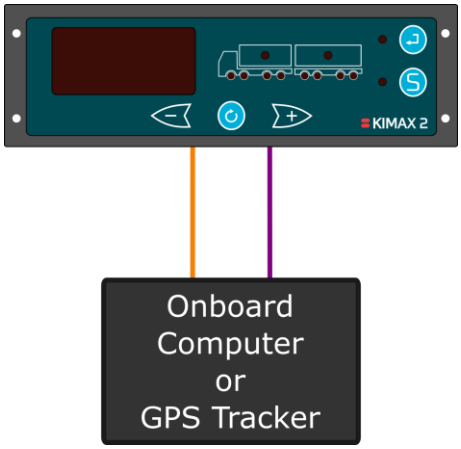
OBC Interface on Kimax devices with 9.XX software



20th of April 2021

SENSE-TECH
Weighing Systems

Table of contents

Introduction

Over the years the use of road-trains has been increasing. Since our older systems were not designed to handle vehicle combinations with more than two vehicles, the 9.XX software generation was created. With this software generation, the system will be able to handle a vehicle combination consisting of up to four vehicles. When we add more devices in a combined system, with the possibility to measure up to 16 axles/axle-groups, it is not possible to use the former OBC protocol. With the Kimax devices loaded with 9.XX software versions, a new OBC protocol is introduced.

When the Kimax system is combined with a GPS tracking system, the GPS tracker can receive the weight data from the Kimax device and then transmit the weight data along with the vehicle location to a fleet management system. As a new feature it is now also possible to send data to the Kimax device through the OBC. This makes it possible to view and even set some of the Kimax configuration values remotely.

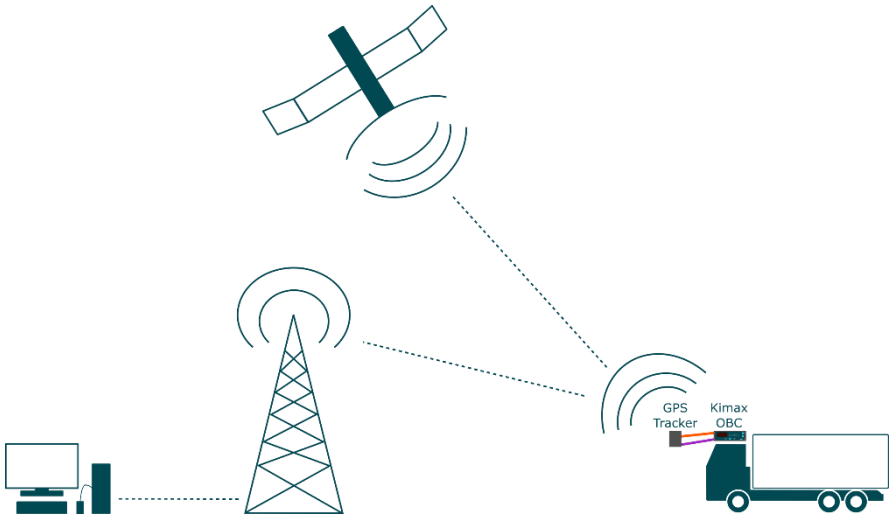


Figure 1: Example of a Kimax device connected to a GPS tracker

Interface

The Kimax OBC is an RS-232 ASCII Serial Interface. The interface enables the communication between the Kimax device and a computer with a terminal program or another general device that understands RS-232 ASCII, like a GPS tracker given in Figure 1. The interface uses the following parameters.

Dataformat:	• ASCII • 8 data bits • 1 stop bit • No parity bit • No flow control		
Transmission rate:	• 9.600 Baud		
Pin assignment:	• OBC TxD • OBC RxD • GND	Pin 7 Pin 18 Pin 1	Orange Purple Brown

Transmitting OBC data

In the early 9.XX software versions the standard interval between consecutive OBC transmissions was 5 seconds. Since different users/customers had requested different transmission intervals and since different types of GPS trackers also need different termination characters, the selectable OBC interval and OBC End Of Line was introduced. These OBC settings are available in Kimax software versions 9.01 (release 200821_1400) and newer and can be changed in the Kimax Terminal from version 4.01 (released 11-09-2020) and newer. The possible OBC settings can be seen in Table 1. When the OBC Tx Interval is set to `"0. Disabled"`, the OBC transmission is turned off. The standard OBC settings when the Kimax devices are produced, are OBC Tx Interval = `"1. 5 sec"` and OBC End Of Line = `"3. CR + LF"`. In all the OBC examples given throughout this this document, these standard OBC settings are used.

OBC Tx Interval	The OBC Tx Interval is a setting for the Kimax devices with an OBC output. The setting determines how often the OBC string is transmitted from the Kimax device. *Possible settings:*

	`"0. Disabled"` `"5. 25 sec"` `"10. 50 sec"` `"15. 75 sec"` `"20. 100 sec"`
	`"1. 5 sec"` `"6. 30 sec"` `"11. 55 sec"` `"16. 80 sec"` `"21. 105 sec"`
	`"2. 10 sec"` `"7. 35 sec"` `"12. 60 sec"` `"17. 85 sec"` `"22. 110 sec"`
	`"3. 15 sec"` `"8. 40 sec"` `"13. 65 sec"` `"18. 90 sec"` `"23. 115 sec"`
	`"4. 20 sec"` `"9. 45 sec"` `"14. 70 sec"` `"19. 95 sec"` `"24. 120 sec"`

OBC End Of Line	The OBC End Of Line is a setting for the Kimax devices with an OBC output. The setting determines what is added to the end of the regular OBC string. The equipment connected to the OBC, may require different *Possible settings:*
	`"0. Disabled"` (Nothing is added) `"1. CR"` (Carriage Return is added) `"2. LF"` (Line Feed is added) `"3. CR + LF"` (Carriage Return and Line Feed is added) `"4. LF + CR"` (Line Feed and Carriage Return is added)

Table 1: OBC settings

When the Kimax device is turned on, it will automatically start transmitting the weight messages with the interval set by the OBC Tx Interval. All the possible message types can be seen in Table 2.

Message Type Number	Type of message
00	Weight message
01	LED setup message
02	LO setup message
03	HI setup message
04	ADL setup message
05	ADH setup message
06	Current sensor input message

Table 2: OBC message types

This is an example of how a transmitted weight message string can look like:

```
”UUUU;001.00;002.00;003.00;004.00;006.00;010.00;028.00;036.00;1;00;1421001;SSSS\r\n”
```

OBC Output 1: Example of a weight message

The entire OBC string can be split into smaller pieces. The different parts of the OBC messages are separated by semicolons and they are further explained in Table 3 and Table 4.

