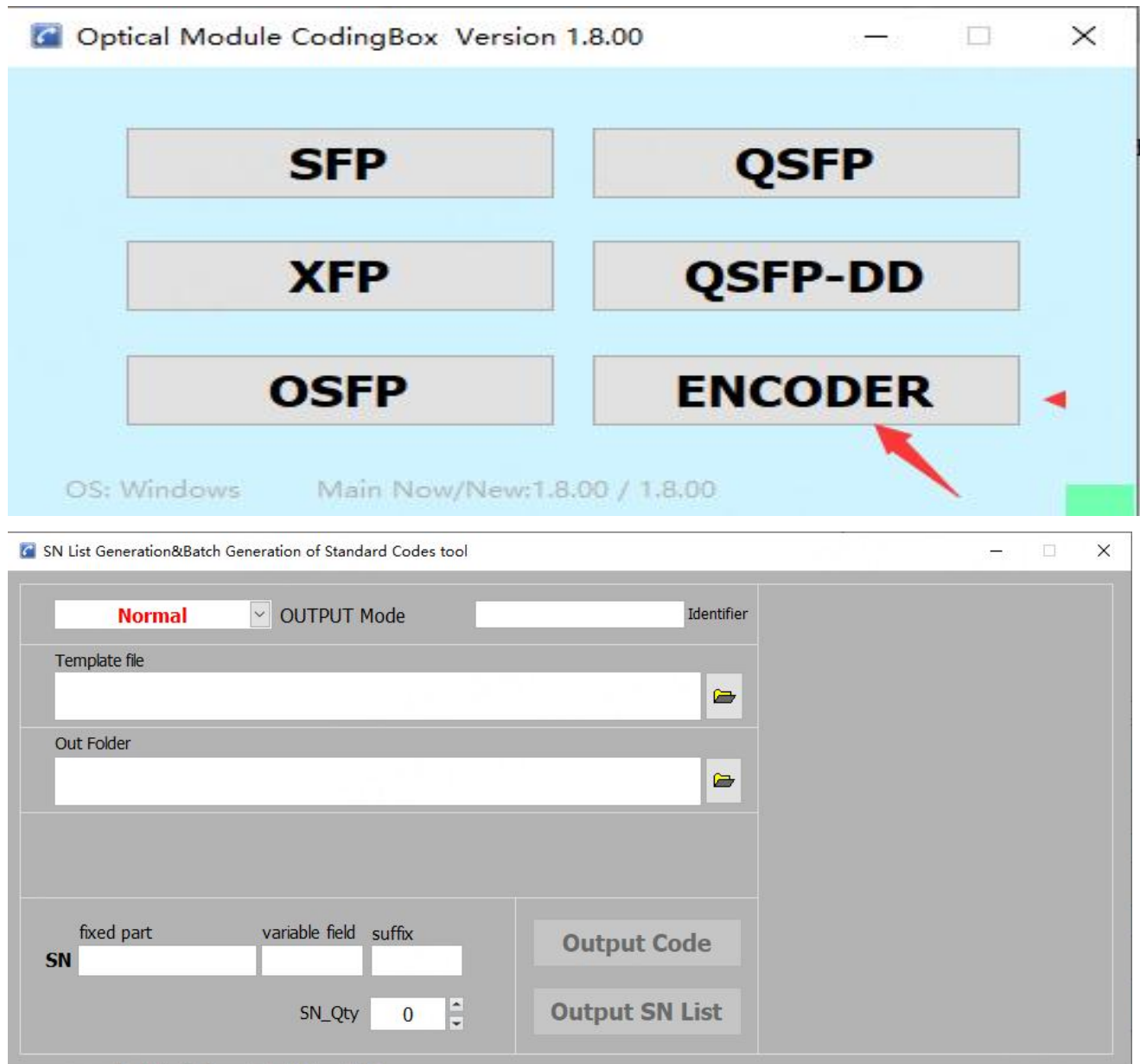
	H/Alarm	L/Alarm	H/Waring	L/Waring
Temp				
Vcc				
RxPWR				
TxBias				
TxPWR				

