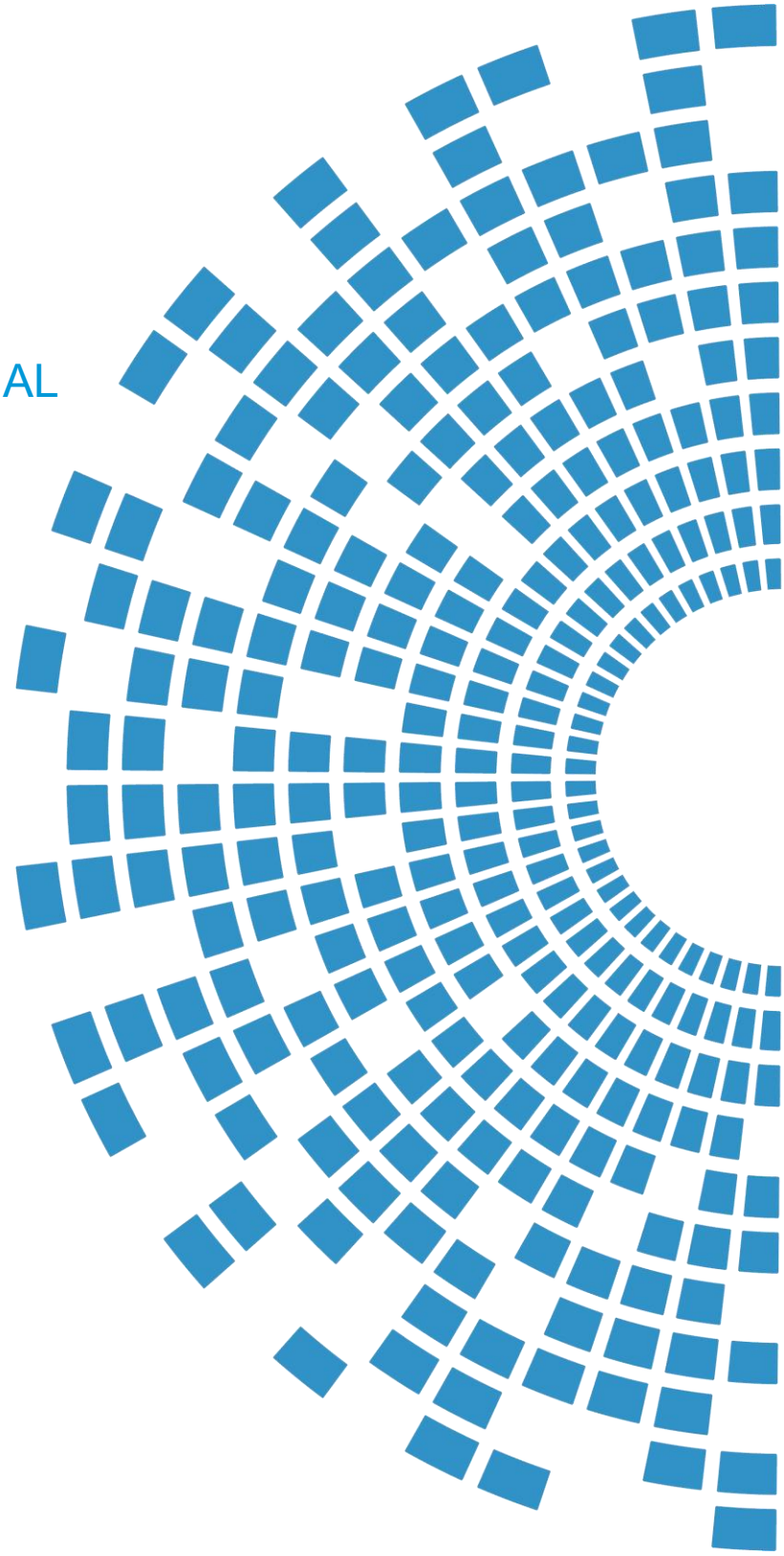
CAN BUS COMMUNICATION MANUAL

TLS-2-48 Series



POWER | PROTECT | CONNECT

Asia-Pacific
+86 755 298 85888

EMEA
+353 61 531 820

North America
+1 866 513 2839

powersupport@belf.com
belfuse.com

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

Table of Contents

1 INSTALL OVERVIEW 3
1.1 Communication overview 3
1.2 Enable and disable device 3
1.3 CAN BUS addressing 4
1.4 Broadcast messages 4
1.5 CAN BUS command 4
1.6 Commissioning 4
1.5.1 Hardware preparation 5
2 INSTALLATION 6
2.1 Connection - tools and equipment 6
2.1.1 Setup 6
2.2 Software installation 7
3 FIRMWARE UPDATE 14
4 REVISION HISTORY 18

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

1 Install Overview

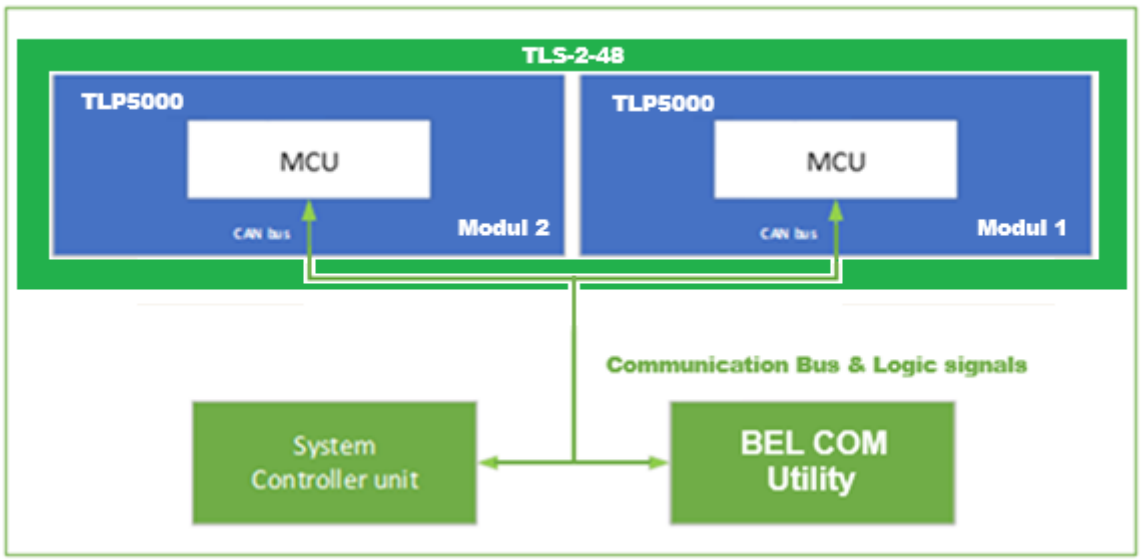
This document complements document BCA.20078_X_TLP5000 Series Communication manual.

This document applies to the following products:

Part number	Input voltage range	Output voltage range	Output power	Max output current
TLS-2-48	3 x 350 – 528 Vac	Adj. 39– 57 Vdc	10000 W	200 A

1.1 Communication overview

Default CAN Bitrate is 500kbps.



Connection example

1.2 Enable and disable device

Connecting of AC input voltage wakes up the device.

Output enable is done by enabling Standby and Inhibit hardware inputs together with software standby and inhibit signals in control word. Control word can be set by CAN and has to be sent to group address.