OBC part	Explanation
"UUUU;"	Start of message
"001.00;"	Weight of Channel 1 on Device **X**
"002.00;"	Weight of Channel 2 on Device **X**
"003.00;"	Weight of Channel 3 on Device **X**
"004.00;"	Weight of Channel 4 on Device **X**
"006.00;"	Load of Device **X**
"010.00;"	Total of Device **X**
"028.00;"	Gross Load (Load of all connected devices)
"036.00;"	Gross Total (Total of all connected devices)
"**1**;"	Device **X** (1-4)
"00;"	Message type, see Table 2 to view type definitions
"1421001;"	Serial Number of Device **X**
"SSSS"	End of Message
"\r\n"	OBC End of Line, see Table 1 for possible settings

Table 3: Parts of the OBC weight messages (when Message type = 00)

OBC part	Explanation
"UUUU;"	Start of message
"001.00;"	Channel 1 value on Device **X** (Message/Value type defined by **YY**)
"002.00;"	Channel 2 value on Device **X** (Message/Value type defined by **YY**)
"003.00;"	Channel 3 value on Device **X** (Message/Value type defined by **YY**)
"004.00;"	Channel 4 value on Device **X** (Message/Value type defined by **YY**)
"000.00;"	Not used
"000.00;"	Not used
"000.00;"	Not used
"000.00;"	Not used
"**1**;"	Device **X** (1-4)
"**YY**;"	Message type, see Table 2 to view type definitions
"1421001;"	Serial Number of Device **X**
"SSSS"	End of Message
"\r\n"	OBC End of Line, see Table 1 for possible settings

Table 4: Parts of the OBC additional messages (when Message type ≠ 00)

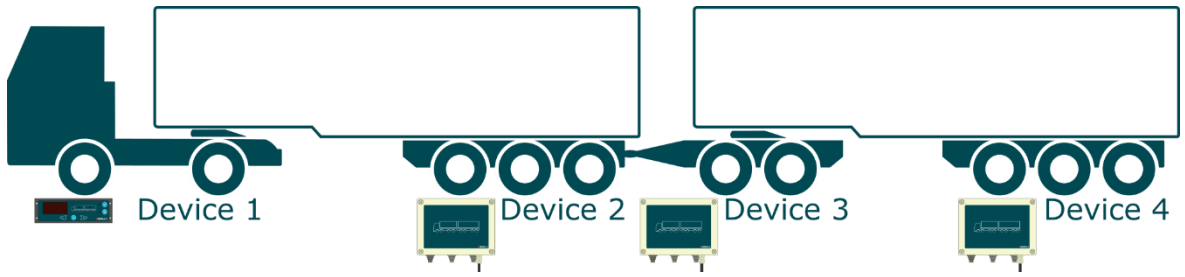


Figure 2: Example of Device positions on the vehicle

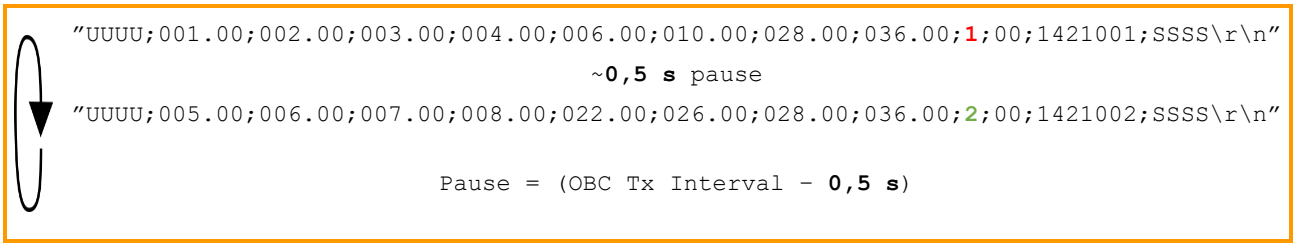
Example when only Device 1 is present in a system:

”UUUU;001.00;002.00;003.00;004.00;006.00;010.00;006.00;010.00;**1**;00;1421001;SSSS\r\n”

Pause = OBC Tx Interval

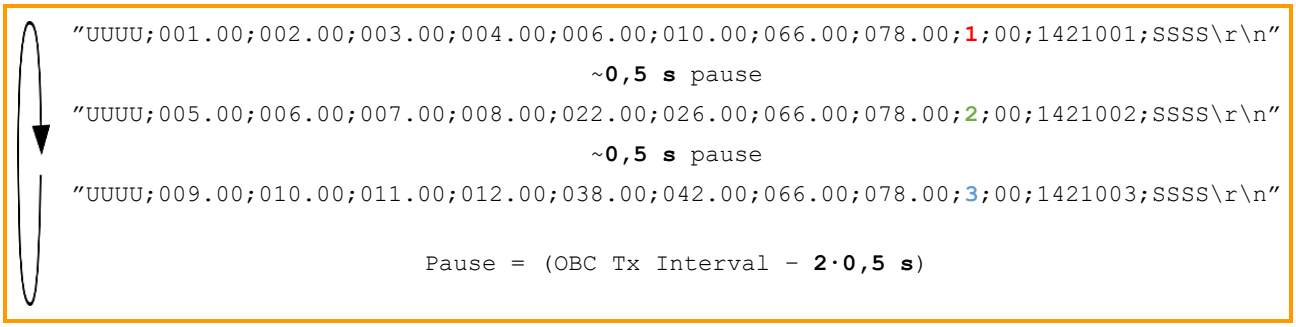
OBC Output 2: Example with Device 1 only

Example when Device 1 and Device 2 are present in a system:



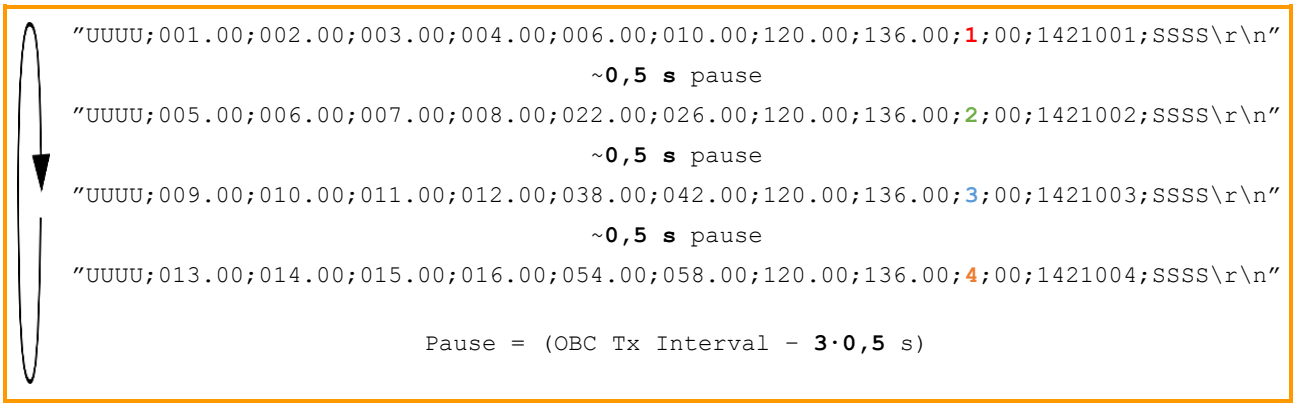
OBC Output 3: Example with Device 1 and Device 2

