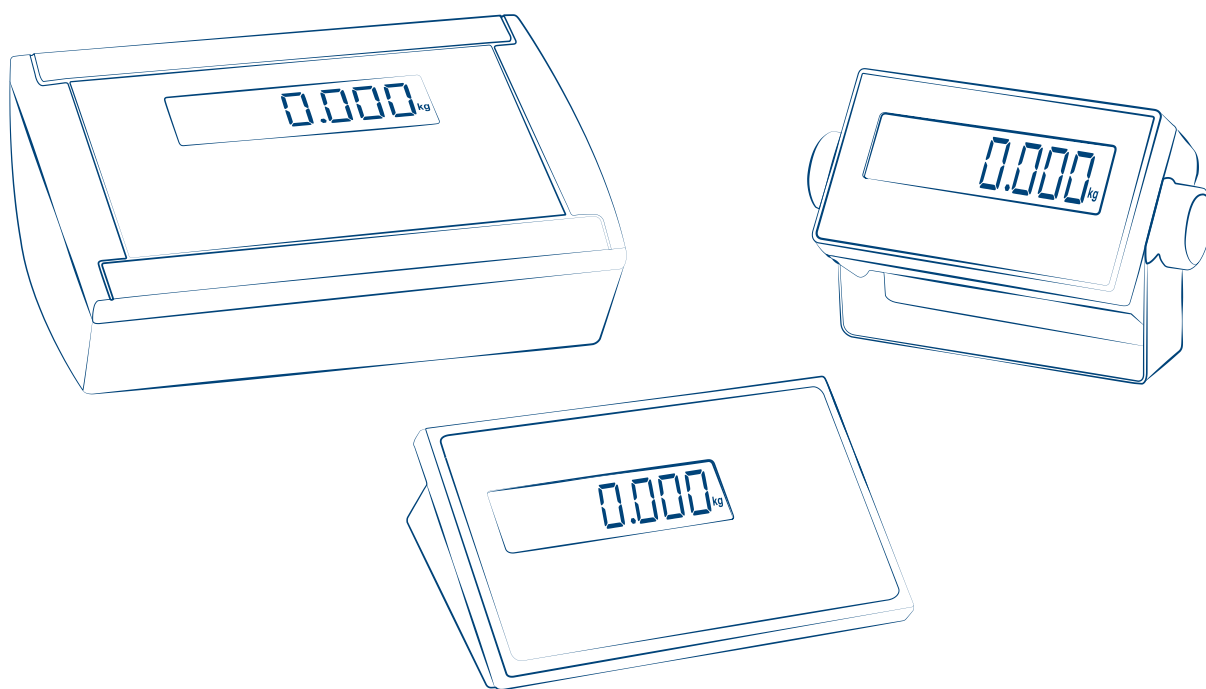


 **DFW - DFWL**

SERIAL PROTOCOL

ENGLISH





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# 1. Format of the serial commands

This manual describes the available commands on DFW series scale instruments.

The commands are described following the typographical convention:

<b>Description</b>	Description of the command
<b>Notes</b>	Special notes, if needed

<b>Format</b>	C	M	D	X	Command given as sequence of characters
<b>Where</b>	x	Description of the command parameters, if present			

<b>Answer</b>	A	N	S	W	X	X	Command answer as sequence of characters
<b>Where</b>	xx	Description of the answer values, if present					

<b>Example</b>	Description of the example is necessary							
	Command	C	M	D	1	Example of a specific command		
	Answer	A	N	S	W	1	2	Answer to the specific command

The format of the commands is composed of:

- capital characters: compulsory characters
- lower case characters: parameters of the command/answer
- characters in square brackets ([x]): optional characters

Commands terminator characters

All the commands and the answers terminate with CR (decimal 13, hexadecimal 0D) LF (decimal 10, hexadecimal 0A) characters.

In the example given above the command and the answer will be:

**Command**      CMD1<CR><LF>

**Answer**        ANSW12<CR><LF>

To be more clear the example is given also in decimal and hexadecimal formats:

<b>Command</b>	ASCII	C	M	D	1	<CR>	<LF>		
	Decimal	67	77	68	49	13	10		
	Hexadecimal	43	4D	44	31	0D	0A		
<b>Answer</b>	ASCII	A	N	S	W	1	2	<CR>	<LF>
	Decimal	65	78	83	87	49	50	13	10
	Hexadecimal	41	4e	53	57	31	32	0D	0A

In the remaining part of the manual to be more concise the terminator characters are omitted.

## 2. 485 Communication

When the 485 mode is selected all the commands and the answers will have the selected address in front of them. All the commands with a 485 address different from the instrument scale one will be ignored.

Example of a command in 485 communication mode with address equal 01.