Disconnecting the AC input voltage turn off the device.

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

1.3 CAN BUS addressing

Default CAN base address of device is 0xC0 and it serves also as group address for TLP modules placed in the device. Group address is used to command TLP modules within device at the same time.

Group address can be changed over CAN command to a new value within range 0x80 to 0xF7 (according to SAE J1939-81) and it has to be changed in all TLP modules separately. Base address is stored in non-volatile memory and is loaded each time device is powered up. If base address can`t be loaded for any reason (faulty non-volatile memory) default hardcoded value of 0xC0 is used.

To control TLP modules separately, TLP module command with its specific address has to be used. Commands and readback values specified for TLP module are described in TLP module communication manual BCA.20078_X_TLP5000 Series Communication manual.

TLP modules use CAN addresses defined by group address with defined offset.

Example:

Table 1 TLS/TLP addressing example

TLS address group address	TLP modules group address	TLP module 1 address	TLP module 2 address
0xC0	0xC0	0xC1	0xC2
0xA0	0xA0	0xA1	0xA2

1.4 Broadcast messages

Broadcast messages are group of messages which are transmitted by device automatically or on request. It is up to ECU/VCU to perform data integrity check on messages broadcasted by device and act accordingly.

Each TLP module within the device transmit broadcast messages by itself using its own address. See details in CAN BUS addressing.

1.5 CAN BUS command

Following table contains PGN definitions for common setpoint messages. No specific transmit interval is defined for setpoint messages, each setpoint message should be sent as needed. Details of the messages are described within TLP module communication manual BCA.20078_x_TLP5000 Series Communication manual.

Table 2 PGN definitions of common command messages

PGN	Index (Data 3)	CAN command message
0x00EF00	0x00	Control
	0x01	Output_Set
	0x02	Clear_Fault
	0x05	CAN_Bitrate_Set

1.6 Commissioning

This section describes typical (advised) setup procedure of the unit before first start-up.

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

1.5.1 Hardware preparation

Refer to installation instruction BCM.20149 for TLP

Refer to installation instruction BCM.20165 for TLS

Necessary pin connections of signal connector are:

1. **CAN bus**: CAN_L - pin 9, CAN_H - pin 1 in SIGNAL CONNECTOR
1. **Address switch**: ADDR_0, ADDR_1, ADDR_2 for TLP2 and TLP1
2. **Power Supply Standby**: Open circuit or “High” to SRTN means Standby mode --> Vout is disabled with low power consumption -pin 7 in SIGNAL CONNECTOR
3. **Output Inhibit**: Open circuit or “High” to SRTN --> shuts OFF Vout -pin 6 in SIGNAL CONNECTOR

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

2 Installation

2.1 Connection - tools and equipment

Following tools are required….

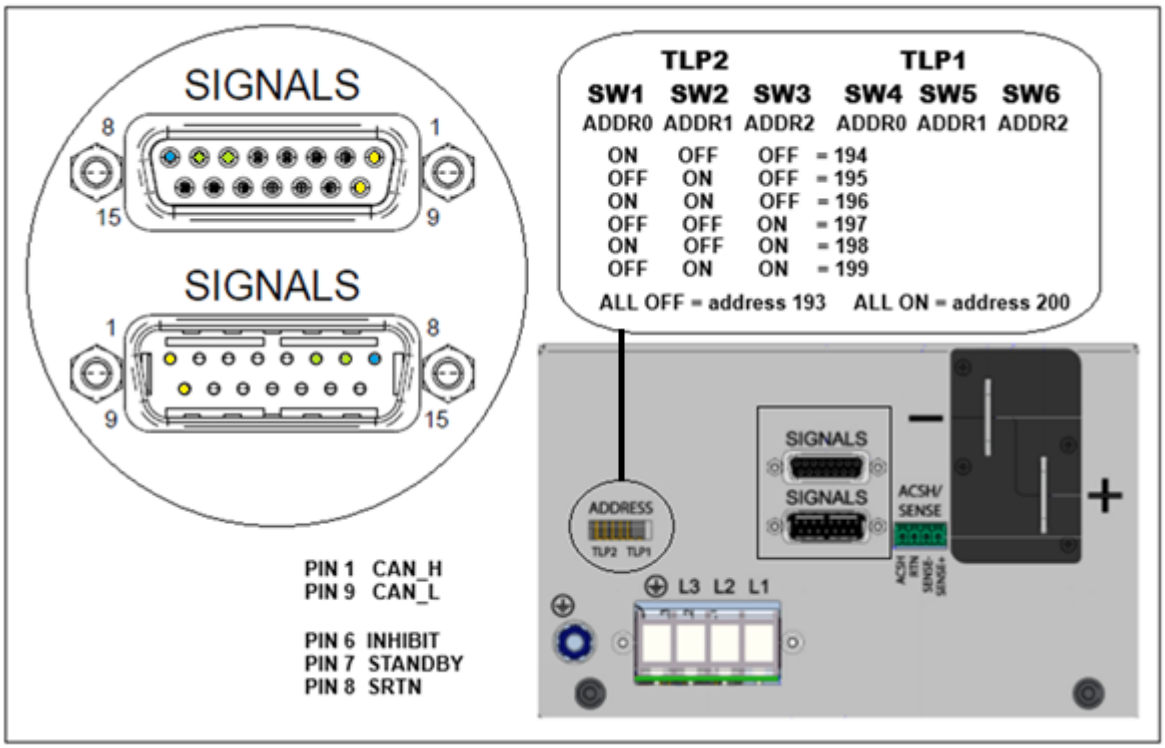
- USB/CAN Converter
  - Total Phase CAN Komodo Adapter (Solo or Duo)
  - Vector – all CAN converters
  - Kvaser – all CAN converters
  - PEAK Systems - all CAN converters
- CAN Bus terminating resistor (2x 120Ω)

2.1.1 Setup

Prepare connection of AC power supply/voltage.

Device CAN address is configured via HW switch TLP2 ADDR_0, ADDR_1, ADDR_2 and TLP1 ADDR_0, ADDR_1, ADDR_2 in connector. Base Address is conjunction with NVM settings (see CAN bus addressing) Default Device address is floating Pins (not connected) and base address is 0xC0 are: 193 (0xC1)

Default CAN Bitrate is 500kbps.