Example when Device 1, Device 2 and Device 3 are present in a system:



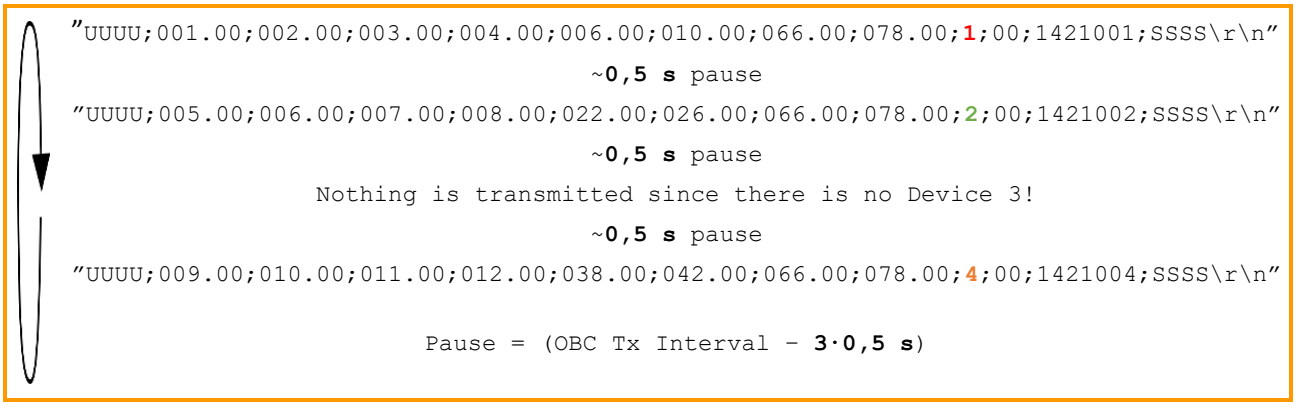
OBC Output 4: Example with Device 1, Devive 2 and Device 3

Example when Device 1, Device 2, Device 3 and Device 4 are present in a system:



OBC Output 5: Example with Device 1, Device 2, Device 3 and Device 4

Example when Device 1, Device 2 and Device 4 are present in a system:



OBC Output 6: Example with Device 1, Devive 2 and Device 4

Receiving OBC data

Full OBC Example

In the following example we have a Kimax system consisting of 3 devices that could be installed on a vehicle-combination like shown in Figure 3. The devices are given the configuration that is shown in Figure 4 and Table 5. The used values are not realistic values. They were chosen to make it easier to get an understanding of which values belongs where, in the OBC strings.

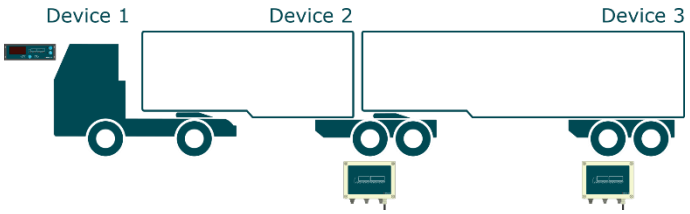


Figure 3: Example of vehicle-combination

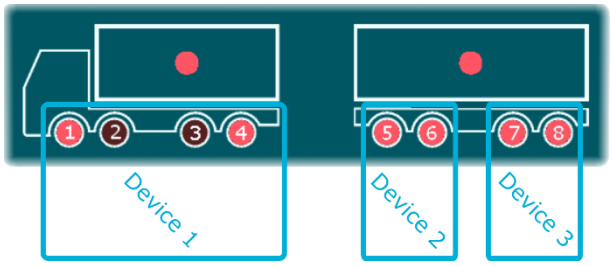


Figure 4: LED setup of the devices

	Device 1 - CH 1	Device 1 - CH 2	Device 2 - CH 1	Device 2 - CH 2	Device 3 - CH 1	Device 3 - CH 2
LED	LED1	LED4	LED5	LED6	LED7	LED8
LO	01,00	02,00	05,00	06,00	09,00	10,00
HI	11,00	12,00	15,00	16,00	19,00	20,00
ADL	02,00	03,00	06,00	07,00	10,00	11,00
ADH	12,00	13,00	16,00	17,00	20,00	21,00
Current Input	07,00	08,00	11,00	12,00	15,00	16,00

Table 5: Configuration of the devices

With the configuration and the current input values that are given in Table 5, the weight messages produced by the system would look like OBC Output 7.

```
Device 1 - Weight Message:
"UUUU;006.00;007.00;000.00;000.00;010.00;013.00;030.00;063.00;1;00;1421001;SSSS\r\n"
~0,5 s pause
Device 2 - Weight Message:
"UUUU;010.00;011.00;000.00;000.00;010.00;021.00;030.00;063.00;2;00;1421002;SSSS\r\n"
~0,5 s pause
Device 3 - Weight Message:
"UUUU;014.00;015.00;000.00;000.00;010.00;029.00;030.00;063.00;3;00;1421003;SSSS\r\n"

Pause = (OBC Tx Interval - 2·0,5 s)
```

OBC Output 7: Weight message output from our example with the the given configuration

When it is desired to view or change some of the settings in the system, the first thing that needs to be done is to unlock the system. This is done by transmitting the command, given in OBC Input 1, to the Kimax system.

```
"013:0\r\n"
```

OBC Input 1: Command to unlock the system

The response from the Kimax system is shown in OBC Output 8.

```
"013:0 received..\r\n"
```

OBC Output 8: Response to the unlock command

The Kimax system is now unlocked and ready to receive additional commands. While the system is unlocked, the regular weight messages will not be broadcasted. In order to get the setup of the system, the command given in OBC Input 2, is sent to the Kimax system.

```
"999:\r\n"
```

OBC Input 2: Command to get the system setup

The initial response from the Kimax system is shown in OBC Output 9.

```
"999: received..\r\n"
```

