

Summary:

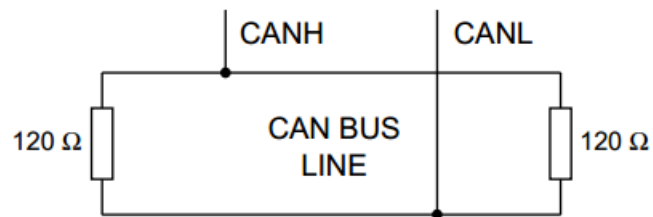
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1. How to connect CAN bus:



PIN	COLOUR	FUNCTION
1	Green	CAN L
2	Yellow	CAN H
3	Black	Negative battery
4	Red	Vbatt. (12-24V)

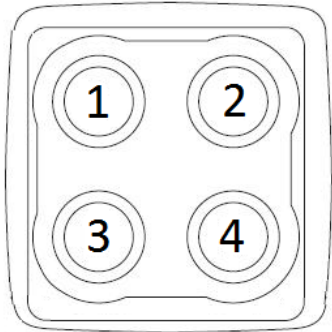


Each end of the CAN bus is terminated with 120Ω resistors in compliance with the standard to minimize signal reflections on the bus. You may need to place a 120Ω resistor between CAN-L and CAN-H.

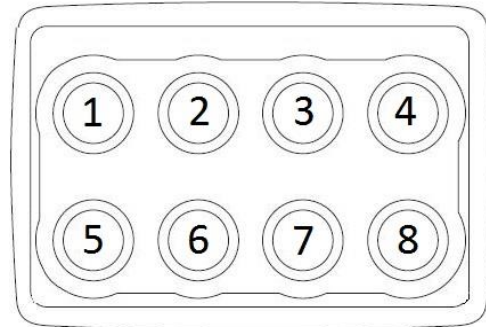
2. Reference

PKU front view.

PKU2200



PKU 2400



3. Message header description

The 29-bit CAN identifier used in J1939 is structured in the following way.

Priority	Reserved	Data Page	PDU Format	PDU Specific	Source Address
3 bits	1 bit	1 bit	8 bits	8 bits	8 bits

The proprietary format used by PK and PKP keypads is defined as follows:

Priority = 6.

Reserved = 0.

Data page = 0.

PDU Format = EFh (the message is addressable).

PDU Specific = Destination Address.

Parameter Group Number (PGN) = 61184 (EF00h).

An example of CAN identifier of messages sent to the keypad is 18EF2100h where:

21h is the destination address (keypad)

00h is the source address.

An example of CAN identifier of messages sent by the keypad is 18EFFF21h where:

FFh refers to broadcast messages (no specific destination address)

21h is the source address (keypad).

4. General Data Format

The proprietary protocol has defined a general format for the data fields in the PGN 61184. The format consists of:

1 header field (2 bytes)

1 command byte

5 bytes (the remaining field) are defined specifically for each command.

The data length is 8 bytes, unused bits and bytes are set to all 1's (0xFF).

Byte 0	D3h
Byte 1	98h
Byte 2	Command
Byte 3-7	Data required for each specific command

5. Default Settings

Setting	Default state or level	How to change
CAN bus Baud Rate	250 kbit/s	-
Source Address	21h	Command 70h
Keypad Identifier	21h	Command 70h
Heartbeat Message	Disable	Command 75h
Periodic state transmission	Disable	Command 71h
Periodic transmission period	100ms	Command 77h
Event state transmission	Enable	Command 72h
Address claim	Disable	Command 74h
Startup backlight	OFF	Command 7Bh
Startup LED show	Fast Flash	Command 34h
Backlight color	Red	Command 7Dh
LED acknowledgment	Disable	Command 73h
Key brightness	3Fh (Maximum Brightness)	Command 02h

6. Key Contact state (01h)

This message is sent by the keypad to indicate the state of the keys. The destination address is set to FFh: broadcast message. See chapter 2 for Key number reference.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	01h	Contact state message
Byte 3	XXh	XX: Key number
Byte 4	YYh	Contact State 00: Switch OFF (Key released) 01: Switch ON (Key pressed)
Byte 5	ZZh	Keypad Identifier (default 21h)
Byte 6,7	FFh	Not used