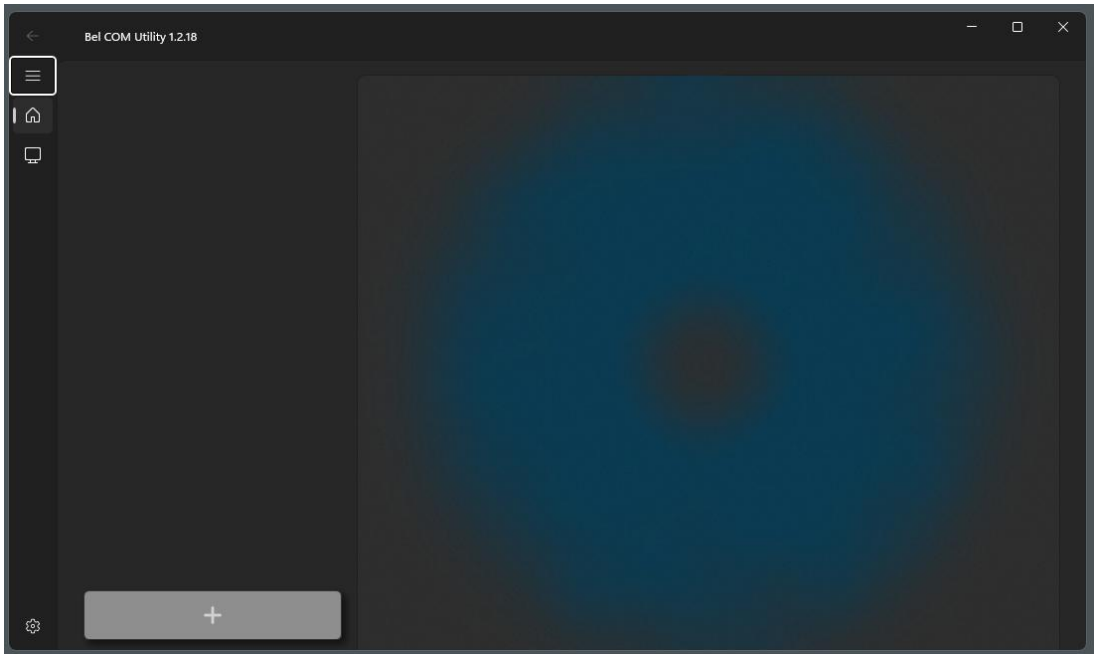


© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

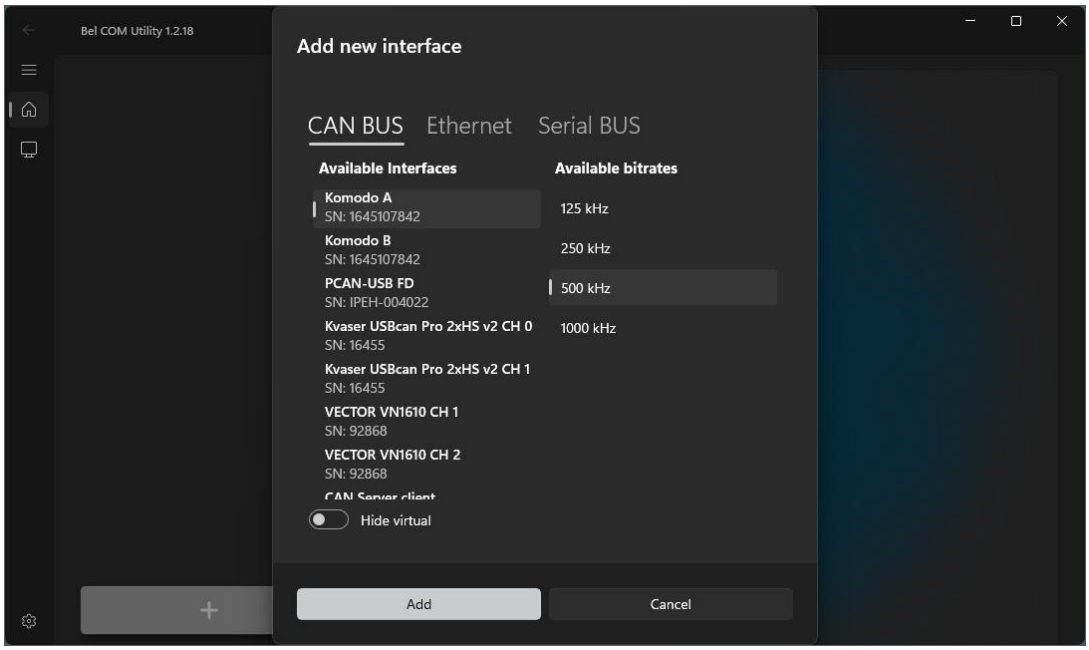
2.2 Software installation

- Download Bel_COM_Utility software from ftp://swdcaftp.psbel.com/Bel_COM_Utility/Setup/
- Download licence ftp://swdcaftp.psbel.com/TLS-2-48/License/
- Run Bel_COM_Utility-win-Setup_xx.yy.zzz.msii and follow installation steps.
- Run Bel_COM_Utility from start menu or from shortcut on the desktop.

- [+] Select the converter you will use. You will only see those that you have connected and installed.

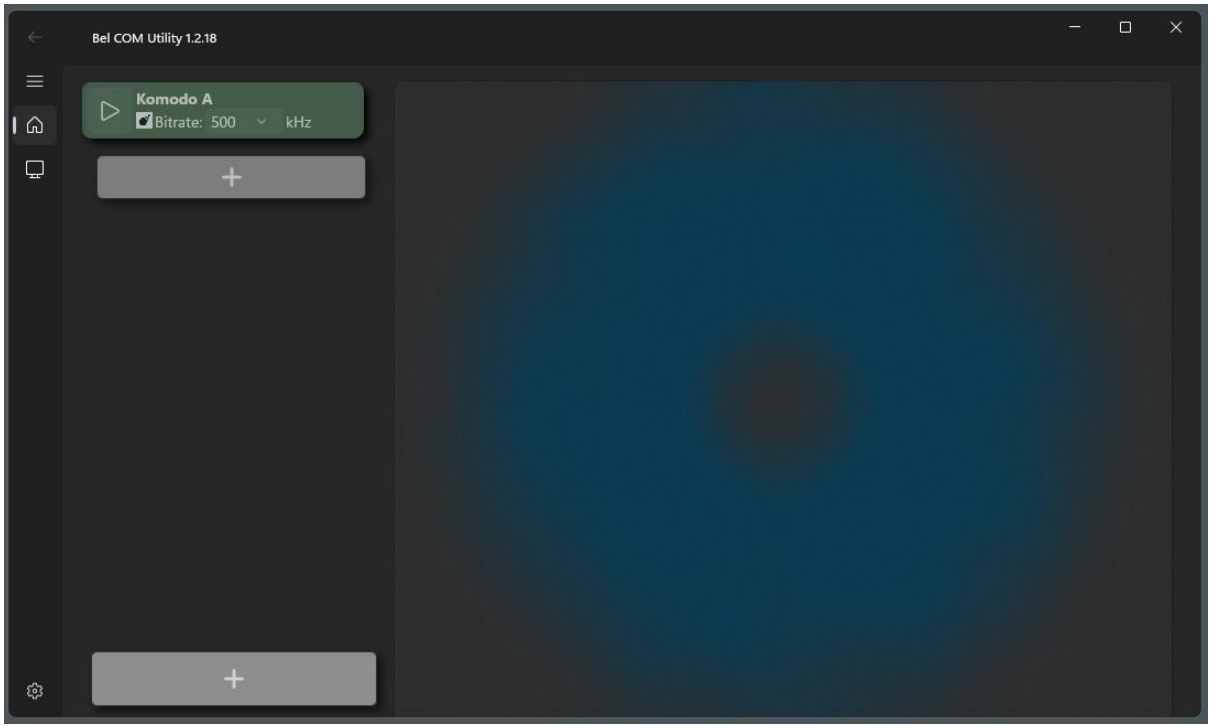


- Click Add to add new selected converter with selected bitrate.