OBC Output 9: Response to the get setup command

Afterwards the setup of the Kimax system is broadcasted like shown in OBC Output 10.

```
                                    Device 1:
"UUUU;128.00;016.00;000.00;000.00;000.00;000.00;000.00;000.00;1;01;1421001;SSSS\r\n"  LED Message
                                    ~0,5 s pause
"UUUU;001.00;002.00;000.00;000.00;000.00;000.00;000.00;000.00;1;02;1421001;SSSS\r\n"  LO Message
                                    ~0,5 s pause
"UUUU;011.00;012.00;000.00;000.00;000.00;000.00;000.00;000.00;1;03;1421001;SSSS\r\n"  HI Message
                                    ~0,5 s pause
"UUUU;002.00;003.00;000.00;000.00;000.00;000.00;000.00;000.00;1;04;1421001;SSSS\r\n"  ADL Message
                                    ~0,5 s pause
"UUUU;012.00;013.00;000.00;000.00;000.00;000.00;000.00;000.00;1;05;1421001;SSSS\r\n"  ADH Message
                                    ~0,5 s pause
"UUUU;007.00;008.00;000.00;000.00;000.00;000.00;000.00;000.00;1;06;1421001;SSSS\r\n"  Input Message
                                    ~0,5 s pause
                                    Device 2:
"UUUU;008.00;004.00;000.00;000.00;000.00;000.00;000.00;000.00;2;01;1421002;SSSS\r\n"  LED Message
                                    ~0,5 s pause
"UUUU;005.00;006.00;000.00;000.00;000.00;000.00;000.00;000.00;2;02;1421002;SSSS\r\n"  LO Message
                                    ~0,5 s pause
"UUUU;015.00;016.00;000.00;000.00;000.00;000.00;000.00;000.00;2;03;1421002;SSSS\r\n"  HI Message
                                    ~0,5 s pause
"UUUU;006.00;007.00;000.00;000.00;000.00;000.00;000.00;000.00;2;04;1421002;SSSS\r\n"  ADL Message
                                    ~0,5 s pause
"UUUU;016.00;017.00;000.00;000.00;000.00;000.00;000.00;000.00;2;05;1421002;SSSS\r\n"  ADH Message
                                    ~0,5 s pause
"UUUU;011.00;012.00;000.00;000.00;000.00;000.00;000.00;000.00;2;06;1421002;SSSS\r\n"  Input Message
                                    ~0,5 s pause
                                    Device 3:
"UUUU;002.00;001.00;000.00;000.00;000.00;000.00;000.00;000.00;3;01;1421003;SSSS\r\n"  LED Message
                                    ~0,5 s pause
"UUUU;009.00;010.00;000.00;000.00;000.00;000.00;000.00;000.00;3;02;1421003;SSSS\r\n"  LO Message
                                    ~0,5 s pause
"UUUU;019.00;020.00;000.00;000.00;000.00;000.00;000.00;000.00;3;03;1421003;SSSS\r\n"  HI Message
                                    ~0,5 s pause
"UUUU;010.00;011.00;000.00;000.00;000.00;000.00;000.00;000.00;3;04;1421003;SSSS\r\n"  ADL Message
                                    ~0,5 s pause
"UUUU;020.00;021.00;000.00;000.00;000.00;000.00;000.00;000.00;3;05;1421003;SSSS\r\n"  ADH Message
                                    ~0,5 s pause
"UUUU;015.00;016.00;000.00;000.00;000.00;000.00;000.00;000.00;3;06;1421003;SSSS\r\n"  Input Message
```

OBC Output 10: The setup from our example is transmitted

From Table 5, we have that Device 1 – Ch 2 uses LED4 (also given in the setup transmission in the Device 1 LED message of OBC Output 10, where the Ch 2 value is 016.00). In our example we want Device 1 – Ch 2 to use LED3 + LED4. If we desire to perform any changes to the system, it is very important to choose which device that needs to be changed. We choose Device 1 by the following command.

```
"006:0\r\n"
```

OBC Input 3: Let the Kimax system know that we want to make a change on Device 1

The system is giving the following response.

```
"006:0 received..\r\n"
```

OBC Output 11: Response to the device selection message

Now we can send the command to change the LED configuration for Ch 2.

```
"031:048\r\n"
```

OBC Input 4: Ch 2 LED configuration command

The system will produce the following response.

```
"031:048 received..\r\n"
```

OBC Output 12: Response to the Ch 2 LED configuration command

When we are done making the changes we want, we need to lock the Kimax system again by using the following command.

```
"013:1\r\n"
```

OBC Input 5: Command to lock the Kimax system

The response to the lock command is shown in OBC Output 13.

```
"013:0 received..\r\n"
```

OBC Output 13: Response to the lock command

Once the Kimax system is locked again, it will automatically start transmitting the weight messages with the interval set by the OBC Tx Interval.

IMPORTANT: If we save a LO value, the current input value is simultaneously saved as the ADL value on the same channel. The same thing applies to HI and ADL. This is exactly the same behavior as when the LO and HI values are saved directly on the Kimax device by using the buttons.

Commands that can be received by the Kimax OBC

Commands that are sent to the Kimax device through the OBC interface, are sent as ASCII strings and MUST be terminated with either a carriage return ("\r"), line feed ("\n") or both ("\r\n")/ ("\n\r"). A list of possible commands that can be received by the Kimax device is given in Table 6 and Table 7.