Command	ASCII	0	1	C	M	D	1	<CR>	<LF>		
	Decimal	48	49	67	77	68	49	13	10		
	Hexadecimal	30	31	43	4D	44	31	0D	0A		
Answer	ASCII	0	1	A	N	S	W	1	2	<CR>	<LF>
	Decimal	48	49	65	78	83	87	49	50	13	10
	Hexadecimal	30	31	41	4e	53	57	31	32	0D	0A

## 3. Command errors

Almost every command, if successfully executed, has its own answer. If the received command is not recognized or has a wrong format an error answer is sent back from the scale. The following table lists the error answers:

Answer							Description
E	R	R	0	1	<CR>	<LF>	Command format wrong
E	R	R	0	2	<CR>	<LF>	Command parameters error
E	R	R	0	3	<CR>	<LF>	Command not allowed in the scale state
E	R	R	0	4	<CR>	<LF>	An inexistent command has been transmitted.
E	R	R	0	5	<CR>	<LF>	There has been an error in the response of the indicator.
E	R	R	0	6	<CR>	<LF>	There has been an error in the checksum.

The following errors are specific in the case of weighs memory management (DFWPM10USB)

Answer							Description
E	R	R	-	1	<CR>	<LF>	Reading error.
E	R	R	-	2	<CR>	<LF>	The memory is not present.
E	R	R	-	3	<CR>	<LF>	Writing error.
E	R	R	-	4	<CR>	<LF>	Invalid index in the memory.
E	R	R	-	5	<CR>	<LF>	Full memory.
E	R	R	-	6	<CR>	<LF>	Error in writing the index of the memory.
E	R	R	-	7	<CR>	<LF>	Error in the stored years (max. 2 consecutive years).
E	R	R	-	8	<CR>	<LF>	Error in sending data (serial port busy).
E	R	R	-	9	<CR>	<LF>	Empty memory.
E	R	R	-	10	<CR>	<LF>	Invalid weight (unstable, less than allowed divisions, out of range or tilt of the scale).

Note: specific errors for the memory have an offset equal to 30 from the absolute value of the error and are transmitted on serial line on 2 hexadecimal digits (ex.: invalid weight error = 30 + abs(-10) = 40 becomes ERR 28 hexadecimal).

## 4. Available commands

### VER - Instrument version

**Description** Reading of the instrument model and firmware version

**Format** V E R

**Answer** V E R , r [r] s s , m m m m m m m m

**Where** r[r] Firmware major release in decimal value

ss Firmware minor release

m...m Model name on 8 characters

**Example** DFW release 1.00 connected

**Command** V E R

**Answer** V E R , 1 0 0 , D F W 0 6

### READ - Weight read command

**Description** Reading of the scale weight

**Format** R E A D

**Answer** STANDARD STRING (see the section "Communication strings").

### REXT- Weight read command

**Description** Reading of the scale weights

**Format** R E X T

**Answer** EXTENDED STRING (see the section "Communication strings").

### REXD - Weight read command with date and time

**Description** Reading of the scale weights

**Format** R E X D

**Answer** EXTENDED STRING (see the section "Communication strings").



## GR10- Weight read command in high resolution

<b>Description</b>	Get the net weight in high resolution
<b>Note</b>	The weight has 1 decimal more than the scale number of decimals

<b>Format</b>	G R 1 0 [X]
<b>Where</b>	<p>x E to enable the compatibility mode of the REXT command with the old version 03.05. If the compatibility is enabled, in the answer, the weights are formatted of on 8 digits instead on 10 digits (as in new version).</p> <p>D to disable the compatibility mode disables the compatibility of the REXT command with the old version 03.05 (default).</p>

<b>Answer</b>	x present	O K
	x omitted	Compatibility mode disabled
		S S , G X , w w w w w w w w w w , u u
		Compatibility mode enabled
	S S , c , w w w w w w w w w w w w u u	
<b>Where</b>	ss	T L Tilt condition error
		O L Over load condition
		U L Under load condition
		S T Weight stable
		U S Weight unstable
	c	Selected scale (always 1)
	w...w	Net weight in high resolution on 10 characters with decimal point and padded on front with blank spaces
	uu	Unit of measure ("g", "kg", "t", "lb")

<b>Example 1</b>	Enables compatibility mode																	
	Command	G	R	1	0	E												
	Answer	O	K															
<b>Example 2</b>	Weight in high resolution with compatibility mode disabled																	
	Command	G	R	1	0													
	Answer	S	T	,	G	X	,				1	.	0	0	0	0	,	k
<b>Example 3</b>	Weight in high resolution with compatibility mode enabled																	
	Command	G	R	1	0													
	Answer	S	T	,	1	,					1	.	0	0	0	0	k	g

## MVOL – Microvolts read command

<b>Description</b>	Reading command of microvolts relative to the weight
--------------------	------------------------------------------------------