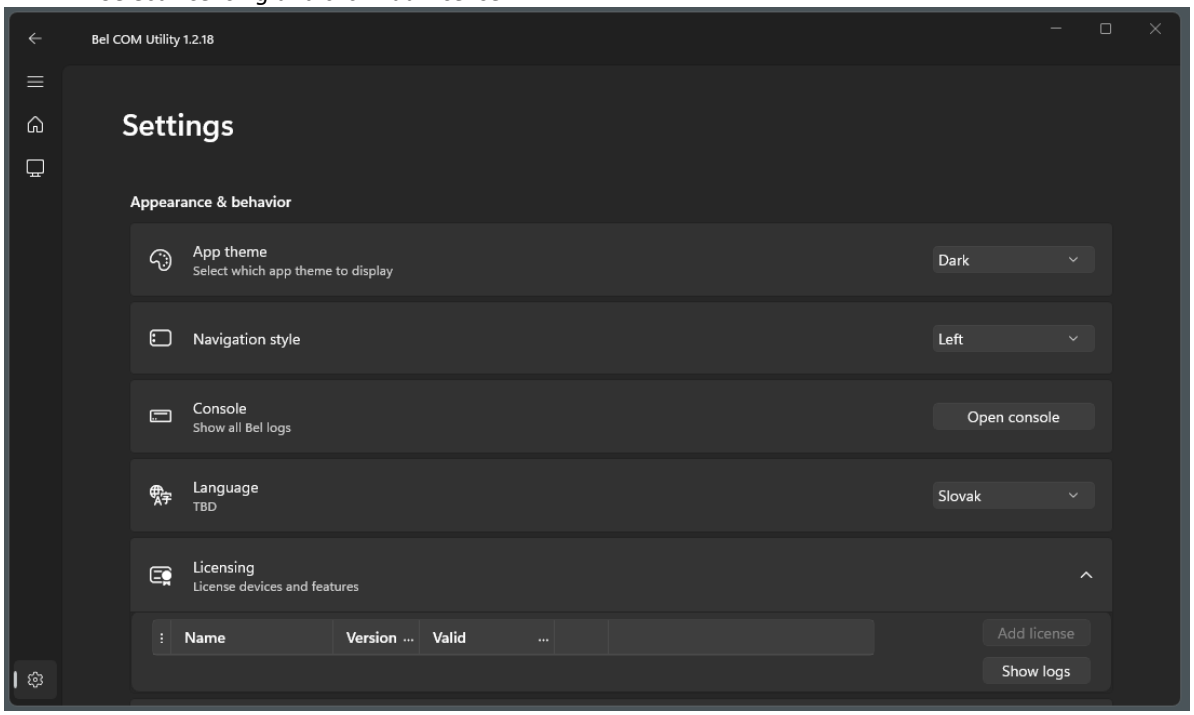


© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

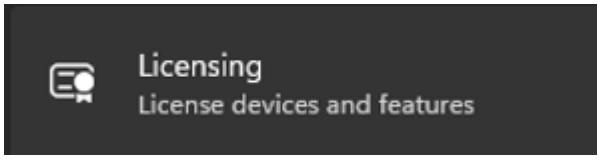
Click icon in bottom left corner  to add license for device.



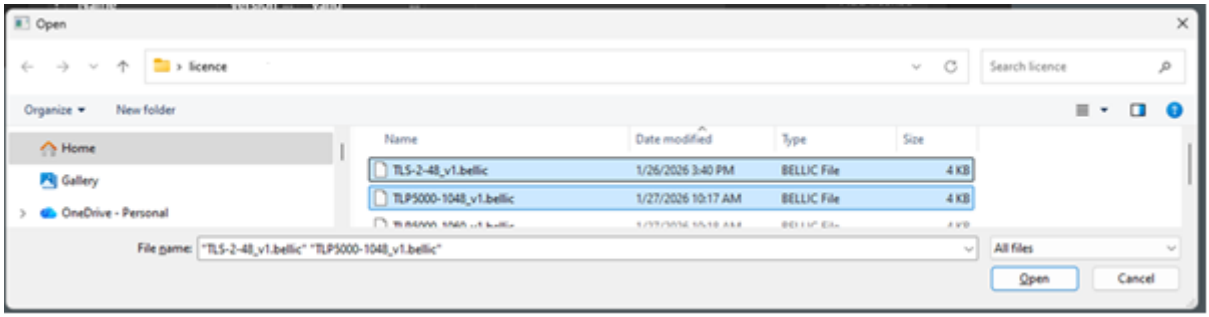
- Select *Licensing* and click *Add License*



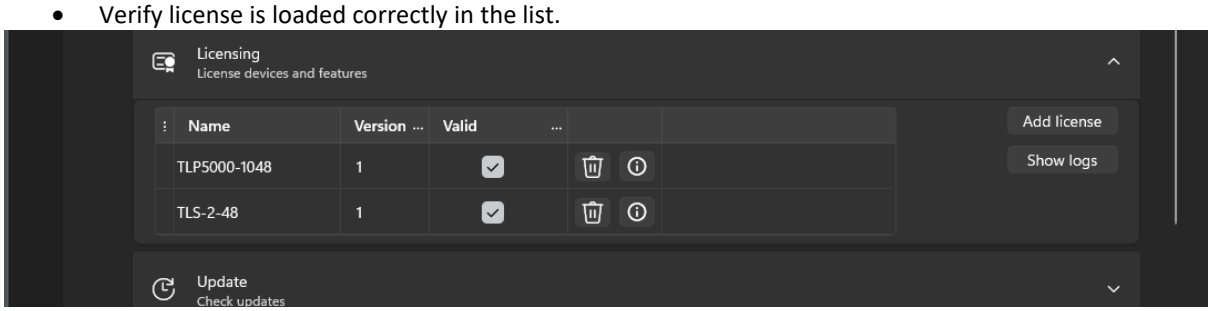
© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F



- Select provided license (*.bellic) and click *Open*.