OBC Command Number	OBC ASCII Command	Possible values	Response	Action
Cmd 13	"013:**0**\r\n"	0 = Unlock Kimax 1 = Lock Kimax	"013:**0** received..\r\n" "013:1 received..\r\n"	
Cmd 999	"999:\r\n"	No value	"999: received..\r\n"	The setup values are transmitted.
Cmd 6	"006:**0**\r\n"	Range: 0 – 3 (Device 1 – Device4) (See Device numbers section)	"006:**0** received..\r\n"	
Cmd 18	"018:**0**\r\n"	Range: 0 – 8 (See Table 8)	"018:**0** received..\r\n"	Save mean setting Ch 1 (Dev X)
Cmd 19	"019:**0**\r\n"	Range: 0 – 8 (See Table 8)	"019:**0** received..\r\n"	Save mean setting Ch 2 (Dev X)
Cmd 20	"020:**0**\r\n"	Range: 0 – 8 (See Table 8)	"020:**0** received..\r\n"	Save mean setting Ch 3 (Dev X)
Cmd 21	"021:**0**\r\n"	Range: 0 – 8 (See Table 8)	"021:**0** received..\r\n"	Save mean setting Ch 4 (Dev X)
Cmd 30	"030:**000**\r\n"	Range: 000 – 255 (See Table 8)	"030:**000** received..\r\n"	Save LED setting Ch 1 (Device X)
Cmd 31	"031:**000**\r\n"	Range: 000 – 255 (See Table 8)	"031:**000** received..\r\n"	Save LED setting Ch 2 (Dev X)
Cmd 32	"032:**000**\r\n"	Range: 000 – 255 (See Table 8)	"032:**000** received..\r\n"	Save LED setting Ch 3 (Dev X)
Cmd 33	"033:**000**\r\n"	Range: 000 – 255 (See Table 8)	"033:**000** received..\r\n"	Save LED setting Ch 4 (Dev X)
Cmd 34	"034:**00.00**\r\n"	Range: 00.00-99.99	"034:**00.00** received..\r\n"	Save LO setting Ch 1 (Dev X)
Cmd 35	"035:**00.00**\r\n"	Range: 00.00-99.99	"035:**00.00** received..\r\n"	Save LO setting Ch 2 (Dev X)
Cmd 36	"036:**00.00**\r\n"	Range: 00.00-99.99	"036:**00.00** received..\r\n"	Save LO setting Ch 3 (Dev X)
Cmd 37	"037:**00.00**\r\n"	Range: 00.00-99.99	"037:**00.00** received..\r\n"	Save LO setting Ch 4 (Dev X)
Cmd 42	"042:**00.00**\r\n"	Range: 00.00-99.99	"042:**00.00** received..\r\n"	Save HI setting Ch 1 (Dev X)
Cmd 43	"043:**00.00**\r\n"	Range: 00.00-99.99	"043:**00.00** received..\r\n"	Save HI setting Ch 2 (Dev X)
Cmd 44	"044:**00.00**\r\n"	Range: 00.00-99.99	"044:**00.00** received..\r\n"	Save HI setting Ch 3 (Dev X)
Cmd 45	"045:**00.00**\r\n"	Range: 00.00-99.99	"045:**00.00** received..\r\n"	Save HI setting Ch 4 (Dev X)
Cmd 46	"046:**00.00**\r\n"	Range: 00.00-99.99	"046:**00.00** received..\r\n"	Save ADL setting Ch 1 (Dev X)
Cmd 47	"047:**00.00**\r\n"	Range: 00.00-99.99	"047:**00.00** received..\r\n"	Save ADL setting Ch 2 (Dev X)
Cmd 48	"048:**00.00**\r\n"	Range: 00.00-99.99	"048:**00.00** received..\r\n"	Save ADL setting Ch 3 (Dev X)
Cmd 49	"049:**00.00**\r\n"	Range: 00.00-99.99	"049:**00.00** received..\r\n"	Save ADL setting Ch 4 (Dev X)
Cmd 54	"054:**00.00**\r\n"	Range: 00.00-99.99	"054:**00.00** received..\r\n"	Save ADH setting Ch 1 (Dev X)
Cmd 55	"055:**00.00**\r\n"	Range: 00.00-99.99	"055:**00.00** received..\r\n"	Save ADH setting Ch 2 (Dev X)
Cmd 56	"056:**00.00**\r\n"	Range: 00.00-99.99	"056:**00.00** received..\r\n"	Save ADH setting Ch 3 (Dev X)
Cmd 57	"057:**00.00**\r\n"	Range: 00.00-99.99	"057:**00.00** received..\r\n"	Save ADH setting Ch 4 (Dev X)

Table 6: List of commands that the Kimax device can receive – Part 1

OBC Command Number	OBC ASCII Command	Possible values	Response	Action
Cmd 92	"092:**00**\r\n"	Range: 00-26	"092:**00** received..\r\n"	A2 Enable (Dev X)
Cmd 93	"093:**00**\r\n"	Range: 00-26	"093:**00** received..\r\n"	A3 Enable (Dev X)
Cmd 94	"094:**00**\r\n"	Range: 00-26 (See Table 8)	"094:**00** received..\r\n"	A4 Enable (Dev X)
Cmd 95	"095:**00.00**\r\n"	Range: 00.00-99.99	"095:**00.00** received..\r\n"	A2 (Dev X)
Cmd 96	"096:**00.00**\r\n"	Range: 00.00-99.99	"096:**00.00** received..\r\n"	A3 (Dev X)
Cmd 97	"097:**00.00**\r\n"	Range: 00.00-99.99	"097:**00.00** received..\r\n"	A4 (Dev X)
Cmd 98	"098:**00.00**\r\n"	Range: 00.00-99.99	"098:**00.00** received..\r\n"	A2 Hyst (Dev X)
Cmd 99	"099:**00.00**\r\n"	Range: 00.00-99.99	"099:**00.00** received..\r\n"	A3 Hyst (Dev X)
Cmd 100	"100:**00.00**\r\n"	Range: 00.00-99.99	"100:**00.00** received..\r\n"	A4 Hyst (Dev X)
Cmd 101	"101:**00.00**\r\n"	Range: 00.00-99.99	"101:**00.00** received..\r\n"	Container (Dev X)
Cmd 112	"112:**00**\r\n"	Range: 00-24 (See Table 1)	"112:**00** received..\r\n"	OBC Tx Int
Cmd 113	"113:**0**\r\n"	Range: 0-4 (See Table 1)	"113:**0** received..\r\n"	OBC EOL

Table 7: List of commands that the Kimax device can receive – Part 2

The settings with a green background color in Table 6 and Table 7 (Cmd 13, Cmd 999, Cmd 112 and Cmd 113) are settings, that will be changed directly on the Kimax device with the OBC interface. The settings with a yellow background color in Table 6 and Table 7 are settings, that are depending on what is given in by the command (Cmd 6 – define which device number) with a blue background color.