5 Automatic code writing start delay/second

CMIS MSA GUI

Part 3: Encoder

3.1 Click the "ENCODER" button to jump to the encoding sub interface as shown in the following figure

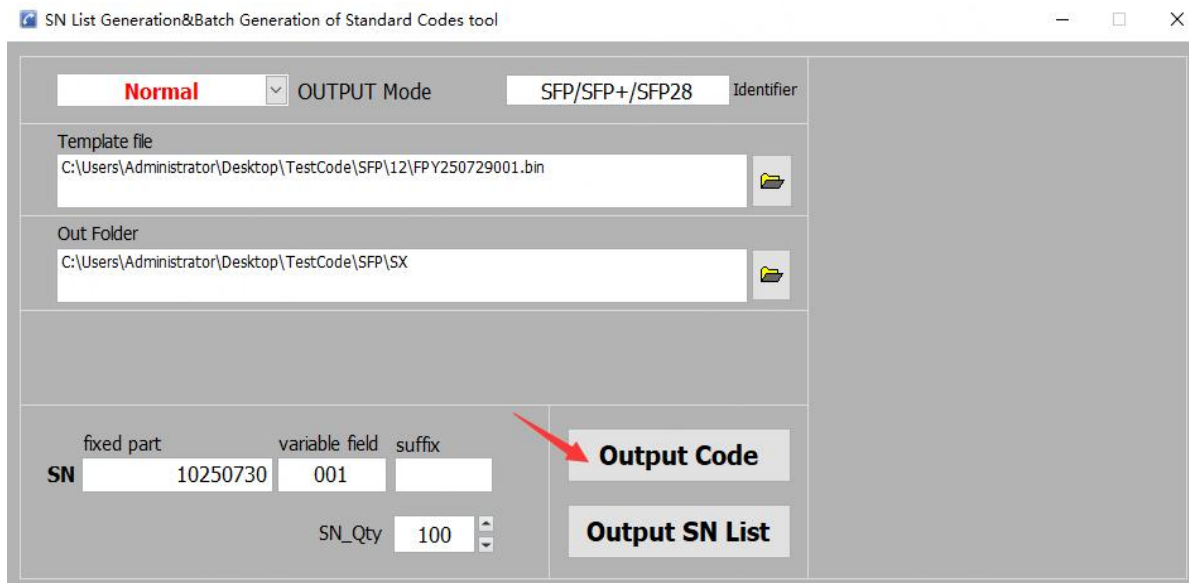


3.2 Normal mode

3.2.1 Load Template File and select Out Folder;

3.2.2 Enter the fixed prefix of SN in the Fixed Part text box, the starting serial number of SN in the Variable field text box, and the fixed suffix of SN in the Suffix text box (e.g. fixed letters, leave blank if there is no fixed suffix);

3.2.3 Click the "Output Code" button, and the software will automatically generate compatibility codes in sequence;

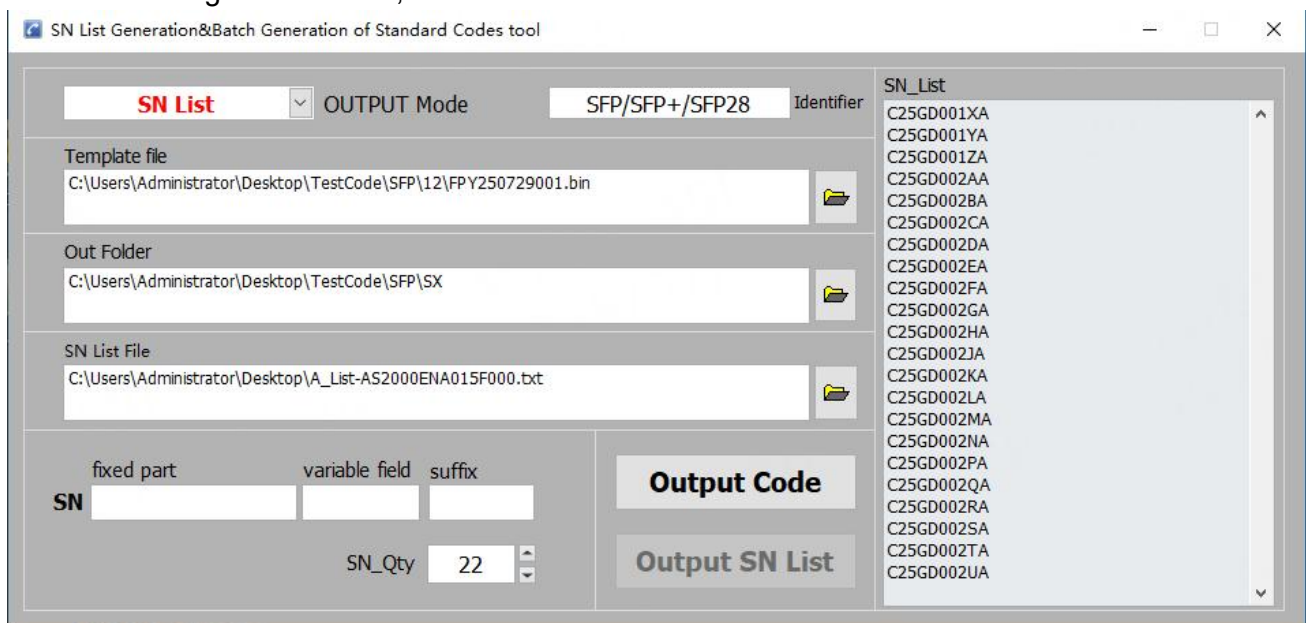


3.3 Import SN List mode

3.3.1 Click on the "Output Mode" option box, select SN List, load Template File, and choose Out Folder;

3.3.2 Load SN List File in the SN List File box;

3.3.3 Click the "Output Code" button, and the software will automatically generate compatibility codes according to the SN list;