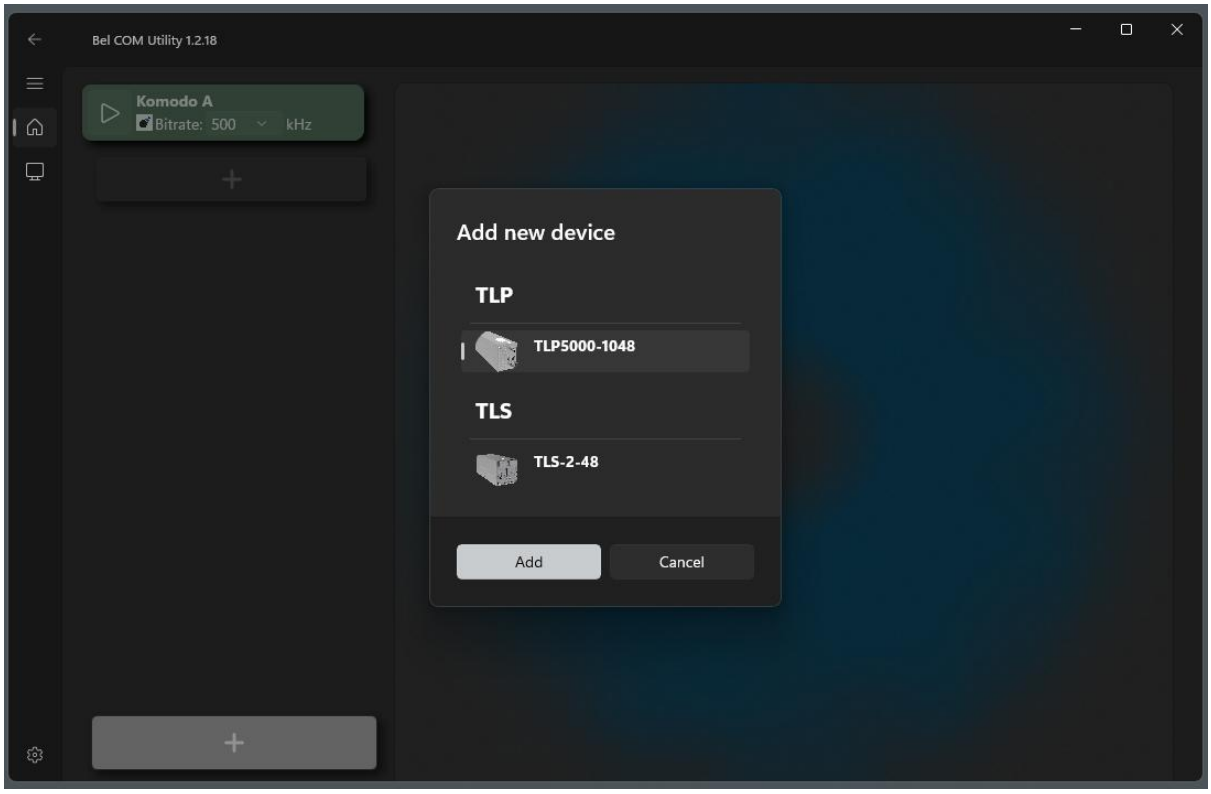


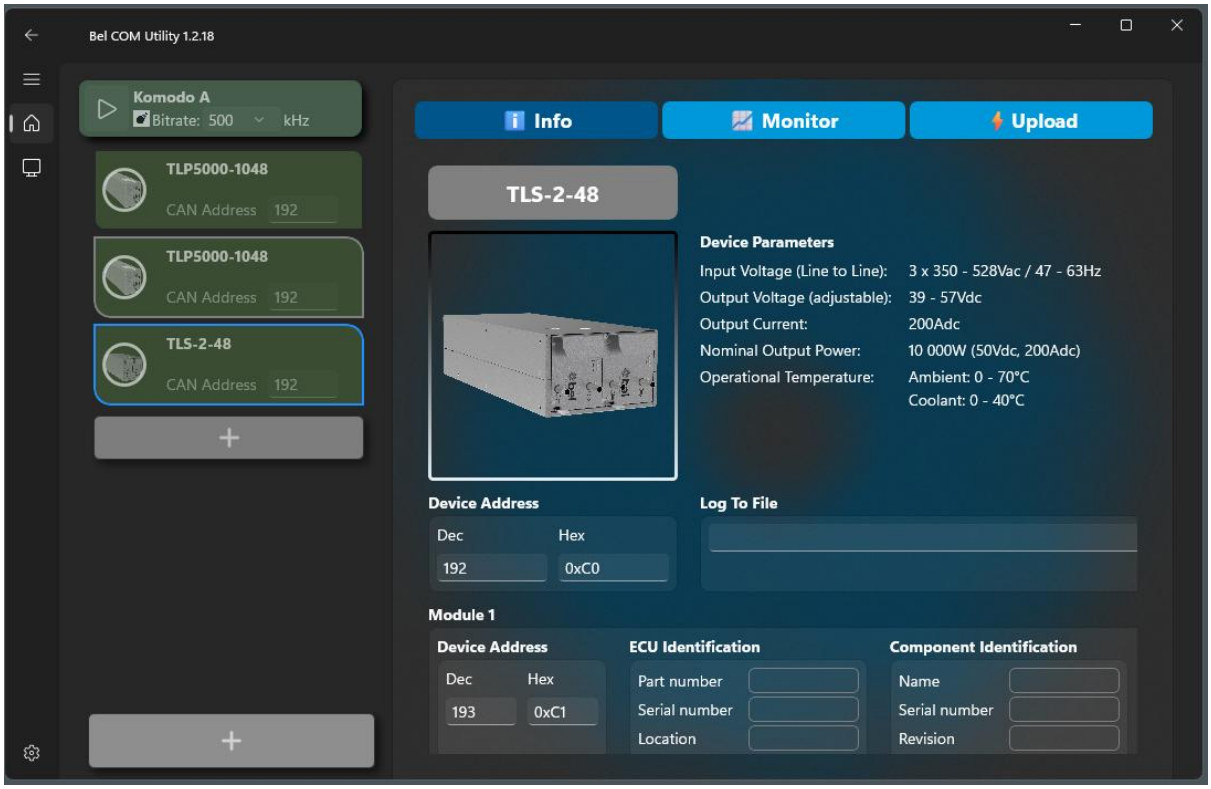
- Verify license is loaded correctly in the list.



- Click *Home* button to go to main control. 
-  Use the top button to open the dialog box and add required devices. Add TLS device and also TLP modules.

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F





- Set up the addresses of TLP modules / In our example, we will use address 193 and address 199. Address is defined according to address pins ADDR_0, ADDR_1, ADDR_2 of each TLP module
  Address can be set in decimal and hexadecimal form.