<table>
<tr><td>Ch Mean

Cmd 18
Cmd 19
Cmd 20
Cmd 21</td><td colspan="4">The weight values of the individual channels are calculated every 0,5 s. Therefore, if the Ch Mean setting is disabled, there will be a new weight value every 0,5 s. If the setting is set to "1. 10 samples", the 10 last weight values are used to calculate an average weight value.
Possible settings:
"0. Disabled" (Mean calculation off)
"1. 10 samples" (Mean of 5 seconds)
"2. 20 samples" (Mean of 10 seconds)
"3. 30 samples" (Mean of 15 seconds)
"4. 40 samples" (Mean of 20 seconds)
"5. 50 samples" (Mean of 25 seconds)
"6. 60 samples" (Mean of 30 seconds)
"7. 70 samples" (Mean of 35 seconds)
"8. 80 samples" (Mean of 40 seconds)</td></tr>
<tr><td>Ch LED

Cmd 30
Cmd 31
Cmd 32
Cmd 33</td><td colspan="4">The Ch LED setting determines which of the axle LED’s (LED1 to LED8) are assigned to the individual channels. The possible range is: 000 – 255 (All LED’s off - All LED’s on).
Example:
 

If we want Ch1 to use LED1, Ch2 to use LED3 + LED4 and Ch3 and Ch4 with no LED’s like shown on the image above, the setup would look like this:
Ch1: LED1 = 128
Ch2: LED3 + LED4 = 032 + 016 = 048
Ch3: No LED = 000
Ch4: No LED = 000
Values of the individual LED’s:
LED1 = 128
LED2 = 064
LED3 = 032
LED4 = 016
LED5 = 008
LED6 = 004
LED7 = 002
LED8 = 001</td></tr>
<tr><td>A2/A3/A4 Enable

Cmd 92
Cmd 93
Cmd 94</td><td colspan="4">The A2/A3/A4 Enable settings determine which weight values are used to trigger the external alarms (A2/A3/A4).
Possible settings:
"0. Disabled"
"1. Ch 01" (Dev 1 - Ch 1)
"2. Ch 02" (Dev 1 - Ch 2)
"3. Ch 03" (Dev 1 - Ch 3)
"4. Ch 04" (Dev 1 - Ch 4)
"5. Ch 05" (Dev 2 - Ch 1)
"6. Ch 06" (Dev 2 - Ch 2)
"7. Ch 07" (Dev 2 - Ch 3)
"8. Ch 08" (Dev 2 - Ch 4)
"9. Ch 09" (Dev 3 - Ch 1)
"10. Ch 10" (Dev 3 - Ch 2)
"11. Ch 11" (Dev 3 - Ch 3)
"12. Ch 12" (Dev 3 - Ch 4)
"13. Ch 13" (Dev 4 - Ch 1)
"14. Ch 14" (Dev 4 - Ch 2)
"15. Ch 15" (Dev 4 - Ch 3)
"16. Ch 16" (Dev 4 - Ch 4)
"17. Dev 1 Total"
"18. Dev 2 Total"
"19. Dev 3 Total"
"20. Dev 4 Total"
"21. Dev 1 Load"
"22. Dev 2 Load"
"23. Dev 3 Load"
"24. Dev 4 Load"
"25. Combined Load"
"26. Combined Total"</td></tr>
</table>

Table 8: Explanation of the possible inputs to the commands given in Table 6 and Table 7

Appendix

Device numbers

A Kimax 2 system, with 9.XX software, can be installed by a combination of up to 4 devices. Each of these devices can have up to 4 input channels.

The system has 4 data slots that contain data/weight from the individual devices. Therefore, it is necessary to tell each device which data slot to use. This is done by assigning a "Device Number" for each unit. It's not particular important which device get which Device Number. However, it's ***VERY IMPORTANT*** that each of the Device Numbers is ***ONLY*** present once in a combined system.

The Device number can be found and changed in the Kimax Terminal in the device settings section. This specific setting is emphasized by the red ellipse shown in Figure 5 and further explained in Table 9.

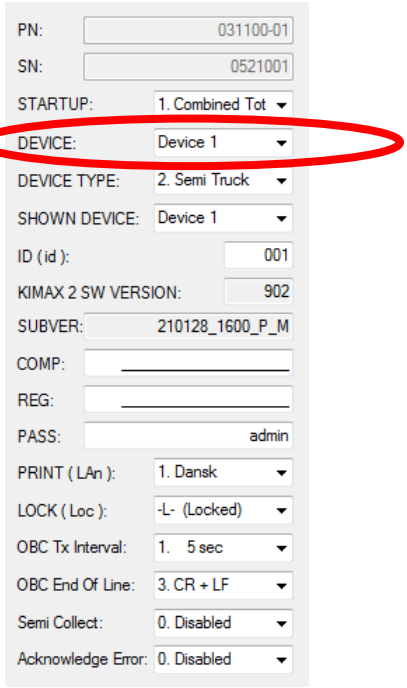
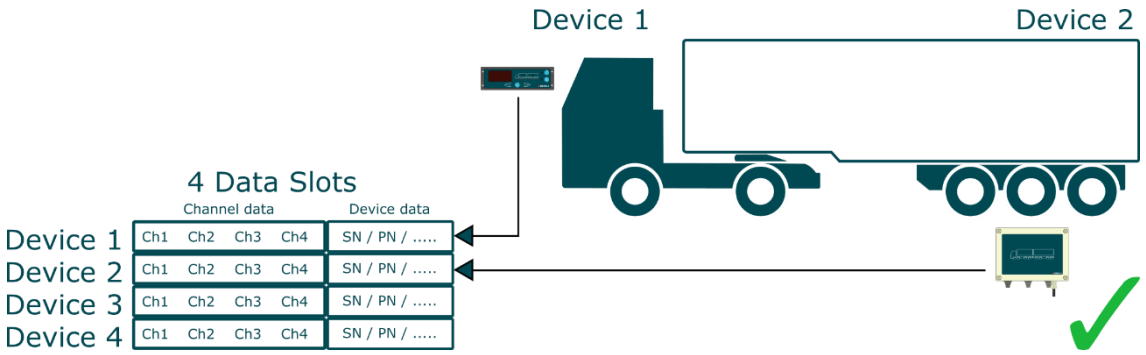


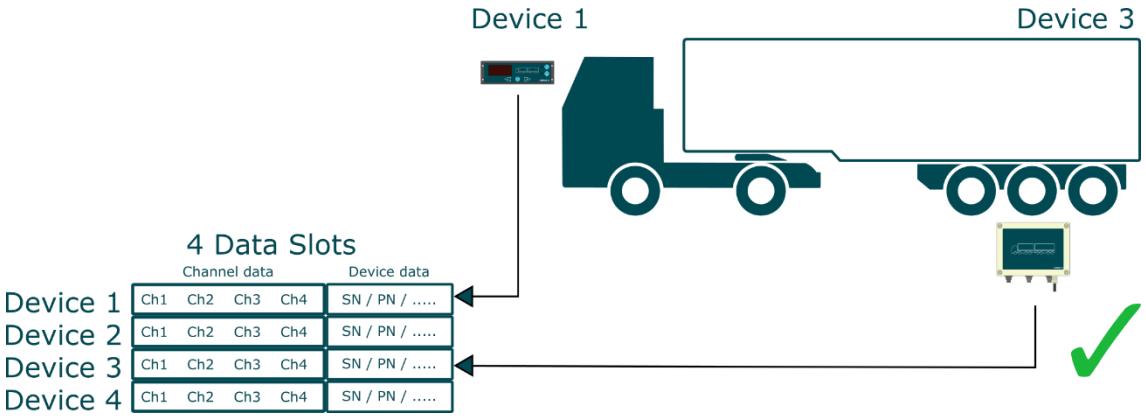
Figure 5: Device settings section of the Kimax Terminal