Examples:

Direction	Identifier	Format	Message	Data
From keypad	18EFFF21h	Ext	D3 98 01 01 01 21 FF FF	Key 1 ON
From keypad	18EFFF21h	Ext	D3 98 01 01 00 21 FF FF	Key 1 OFF
From keypad	18EFFF21h	Ext	D3 98 01 02 01 21 FF FF	Key 2 ON
From keypad	18EFFF21h	Ext	D3 98 01 03 01 21 FF FF	Key 3 ON
From keypad	18EFFF21h	Ext	D3 98 01 04 01 21 FF FF	Key 4 ON
From keypad	18EFFF21h	Ext	D3 98 01 04 00 21 FF FF	Key 4 OFF
From keypad	18EFFF21h	Ext	D3 98 01 08 01 21 FF FF	Key 8 ON

If the Event state transmission is enabled, the Key Contact state message is sent when a key is switched ON or OFF.

If the Periodic state transmission is enabled, every Periodic transmission period a Key Contact state message is sent for each button of the keypad.

7. LED command (01h)

This message is sent to the keypad to set the state of the LED indicators. See chapter 2 for Key and LED number reference.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	01h	LED command message
Byte 3	XXh	XX: PKU Key number PK LED number
Byte 4	YYh	LED State PKU 00: off 01: red 02: red blink 03: red alternate blink 04: green 05: green blink 06: green alternate blink 07: amber 08: amber blink 09: amber alternate blink 0A: blue 0B: blue blink 0C: blue alt blink 0D: cyan 0E: cyan blink 0F: cyan alt blink 10: magenta 11: magenta blink 12: magenta alt blink 13: white 14: white blink 15: white alt blink
Byte 5,7	FFh	Not used

Examples:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 01 01 01 FF FF FF	LED Key1 PKU red
To keypad	18EF2100h	Ext	D3 98 01 01 00 FF FF FF	LED Key1 PKU off
To keypad	18EF2100h	Ext	D3 98 01 02 04 FF FF FF	LED Key2 PKU green
To keypad	18EF2100h	Ext	D3 98 01 04 0A FF FF FF	LED Key4 PKU blue
To keypad	18EF2100h	Ext	D3 98 01 04 13 FF FF FF	LED Key4 PKU white

8. Set LED brightness level (02h)

This message sets the value of the indicator LED brightness. The value can be set from 0 to 3Fh for 0 to 100% of the LED dimming range.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	02h	LED brightness level message
Byte 3	XXh	XX: Dim Value (default 3Fh) From 00h (OFF) to 3Fh (100%)
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 02 08 FF FF FF FF	Brightness set to 12,5%

9. Set backlight level (03h)

This message sets the value of the backlight LED brightness. The value can be set from 0 to 3Fh for 0 to 100% of the brightness range.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	03h	Backlight brightness level message
Byte 3	XXh	XX: Value (default 00h) From 00h (OFF) to 3Fh (100%)
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 03 10 FF FF FF FF	Backlight set to 25%

10. Set Source Address (70h)

This message is used to change the keypad CAN Source Address and/or the Keypad Identifier. Either or both the Source Address or Keypad Identifier may be changed independently. Connecting only one keypad to the bus when changing the keypad address is recommended.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	70h	Set Address message
Byte 3	XXh	XX: CAN Source Address From 01h to 0Fh From 11h to F0h FFh No change
Byte 4	YYh	YY: Keypad Identifier From 21h to FEh FFh No change
Byte 5,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 70 01 21 FF FF FF	Set Source Address = 01h, Set Keypad identifier = 21h.

11. Periodic state transmission (71h)

This message enables or disables the periodic transmission of the state of the keys.

When enabled, one contact state message is periodically sent for each button of the keypad. For some keypad models there could be additional messages (e.g. the PKP2400 has 8 buttons but 11 messages are sent).

The period is set to 100ms as default value but can be changed by command 77h.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	71h	Periodic state transmission message
Byte 3	XXh	XX: 00h Disabled (default) 01h Enabled
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 71 01 FF FF FF FF	Enable periodic state transmission.

