TLC / Implemeted TLS data Frames and particular specifications

Implemeted TLS data Frames of the TLC Modules and TLC specific specifications
Revision 1.18 / 16.10.2024
0007-000058

TLC / Implemeted TLS data Frames and particular specifications

Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Revision 1.18

Table of content

TLC / Implemeted TLS data Frames and particular specifications
Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Rev. 1.18 / 16.10.2024

1 Implemented TLS Frames

(see also the definitions in TLS2012 A.6. Part 2 and the EETS documentation
 0007-000020-tlc-vendor-specific-data-frames)

1.1 Implemented TLS Frames for FG254

The following TLS frames for the function group FG254 are implemented in the TLC firmware.

Primary/Master demand →   **← Secondary/Slave reply**

Type	ID	Comment	Type	ID
		← Negative-acknowledge with possible error indication	16	2
33	3	Parameter →		
		← Positive-acknowledge	28	3
132*	3	Parameter assignement →		
		← Positive-acknowledge	28	3
133*	19	Demand paramenter →		
		← Parameter-message	133*	3
135*	19	Demand paramenter →		
		← Parameter-message	135*	3
252*	19	Demand paramenter → (for manufacturer use only!)		
		(for manufacturer use only!) ← Parameter-message	252*	3
254*	5	Reserved, for manufacturer use only!		
		No positive-acknowledge		

Note:
Frame type and ID are given here in decimal numbers.

* Vendor specific data frames of EETS GmbH.

TLC / Implemeted TLS data Frames and particular specifications
Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Rev. 1.18 / 16.10.2024

1.2 Implemented TLS Frames for FG4

The following TLS frames for the function group FG4 are implemented in the TLC firmware.

Primary/Master demand →   **← Secondary/Slave reply**

Type	ID	Comment	Type	ID
		← Negative-acknowledge with possible error indication	16	2
2	17	Demand error-message →		
		← Error-message	2	1
3	17	Demand error-message →		
		← Error-message	3	1
17	2	(Status-message →)		
17	18	Demand status-message →		
		← Status-message	17	2
49	5	Setpoint →		
49	21	Demand setpoint status →		
		← Setpoint status-message	49	5
55	5	Setpoint →		
55	21	Demand setpoint status →		
		← Setpoint status-message	55	5
130*	18	Demand status-message →		
		← Status-message	130*	2
131*	5	Setpoint →		
		No response at all	-	-

Note:
Frame type and ID are given here in decimal numbers.

* Vendor specific data frames of EETS GmbH.

TLC / Implemeted TLS data Frames and particular specifications
Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Rev. 1.18 / 16.10.2024

2 Link-Monitoring of the TLC Device

The TLC device has its own slave-side link monitoring. The TLC module as secondary/ slave monitors the established connection with a **monitoring time of 15 seconds**. After a timeout without any valid reception, the connection is considered disconnected and a new connection setup from primary/master is expected.

3 Additional Information about DE assignment (FG254, Frame 33)

By default, the TLC device sets the DE number to 1 for the configured physical channel. **The TLC operates one single signal and thus uses only one DE number.** The transfer of the DE assignment is therefore only mandatory if a number other than the default DE number has to be set.

4 Additional Information about Error Message «Nicht darstellbare WVZ» (FG4, Frame 2)

Generally the change of a image error state is replied spontaneously with frame 2. A periodic query is therefore not necessary.
NOTE: The TLC device implementation supports no cluster channels.

TLC-001 up to TLC-003 Firmware V1.x:
  A detected image error state is replied spontaneously with frame 2. The **error state remains in any case until the relevant signal command is removed(*)** or until the module is reset.

TLC-003 from Firmware V2.00:
  A detected image error state is replied spontaneously with frame 2. If the error goes away, this is immediately and **automatically reported back with frame 2(*)** or the error state remains in any case until the relevant signal command is removed.

(*) behavior by **default** configuration

5 Additional Information about Error Message «Defekte Lampen» (FG4, Frame 3)

Generally the change of a lamp error state is replied spontaneously with frame 2. A periodic query is therefore not necessary.
NOTE: The TLC device implementation supports no cluster channels.