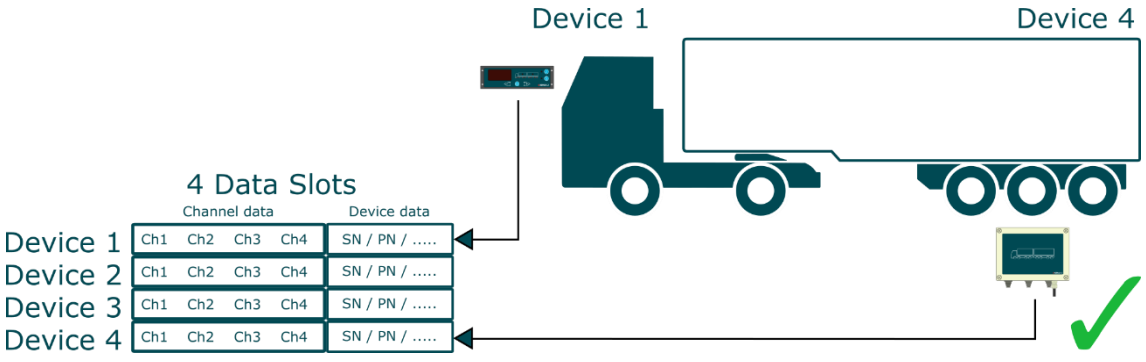
Device	The Device setting is a setting in the combined system, that defines which of the 4 possible data slots to use. The setting is given for the device that is directly connected via a USB-cable. In the examples given below, it is shown, how the data slots are used by the devices. ***Important***: In the combined system, only 1 of each of the Device numbers is allowed. *Possible settings:*			
	`"Device 1"`	`"Device 2"`	`"Device 3"`	`"Device 4"`

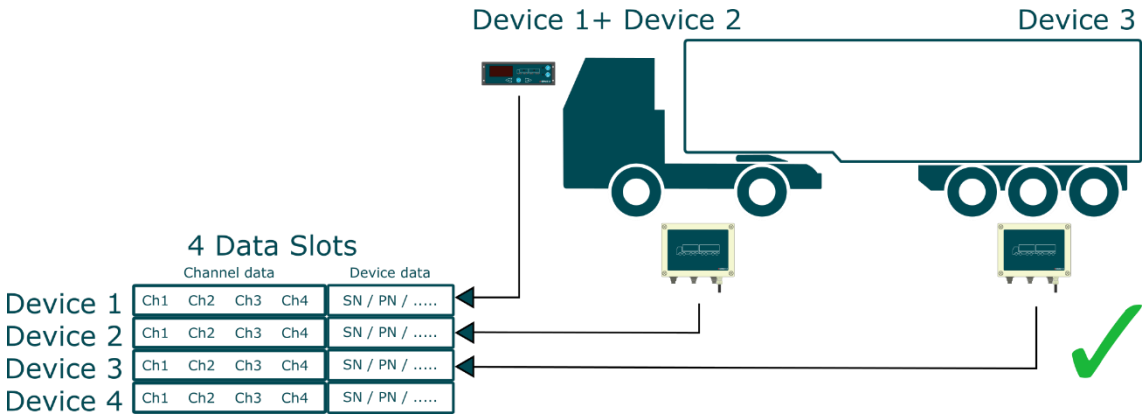
Table 9: Device setting of the Kimax device

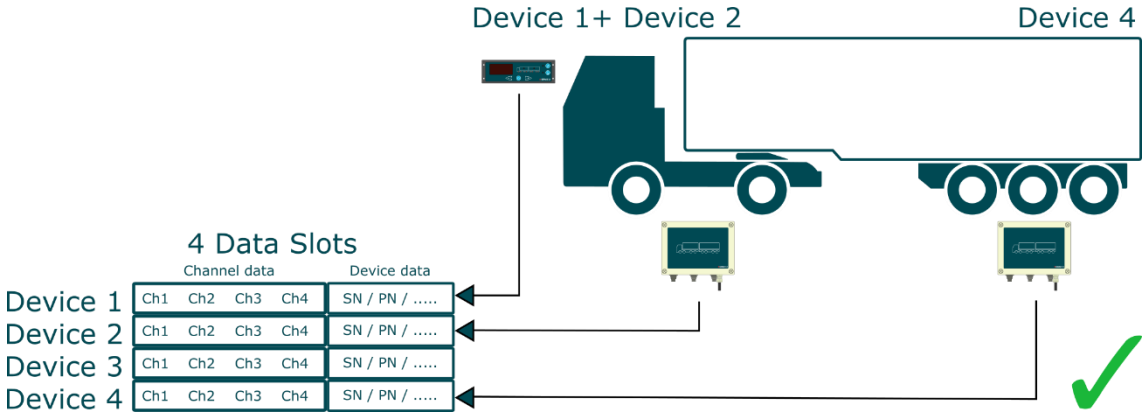
Examples

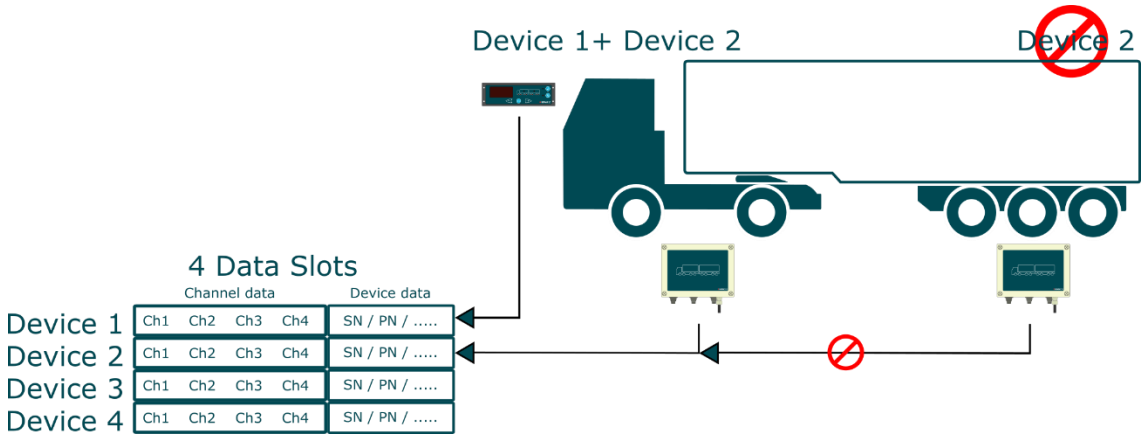

Device 1
Device 2
4 Data Slots
Channel data
Device data
Device 1 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 2 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 3 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 4 Ch1 Ch2 Ch3 Ch4 SN / PN / .....