12. Event state transmission (72h)

This message enables or disables event driven key state transmissions. When this feature is enabled, the keypad transmits the state of a contact at the time that the contact changes state (pressed or released).

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	72h	Event state transmission
Byte 3	XXh	XX: 00h Disabled 01h Enabled (default)
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 72 00 FF FF FF FF	Disable event state transmission

13.LED Acknowledgment (73h)

This message enables or disables the transmission of the LED Acknowledgement message. When this feature is enabled the keypad transmits an acknowledgement message each time a LED Command is received.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	73h	LED Acknowledgement
Byte 3	XXh	XX: 00h Disabled (default) 01h Enabled
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 73 01 FF FF FF FF	Enable LED acknowledgement
To keypad	18EF2100h	Ext	D3 98 01 01 01 FF FF FF	LED Command
From keypad	18EFFF21h	Ext	00 01 01 FF FF FF FF	LED Ack message

LED Acknowledgement message:

Byte 0	00h	
Byte 1	XXh	XX: LED state
Byte 2	YYh	YY: Key number
Byte 3,7	FFh	

14. Address Claim at boot (74h)

This message enables or disables the address claim procedure.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	74h	Address claim at boot
Byte 3	XXh	XX: 00h Disabled (default) 01h Enabled
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 74 01 FF FF FF FF	Enable Address Claim

Address claiming procedure:

In a common situation the keypad application sends an Address Claim parameter group at start up and waits 250 ms. If it does not detect an address conflict it can start with its normal communication.

In a situation where another device already uses the address an address conflict occurs. The device with the higher priority of the device name will obtain the address. The other device will calculate a new address and send an Address Claim parameter group.

Address claim parameter group:

Priority = 6.

Destination Address should always be the Global Address FFh

Parameter Group Number (PGN) = 60928(EE00h).

Data Length = 8

Data = NAME field

Example:

Direction	Identifier	Format	Message	Data
From keypad	18EEFF21h	Ext	3F 42 6F 1A 00 82 3C C0	

15.Heartbeat (75h)

This message enables or disables the transmission of Heartbeat message. This message is designed to indicate to other devices on the bus that this unit continues to function.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	75h	Heartbeat
Byte 3	XXh	XX: 00h Disabled (default) 01h Enabled
Byte 4	YYh	YY: Period in milliseconds ÷10 From 05h (50ms) to FEh (2.54 sec)
Byte 5,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 75 01 32 FF FF FF	Set heartbeat enabled with 500ms period.

Heartbeat generated message:

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	F9h	Heartbeat message
Byte 3	XXh	XX: Message counter, incremented each message sent
Byte 4	K8 K7 K6 K5 K4 K3 K2 K1	Button state indicators Each bit represents a button state 0: OFF 1: ON
Byte 5	00 00 00 00 K12 K11 K10 K9	
Byte 6,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
From keypad	18EFFF21h	Ext	D3 98 F9 XX 02 00 00 YY	Heartbeat message with button 2 pressed. XX period increases YY period decreases

16. Periodic Key message period (77h)

This message sets the period time for the Key state messages (71h). This message does not enable or disable the transmission.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	77h	Periodic key message period
Byte 3	XXh	XX: Period in milliseconds÷10 From 05h (50ms) to FEh (2.54 sec)
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 77 0A FF FF FF FF	Period set to 100ms

17. Start Demo mode(7Ah)

This message enables the Demo mode function. Demo mode is a special feature that consists in different LED states for each button pressing. Disconnect and reconnect the keypad after the enable message to enter this mode.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	7Ah	Demo mode
Byte 3	XXh	XX: 00h Disabled (Default) 01h Enabled
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 7A 01 FF FF FF FF	Demo mode enabled

18. Set backlight level at startup (7Bh)

This message sets the value of the backlight at keypad power up. The value can be set from 0 to 3Fh for 0 to 100% of the brightness range.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	7Bh	Set backlight at startup
Byte 3	XXh	XX: Value From 00h (OFF) to 3Fh (100%)
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 7B 06 FF FF FF FF	Backlight at startup 10%