TLC / Implemeted TLS data Frames and particular specifications
Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Rev. 1.18 / 16.10.2024

Different error - memory and feedback behavior → see explanations under chapter 4

Assignment of the lamp errors to the status byte

Bit 0 and 1:   red LED insert broken (HL1 + NL1)

Bit 2 and 3:   yellow LED insert broken (HL2 + NL2)

Bit 4 and 5:   green LED insert broken (HL3 + NL3)

6 Additional Information about Operating mode (FG4, Frame 17)

In deviation to the TLS standard the TLC device accepts in addition to the broadcast channel also single DE channels, but no cluster channels are supported. The DE channel reported by the TLC device corresponds to the DE of the device.

No type 31 frame with time stamp follows, since the device does not have its own time base.

FUNCTIONAL NOTES:

• Frame 17 is sent by the TLC device whenever the operating mode is changed.
• The operating modes "Normal operation = 1" and "Manual operation = 3" are supported.
• The operating mode can only be set to manual mode and back locally on the device. Remote-control via status message is not implemented.

7 Additional Information about Luminosity Control (FG4, Frame 49)

In deviation to the TLS standard the TLC device accepts in addition to the broadcast channel also single DE channels, but no cluster channels are supported. The DE channel reported by the TLC device corresponds to the DE of the device.

The TLC device supports the two available luminosity levels "normal" and "lowered" of the traffic light inserts FuturLED-3 and FuturLED-6.
The luminosity value in the data-frame type 49 is therefore interpreted by the TLC firmware as follows:

Value	Explanation	Interpretation by the TLC
100	100 %	Normal luminosity (full)
0..99	0..99 %	Lowered luminosity

TLC / Implemeted TLS data Frames and particular specifications
Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Rev. 1.18 / 16.10.2024

The luminosity status byte (byte 5 of the frame) is ignored by the TLC device. The luminosity adjustment function is fixed on remote-control by the central control with the data-frame 49.

The luminosity default value of the TLC device after power on is always 100 ("normal").

8 Additional Information about Setpoint Command (FG4, Frame 55)

The traffic light is an actively lighted signal and is therefore commanded with the TLS display principle b (value=1).

The following signal images are supported:

Code	Image Designation	Remark
107	Red	
108	Yellow	
109	Green	
110	Red and Yellow	
61	Yellow Flash Light (additional signal)	Reserved! Only for special application.

Use of function byte

Bit 0..1 (Function) designates the exact function command.

Bit 2 is only used in the feedback to indicate an error.

Bit 3 is unused

Bit 4..7 is used in the command direction to set the blink time.

FUNCTIONAL NOTES:

• A command is always acknowledged with the return of the same frame.
Spontaneously, the frame 55 is also replied if a change occurs in the signal, e.g. an error occured.

• On the feedback path, the **commanded image** and the **command function** corresponding to the original command are replied. Whether the signal is in order or has an error is only indicated by the error bit (Bit2) of the function byte.
In case of an error, error messages are additionally replied with frame 2 and 3.

TLC / Implemeted TLS data Frames and particular specifications
Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Rev. 1.18 / 16.10.2024

9 Additional Information about Channel Current (FG4, Frame 130)

In deviation to the general vendor specific specification the TLC device accepts no cluster channels.

10 Additional Information about Flasher-Synchronization (FG4, Frame 131)

In deviation to the general vendor specific specification the TLC device accepts no cluster channels.

TLC / Implemeted TLS data Frames and particular specifications
Implemeted TLS data Frames of the TLC Modules and TLC specific specifications

Rev. 1.18 / 16.10.2024

11 Revision List

Revision	Date	Comment
1.00	11.03.2012	Inital Revison
1.10	19.06.2012	Data frames 132 and 133 added
1.11	08.03.2018	Additional information about luminosity interpretation
1.12	25.04.2018	Implemented TLS Frames for FG254, Link-Survey and additional information about DE assignment added
1.13	08.04.2019	Data frame 135 added. Fixed affiliation sorting to function groups FG4 and FG254
1.14	21.11.2019	Additional notes on number formats of frame type and ID
1.15	20.09.2021	Additional information on frame type 17
1.16	07.03.2022	Additional information on frame type 2, 3 and 55 Supplement the list of FG254 frames
1.17	08.12.2022	Additional information on frame 2 and 3 and the behavior of the TLC-Modul on error detection
1.18	16.10.2024	Precisions for response behavior in tables of chapter 1.1 and1.2 Various clarifications regarding the treatment of DE channels Supplement additional information on frame 130 and 131