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F



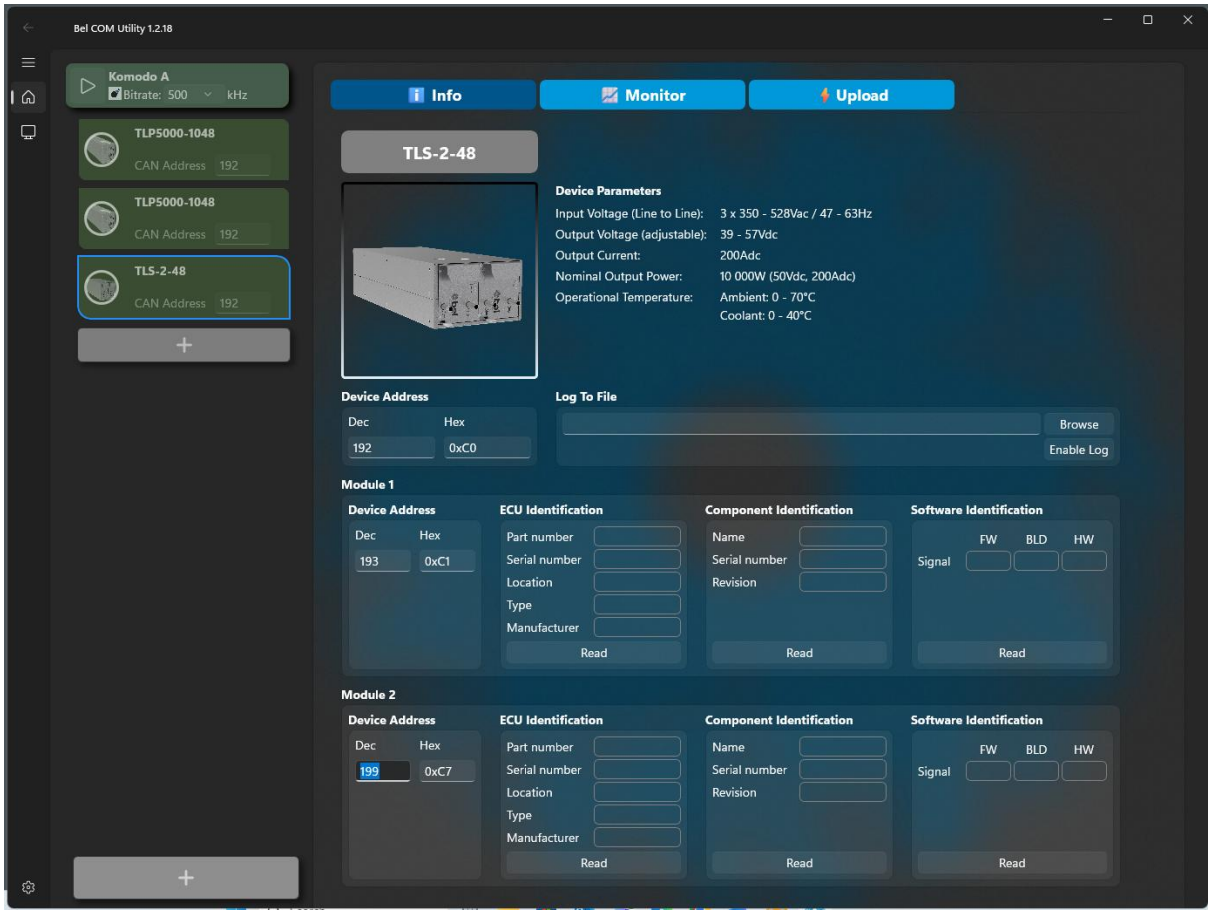




Setting address for single TLP module - **TLP** (example 193, 0xC7)

- Set up the addresses of TLS device and TLP modules / In our example, we will use address 193 and address 199. Address is defined according to address pins ADDR_0, ADDR_1, ADDR_2 of each TLP module
  Address can be set in decimal and hexadecimal form.

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F







Address settings in the **TLS** module.

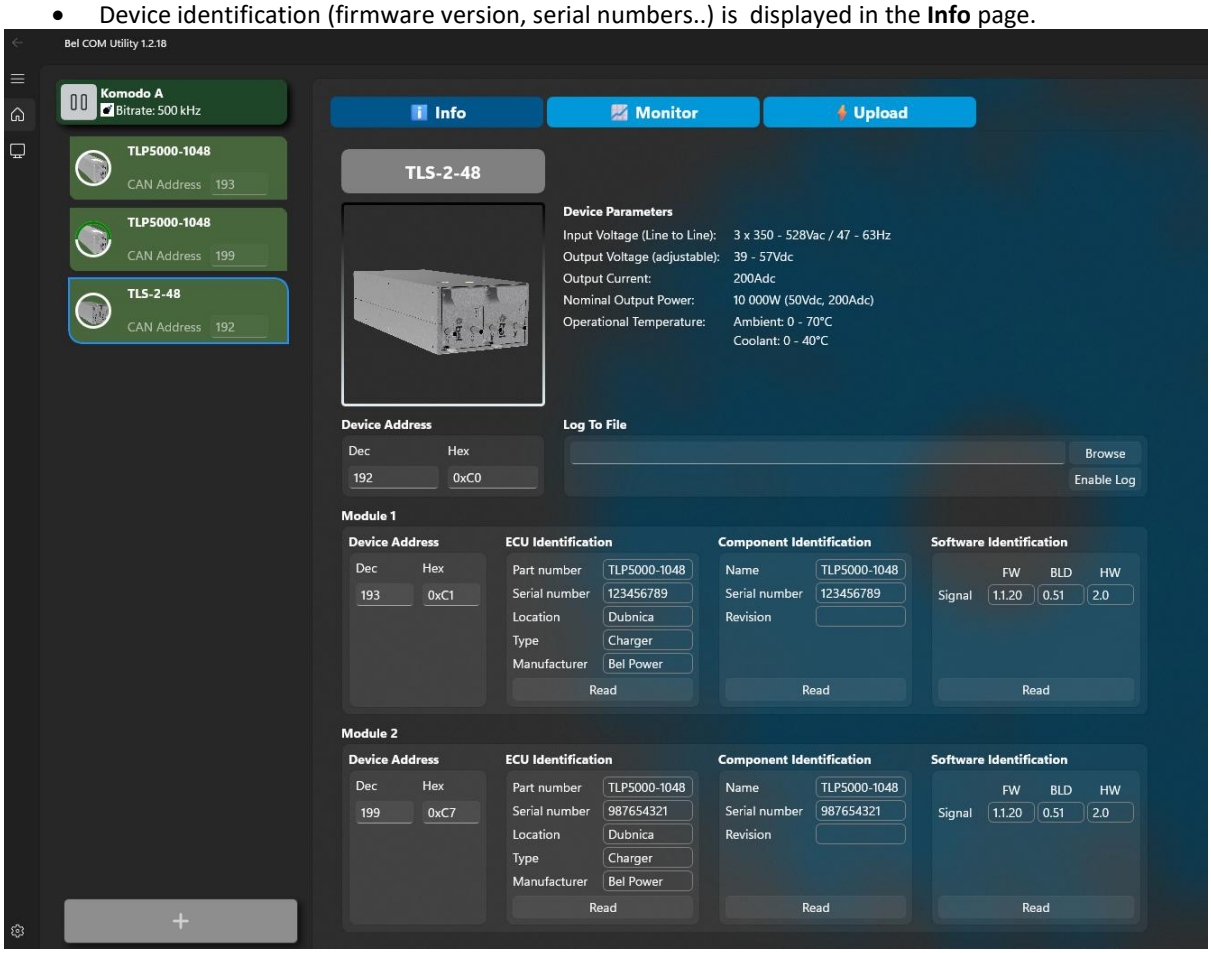




After starting communication, these pins are displayed in the tab **Monitor** page in Detailed flags.

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

- Click communication running 
,
- Device identification (firmware version, serial numbers..) is displayed in the **Info** page.



Component Identification and Software Identification are loaded automatically.
ECU Identification a is loaded on request.

If communication is not established check the following:

- ✓ Device CAN address set in Bel COM Utility
- ✓ Device CAN address (ADDR_0, ADDR_1, ADDR_2 pins)
- ✓ USB to CAN converter bitrate (set in Bel COM Utility)

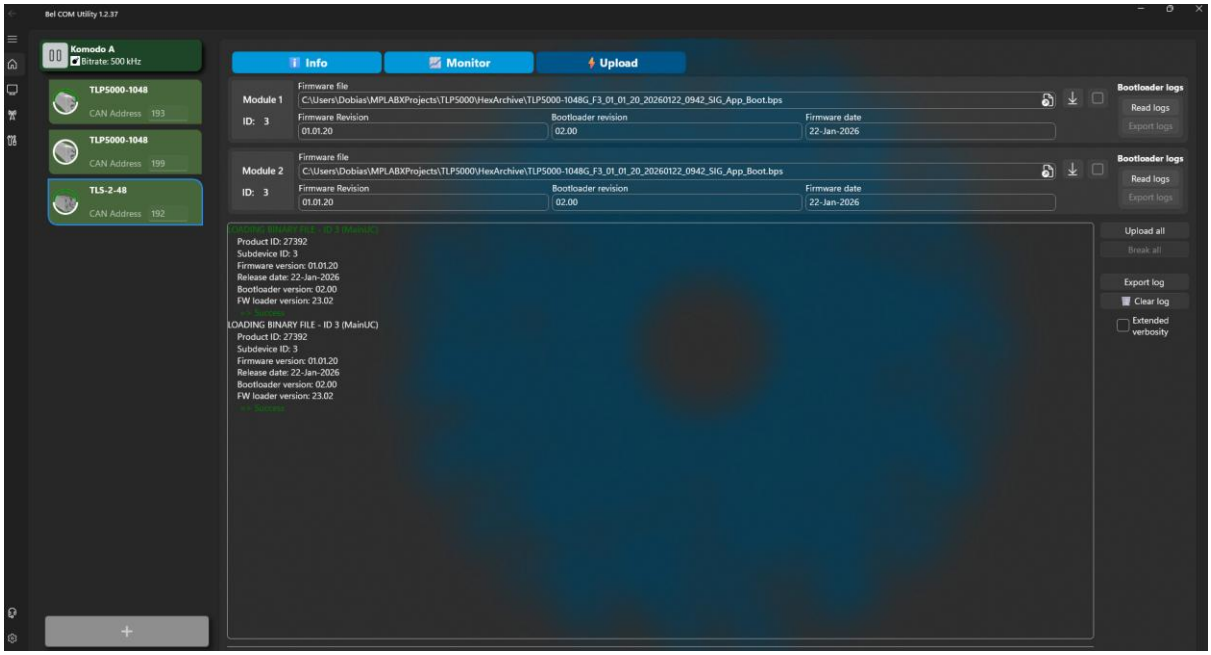
© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