19. LED dim at startup (7Ch)

This message sets the value of the indicator LED brightness at keypad power up. The value can be set from 0 to 3Fh for 0 to 100% of the LED dimming range.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	7Ch	LED dim at startup
Byte 3	XXh	XX: Value From 00h (OFF) to 3Fh (100%)
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 7C 10 FF FF FF FF	LED dim set to 25%

20. Set backlight color (7Dh)

This message sets the color of the backlight.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	7Dh	Set backlight color
Byte 3	XXh	XX: color 00h Red 01h Green 02h Amber 03h Blue 04h Cyan 05h Magenta 06h White
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 7D 04 FF FF FF FF	Set backlight color to cyan

21. Set startup LED show (34h)

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	34h	Startup LED show
Byte 3	XXh	XX: 00h OFF 01h Fast flash (default)
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 34 00 FF FF FF FF	Set Startup LED show OFF

22. Set startup keys message(28h)

This command enables the transmission during power up of the state of the keys.

Byte 0	D3h	Header bytes
Byte 1	98h	
Byte 2	28h	Startup keys message
Byte 3	XXh	XX: 00h Disabled (default) 01h Enabled
Byte 4,7	FFh	Not used

Example:

Direction	Identifier	Format	Message	Data
To keypad	18EF2100h	Ext	D3 98 28 01 FF FF FF FF	Enable startup keys message

CONFIGURATION COMMANDS

The commands are used to configure the keypad parameters and shall be used when the keypad and the command device (usually a PC) are the only devices connected on the CAN bus.

23. Configuration command structure

CAN identifier: 18EF1000h.

Destination address = 10h (regardless of the keypad address).

Command device source address = 00h.

Identifier	18EF1000h	
Byte 0	XXh	Command byte
Byte 1	YYh	Number of frames to follow. 0 = single frame
Byte 2,7	ZZh	Command data

Following frames if needed are:

Identifier	18EF1000h	
Byte 0	NNh	Frames counter, first frame 1h
Byte 1,7	XXh	Command data for this frame

24. Configuration response structure

CAN identifier: 18EF0010h.

Destination address = 00h.

Source address = 10h (regardless of the keypad address).

Identifier	18EF0010h	
Byte 0	XXh	Command byte echo
Byte 1	YYh	Number of frames to follow. 0 = single frame
Byte 2	ZZh	Response state: 06h: Command accepted 01h: Command not understood 02h: Command data out of range 03h: Command not used in this model 15h: Command not accepted due to command rules
Byte 3,7	XXh	Data returned that is requested by command

Following frames if needed are:

Identifier	18EF0010h	
Byte 0	NNh	Frame count, first frame 1h
Byte 1,7	XXh	Command data for this frame

25. Set Periodic transmission (10h)

Identifier	18EF1000h	
Byte 0	10h	Set Periodic transmission
Byte 1	00h	single frame
Byte 2	XXh	Periodic state transmission: 01h ON, 00h OFF
Byte 3	YYh	Heartbeat: 01h ON, 00h OFF
Byte 4	ZZh	Periodic state period: From 05h (50ms) to FEh (2.54 sec)
Byte 5	KKh	Heartbeat period: From 05h (50ms) to FEh (2.54 sec)
Byte 6,7	00h	Not used

26. Get Periodic transmission (11h)

Identifier	18EF1000h	
Byte 0	11h	Get Periodic transmission
Byte 1	00h	single frame
Byte 2,7	00h	Not used

Reply:

Identifier	18EF0010h	
Byte 0	11h	Get Periodic transmission
Byte 1	00h	single frame
Byte 2	XXh	Periodic state transmission: 01h ON, 00h OFF
Byte 3	YYh	Heartbeat: 01h ON, 00h OFF
Byte 4	ZZh	Periodic state period: From 05h (50ms) to FEh (2.54 sec)
Byte 5	KKh	Heartbeat period: From 05h (50ms) to FEh (2.54 sec)
Byte 6,7	00h	Not used

27. Set Virtual Keys (14h)

Virtual keys consist of changing the mapping of a switch.

A switch can be changed to any value from 1 to FEh.

Multiple keys can report as same key.

Identifier	18EF1000h	
Byte 0	14h	Set Virtual Keys
Byte 1	00h	single frame
Byte 2	XXh	Virtual value (New key value)
Byte 3	YYh	Actual Key value (See chapter 2)
Byte 4,7	00h	Not used

28. Get Virtual Keys (15h)

This command gets the Virtual Keys mapping.