Device 1
Device 3
4 Data Slots
Channel data
Device data
Device 1 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 2 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 3 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 4 Ch1 Ch2 Ch3 Ch4 SN / PN / .....

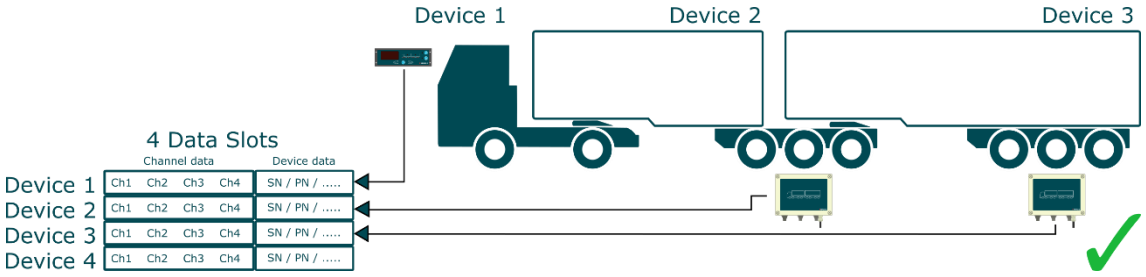

Device 1
Device 4
4 Data Slots
Channel data
Device data
Device 1 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 2 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 3 Ch1 Ch2 Ch3 Ch4 SN / PN / .....
Device 4 Ch1 Ch2 Ch3 Ch4 SN / PN / .....

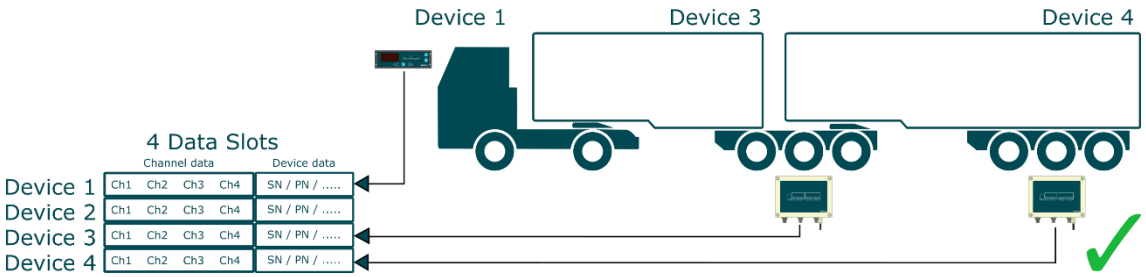


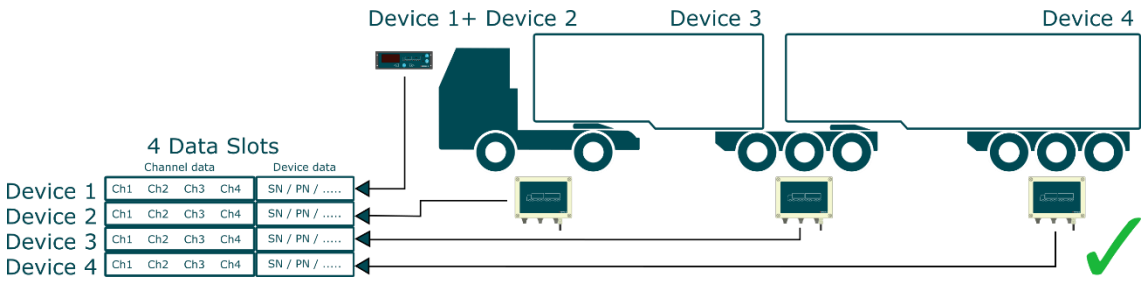


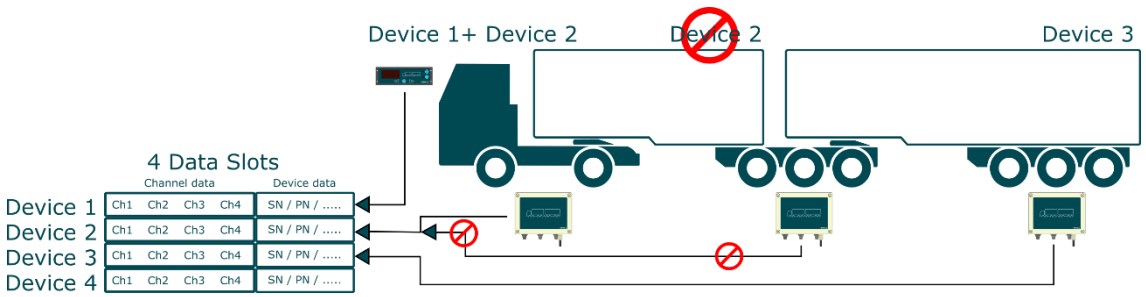


Information: The system configuration is faulty, since 2 devices have been set up as Device 2.

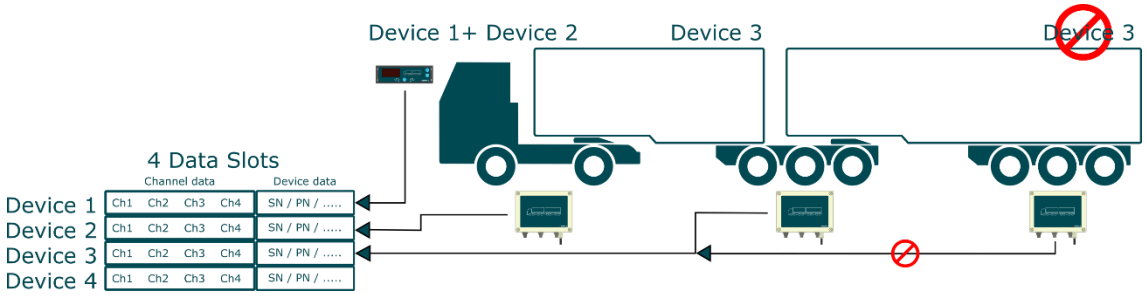








Information: The system configuration is faulty, since 2 devices have been set up as Device 2.



Information: The system configuration is faulty, since 2 devices have been set up as Device 3.

SENSE-TECH
Weighing Systems

MANU_90027_002