3 Firmware update

Firmware update is able only if steps in software configuration section was successful and device is not in starting or is in running mode.

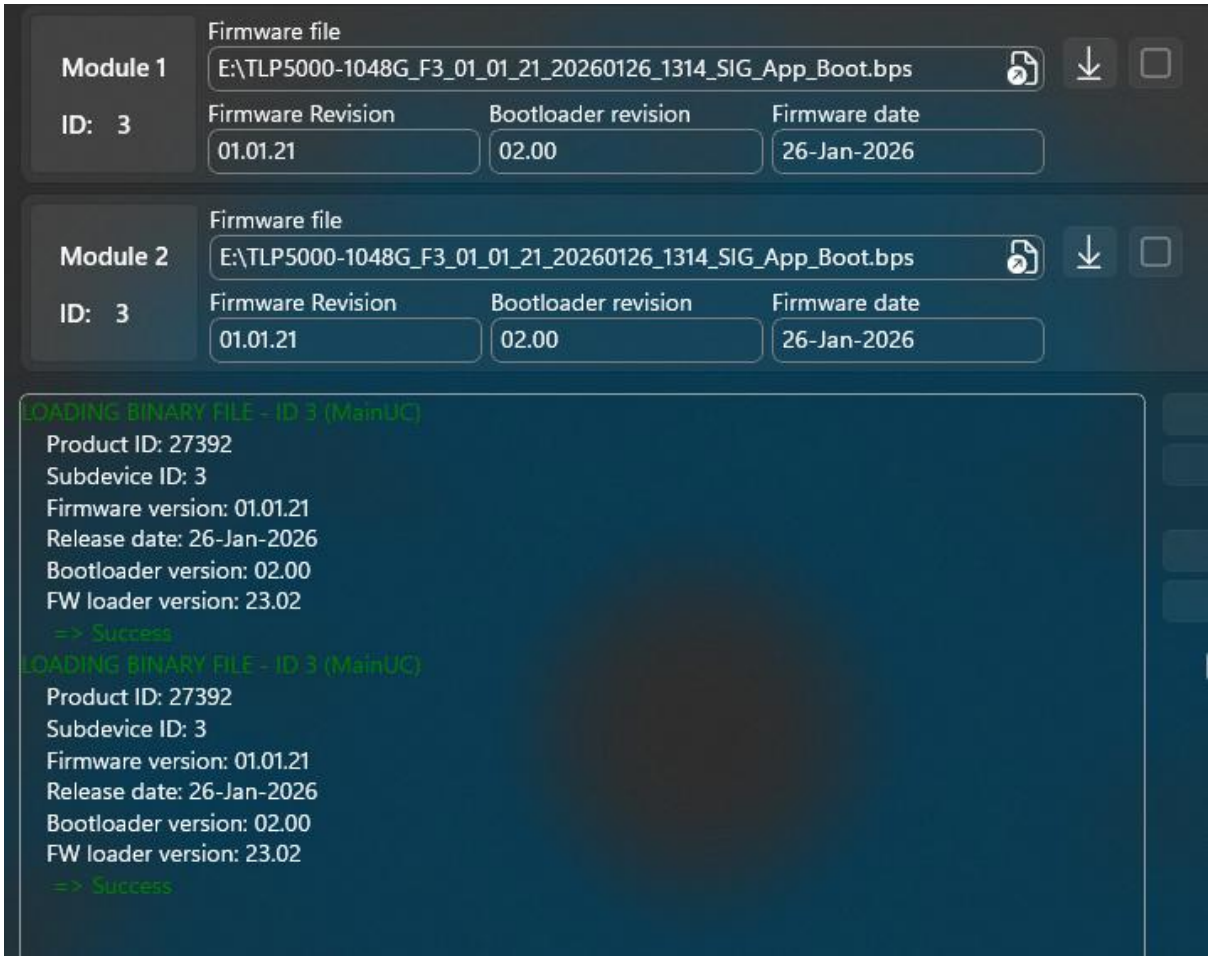
Select **Upload** page  to select upload section.

Click to symbol  and select firmware file to upload (*.bps). It is required to load it for all modules.



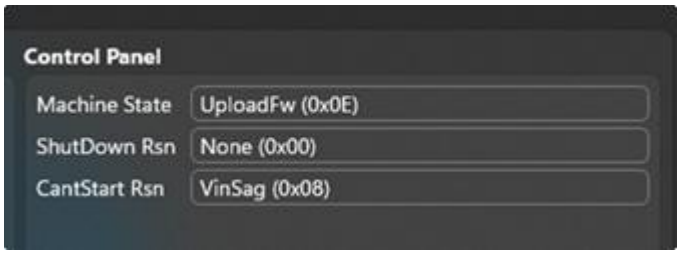
After selecting the firmware to update, details will be displayed.