Identifier	18EF1000h	
Byte 0	15h	Get Virtual Keys
Byte 1	00h	single frame
Byte 2,7	00h	Not used

29. Set Virtual LED (16h)

Virtual LED consist of changing the mapping of a LED.

A LED can be changed to any value 1-FEh.

Multiple LED can report as same LED.

Identifier	18EF1000h	
Byte 0	16h	Set Virtual LED
Byte 1	00h	single frame
Byte 2	XXh	Virtual value (New LED value)
Byte 3	YYh	Actual LED value (See chapter 2)
Byte 4,7	00h	Not used

30. Get Virtual LED (17h)

This command gets the Virtual LED mapping.

Identifier	18EF1000h	
Byte 0	17h	Get Virtual LED
Byte 1	00h	single frame
Byte 2,7	00h	Not used

31. Get Model ID (19h)

This command returns the stored model ID as a string of 16 bytes.

Identifier	18EF1000h	
Byte 0	19h	Get Virtual LED
Byte 1	00h	single frame
Byte 2,7	00h	Not used

32. Set LED reply (1Ah)

This feature enables / disables CAN acknowledge message after LED command

Identifier	18EF1000h	
Byte 0	1Ah	Set LED reply
Byte 1	00h	single frame
Byte 2	XXh	Led Reply: 01h ON, 00h OFF
Byte 3,7	00h	Not used

33. Get LED reply (1Bh)

This command returns the setting of LED reply command.

Identifier	18EF1000h	
Byte 0	1Bh	Get LED reply
Byte 1	00h	single frame
Byte 2,7	00h	Not used

34. Set Event key state (1Eh)

This command sets the transmission of the state of a contact at the time that the contact changes state.

Identifier	18EF1000h	
Byte 0	1Eh	Set Event key state
Byte 1	00h	single frame
Byte 2	XXh	Event key: 01h ON, 00h OFF
Byte 3,7	00h	Not used

35. Get Event key state (1Fh)

This command returns the setting of Event key command.

Identifier	18EF1000h	
Byte 0	1Fh	Get Event key state
Byte 1	00h	single frame
Byte 2,7	00h	Not used

36. Set default dim level (20h)

This command sets the default LED brightness.

Identifier	18EF1000h	
Byte 0	20h	Set default dim level
Byte 1	00h	single frame
Byte 2	XXh	XX: value from 00h (0%) to 3Fh (100%)
Byte 3,7	00	Not used

37. Get default dim level (21h)

This command returns the default LED brightness.

Identifier	18EF1000h	
Byte 0	21h	Get default dim level
Byte 1	00h	single frame
Byte 2,7	00h	Not used

38. Set backlight level (22h)

This command sets the power up backlight brightness and the backlight brightness.

Identifier	18EF1000h	
Byte 0	21h	Set backlight level
Byte 1	00h	single frame
Byte 2	XXh	XX: Power up backlight value from 00h (0%) to 3Fh (100%)
Byte 3	YYh	YY: Backlight value from 00h (0%) to 3Fh (100%)
Byte 4,7	00h	Not used

39. Get backlight level (23h)

This command returns the backlight brightness.

Identifier	18EF1000h	
Byte 0	23h	Get backlight level
Byte 1	00h	single frame
Byte 2,7	00h	Not used

40. Get Number of LEDs (24h)

This command returns the number of LED.

Identifier	18EF1000h	
Byte 0	24h	Get number of LEDs
Byte 1	00h	single frame
Byte 2,7	00h	Not used

Answer:

Identifier	18EF0010h	
Byte 0	24h	Command reminder
Byte 1	00h	single frame
Byte 2	06h	Command understood
Byte 3	XXh	Number of total LEDs
Byte 4	YYh	Multi colour flag 00h: FALSE 01h:TRUE
Byte 5	ZZh	Number of external LEDs
Byte 6,7	00h	Not used

41. Get LED states (25h)

This command returns the present LED state for each LED.

Identifier	18EF1000h	
Byte 0	25h	Get LED states
Byte 1	00h	single frame
Byte 2,7	00h	Not used

42. Get number of switches (26h)

This command returns the number of switches.