3.4 Generate SN list

3.4.1 Click on the "Output Mode" option box and select Normal mode;

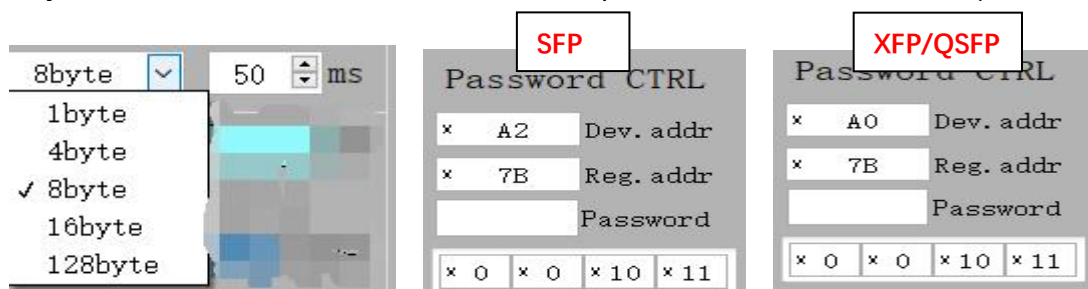
3.4.2 Enter the fixed prefix of SN in the Fixed Part text box, the starting serial number of SN in the Variable field text box, and the fixed suffix of SN in the Suffix text box (e.g. fixed letters, leave blank if there is no fixed suffix);

3.4.3 Click the 'Output SN List' button to export the SN list

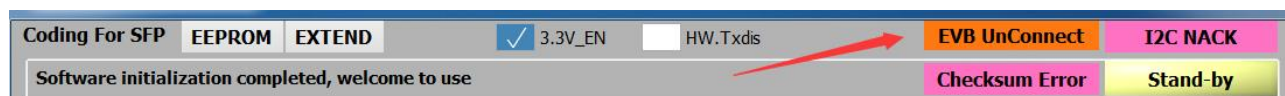
Part 4: FAQ

4.1 Coding failure

The module communication is normal, the password is also correct, but errors are still reported when re-coding or writing. At this time, you should contact the manufacturer to obtain the appropriate page size and delay settings or special password entry (the software defaults to a delay of 50ms for every 8Bytes written, which can match 95% of the optical modules on the market)



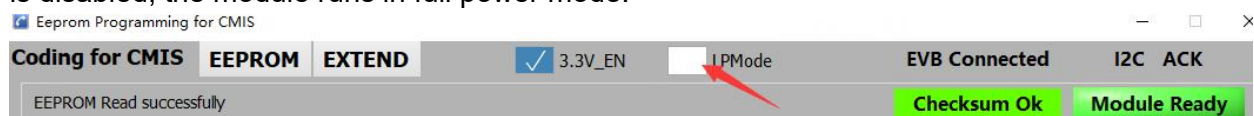
4.2 CodingBox connection failed, as shown in the picture



Check whether the CodingBox USB TYPE C cable is connected normally. If the USB connection is normal but EVB UnConnected still appears, the coding box may be down. Try re-plugging the CodingBox USB cable.

4.3 When high-speed high-power modules such as QSFP-DD and OSFP are inserted into CodingBox, I2C-NACK appears or a prompt "TWI Read Slave: A0 Failure" appears.

Check whether the low power mode is disabled. As shown in the figure below is the low power mode is disabled, the module runs in full power mode.



Try turning on low power mode, as shown in the picture below



Alternatively, connect an external high-power 5V power supply and enhance module cooling.

4.4 For high-power modules such as QSFP-DD and OSFP, automatic code writing fails when I2C access is normal.

Check the delay setting and refer to [2.7](#) for delay setting.

Version	Content	Author	Date
A0	Initial	Zengqinghua	2024/04/22
A1	Add software function block diagram and Modeling diagram	Zengqinghua	2025/04/18
A2	Update document header and footer	Zengqinghua	2025/07/24
A3	1. Added SN list and description of two automatic code writing functions for folders 2. Add Encoding Function Module Description	Zengqinghua	2025/08/01
A4	1. Add Bin file import and export function to the EXETND module	Zengqinghua	2025/08/20
A5	1. Add comparison files and module EEPROM functionality 2. Add MSA extension interface to CMIS subroutine	Zengqinghua	2026/02/11
A6	1. Add an automatic coding mode that does not change the internal SN of the module	Zengqinghua	2026/04/15