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F



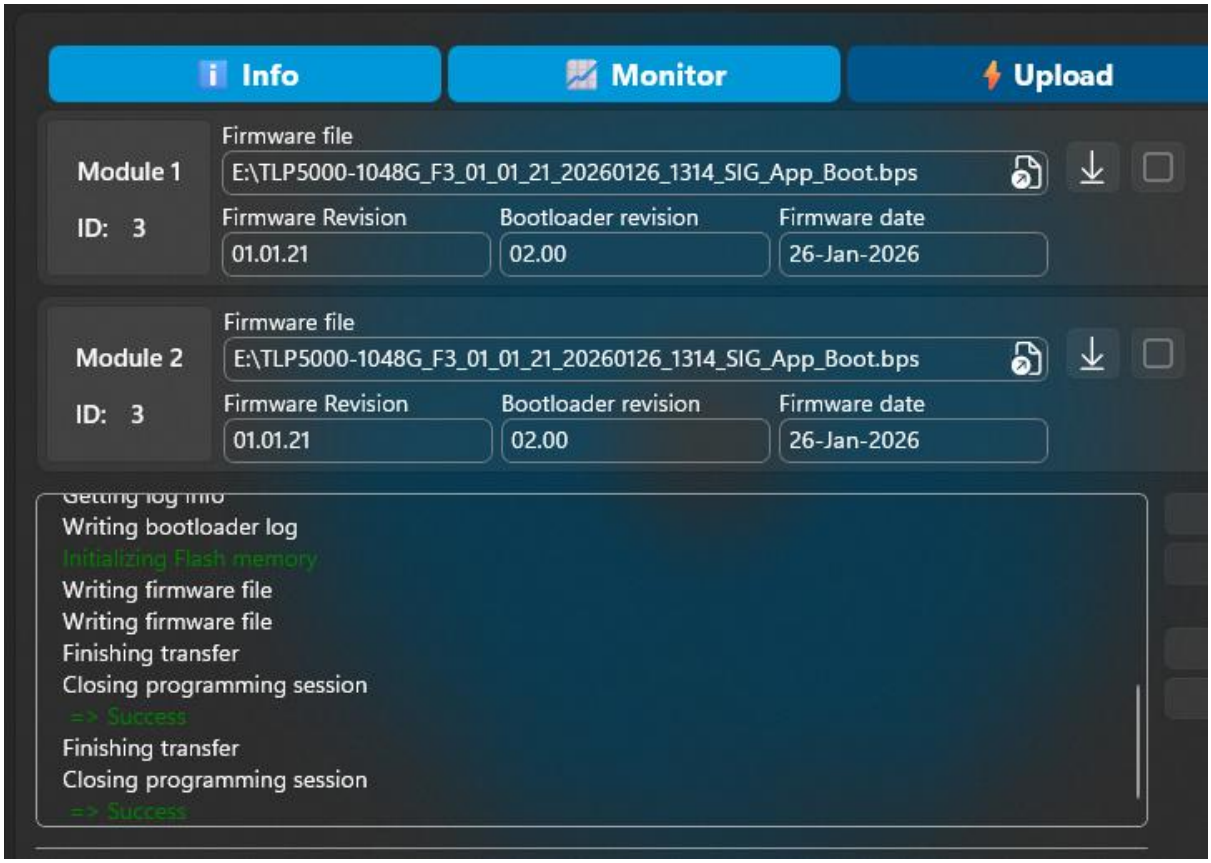
Note: Before pressing the update button, it is necessary for the unit to be in StandBy mode.

- Press the update button to start update the unit. 
  Firmware update in process is displayed in **Monitor** tab 

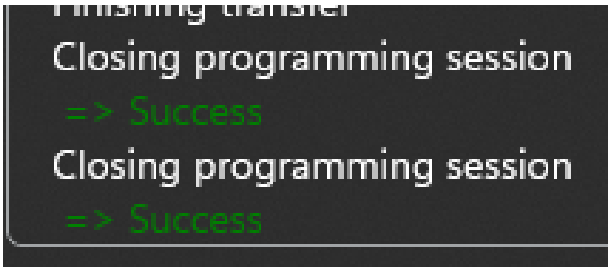


This status is also displayed in the **Monitor** page / Module 1.2 Control Panel tab.

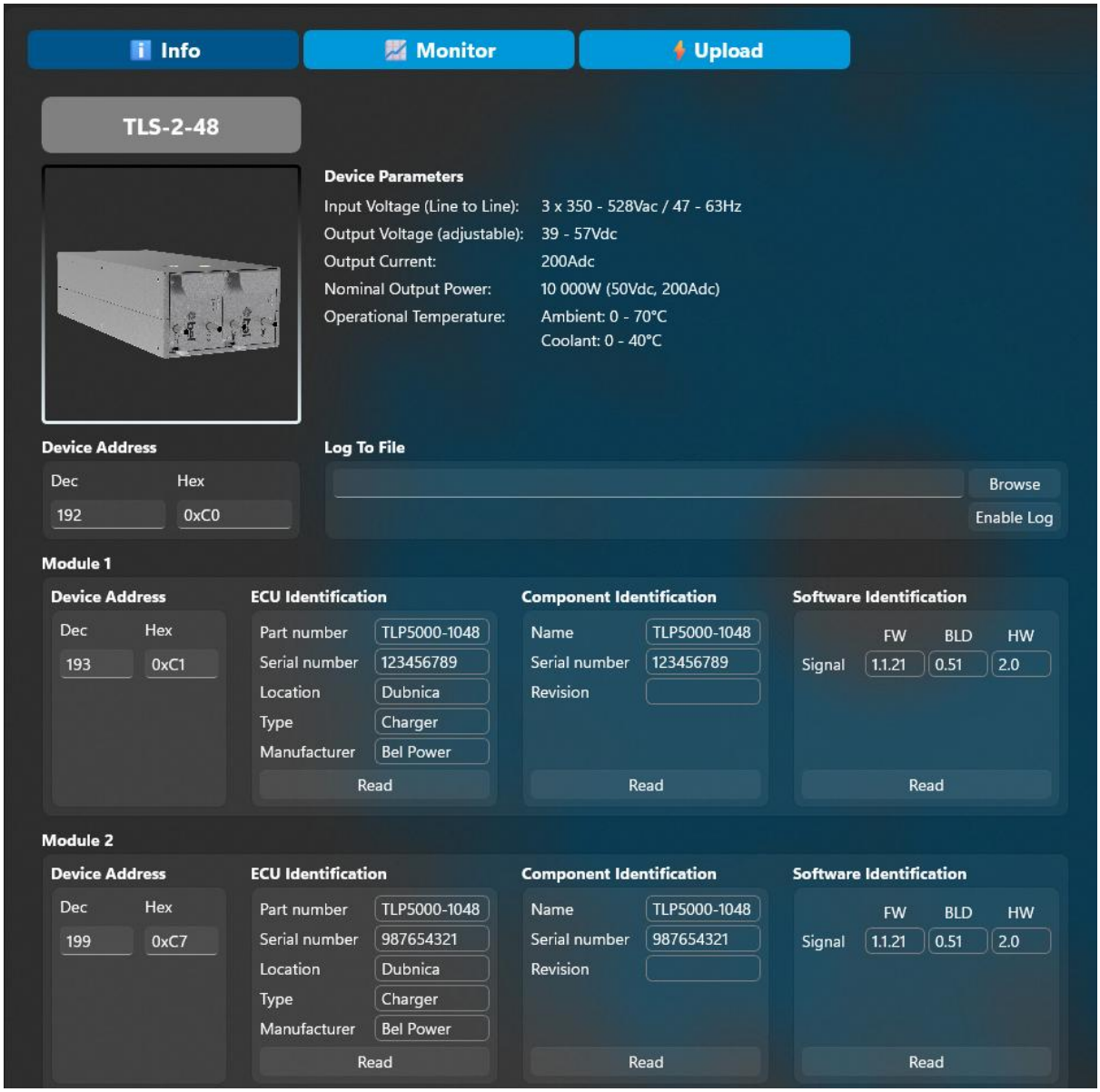
© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F



At the end of the upload, the status will be displayed.



© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F



The upload result is updated in the **Info** page – See **Software Identification**

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

4 Revision history

Rev	Description of change	Release Date	Required FW revision	Required DBC file revision	Author
1	Initial release	24-Feb-2026	01.01.21	-	Prno,Dobias(SW)

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F

POWER | PROTECT | CONNECT

Asia-Pacific
+86 755 298 85888

EMEA
+353 61 531 820

North America
+1 866 513 2839

powersupport@belf.com
belfuse.com

© 2026 Bel Fuse Inc. BCA.20099_1
Form UAF.20119_F