Identifier	18EF1000h	
Byte 0	26h	Get number of switches
Byte 1	00h	single frame
Byte 2,7	00h	Not used

Answer:

Identifier	18EF0010h	
Byte 0	26h	Command reminder
Byte 1	00h	single frame
Byte 2	06h	Command understood
Byte 3	XXh	Number of total switches
Byte 4	YYh	Number of external switches
Byte 5,7	00h	Not used

43. Get serial number (27h)

Identifier	18EF1000h	
Byte 0	26h	Get serial number
Byte 1	00h	single frame
Byte 2,7	00h	Not used

44. Set startup keys message (28h)

This command enables the transmission during power up of the state of the keys.

Identifier	18EF1000h	
Byte 0	28h	Set startup keys message
Byte 1	00h	single frame
Byte 2	XXh	Startup keys message: 01h ON, 00h OFF
Byte 3,7	00h	Not used

45. Get startup keys message (29h)

This command returns the setting of the startup keys message.

Identifier	18EF1000h	
Byte 0	29h	Get serial number
Byte 1	00h	single frame
Byte 2,7	00h	Not used

46. Get software revision (2Ah)

Identifier	18EF1000h	
Byte 0	2Ah	Get software revision
Byte 1	00h	single frame
Byte 2,7	00h	Not used

Answer:

Identifier	18EF0010h	
Byte 0	2Ah	Command reminder
Byte 1	00h	single frame
Byte 2	06h	Command understood
Byte 3	XXh	Major revision
Byte 4	YYh	Minor revision
Byte 5	ZZh	Sub minor revision
Byte 6,7	00h	Not used

47. Set CAN source address (2Bh)

Identifier	18EF1000h	
Byte 0	2Bh	Set CAN source address
Byte 1	00h	single frame
Byte 2	XXh	Address: From 01h to 0Fh From 11h to F0h
Byte 3,7	00h	Not used

48. Get CAN source address (2Ch)

Identifier	18EF1000h	
Byte 0	2Ch	Get CAN source address
Byte 1	00h	single frame
Byte 2,7	00h	Not used

49. Get firmware info (31h)

Identifier	18EF1000h	
Byte 0	31h	Get firmware info
Byte 1	00h	single frame
Byte 2,7	00h	Not used

50. Check for bootloader (32h)

Returns (0xFF) in Response if there is no Boot Loader.

Identifier	18EF1000h	
Byte 0	32h	Check for bootloader
Byte 1	00h	single frame
Byte 2,7	00h	Not used

51. Set startup LED show (34h)

Identifier	18EF1000h	
Byte 0	34h	Set startup LED show
Byte 1	00h	single frame
Byte 2	XXh	XX: 00h OFF 01h Complete led show (default) 02h Amber fast flash
Byte 3,7	00h	Not used

52. Get startup LED show (35h)

Identifier	18EF1000h	
Byte 0	35h	Get startup led show
Byte 1	00h	single frame
Byte 2,7	00h	Not used

53. Force device reset (36h)

Identifier	18EF1000h	
Byte 0	36h	Force device reset
Byte 1	00h	single frame
Byte 2	XXh	XX: 00 soft reset 01 full reset
Byte 3,7	00h	Not used

54. Set backlight color (3Bh)

Identifier	18EF1000h	
Byte 0	3Bh	Set backlight color
Byte 1	00h	single frame
Byte 2	XXh	XX: color 00h Amber 01h Red 02h Green
Byte 3,7	00h	Not used

55. Get backlight color (3Ch)

Identifier	18EF1000h	
Byte 0	3Ch	Get backlight color
Byte 1	00h	single frame
Byte 2,7	00h	Not used

56. Set quiet CAN (40h)

Temporary turns off periodic and heartbeat messages.

Periodic and heartbeat message will return to normal on reboot.

Identifier	18EF1000h	
Byte 0	40h	Set quiet can
Byte 1	00h	single frame
Byte 2	01h	Set on
Byte 3,7	00h	Not used

57.Revision History

Date	Manual Revision	Comment	Related SW version
15/12/2017	1.0	First release	PKPL V1.0