<b>Format</b>	M V O L
---------------	---------

<b>Answer</b>	STANDARD STRING (see the section "Communication strings").
---------------	------------------------------------------------------------

## T - Semi automatic tare function

**Description** Semi automatic tare function

**Format** T

**Answer** No answer

<b>Example</b>	Command	T
	Answer	No answer

## TARE - Semi automatic tare function

**Description** Semi automatic tare function

**Format** T A R E

**Answer** O K

<b>Example</b>	Command	T	A	R	E
	Answer	O	K		

## TMAN - Preset tare function

**Description** Preset tare function

**Format** T M A N t t t t t t t t

**Where** t...t Tare to set with decimal point on up to 8 characters

**Answer** O K The instrument's response does not mean necessarily that the instrument executes the tare.

<b>Example 1</b>	Sets a preset tare equal to 1.5 kg										
	Command	T	M	A	N	1	.	5			
	Answer	O	K								

<b>Example 2</b>	Sets a preset tare equal to 10 kg										
	Command	T	M	A	N	1	0				
	Answer	O	K								





## Z - Zero scale function

**Description** Zero scale function

**Format** Z

**Answer** No answer

<b>Example</b>	Command	Z
	Answer	No answer

## ZERO - Zero scale function

**Description** Zero scale function

**Format** Z E R O

**Answer** O K

<b>Example</b>	Command	Z	E	R	O
	Answer	O	K		

## C - CLEAR key

**Description** Simulates the pressure of the CLEAR key

**Format** C

**Answer** No answer

<b>Example</b>	Command	C
	Answer	No answer

## CLEAR - CLEAR key

**Description** Simulates the pressure of the CLEAR key

**Format** C L E A R

**Answer** O K

<b>Example</b>	Command	C	L	E	A	R	
	Answer	O	K				

## ECHO - Echo of the received characters

**Description** Echo of the received characters

**Format** E C H O [c ... c]

**Where** c...c Arbitrary characters

**Answer** E C H O c ... c

**Where** c...c Same characters of the received command

<b>Example</b>	Command	E	C	H	O	A	B	C	D	
	Answer	E	C	H	O	A	B	C	D	

## ALIM - Reading of power supply and battery levels

<b>Description</b>	Reading of power supply and battery levels
--------------------	--------------------------------------------

<b>Format</b>	A   L   I   M   [N]
---------------	---------------------

<b>Where</b>	N: character 'N'. If present the command answer will have the millivolt values.
--------------	---------------------------------------------------------------------------------

<b>Answer</b>	P   W   :     x   ...   x     B   T   :     y   ...   y			
<b>Where</b>	x...x    Decimal value			
	y...y    Decimal value			
	<b>ALIM</b>			
	<b>ALIMN</b>			
	Description	Values	Description	Range
x...x	Power supply connection	0: power supply disconnected 1: power supply connected	Power supply voltage in millivolt	>= 0
y...y	Battery value	0 ~ 9 0: discharged 9: charged	Battery voltage in millivolt	>= 0

<b>Example 1</b>	Command	A	L	I	M														
	Answer	P	W	:		1		B	T	:		6							
<b>Example 2</b>	Command	A	L	I	M	N													
	Answer	P	W	:		1	2	9	2	0		B	T	:		6	5	0	1

## RAZF - ADC value

<b>Description</b>	Get the ADC value of the selected instrument channel
--------------------	------------------------------------------------------

<b>Answer</b>	Instrument response in "IND.CH." mode: STANDARD STRING (see the section "Communication strings"). Instrument response in "DEP.CH." mode: see the response of the RAZM - ADC value command.
---------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## RAZM - ADC value

<b>Description</b>	Get the ADC value of all channels
--------------------	-----------------------------------

<b>Format</b>	R   A   Z   M
---------------	---------------

<b>Answer</b>	Independent channels working mode																			
	s	s	,	R	Z	,	d	d	d	d	d	d	d	d	d	d	d	,	v	v
<b>Where</b>	Dependent channels working mode																			
	R	Z	,	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	v <sup>1</sup>	,	v <sup>2</sup>	v <sup>2</sup>	v <sup>2</sup>	v <sup>2</sup>	v <sup>2</sup>	v <sup>2</sup>
	v <sup>2</sup>	v <sup>2</sup>	v <sup>2</sup>	,	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	v <sup>3</sup>	,	v <sup>4</sup>	v <sup>4</sup>	v <sup>4</sup>	v <sup>4</sup>	v <sup>4</sup>
	v <sup>4</sup>	v <sup>4</sup>	v <sup>4</sup>	v <sup>4</sup>	,	v	v													
	ss	T	L	Tilt condition error																
		O	L	Over load condition																
		U	L	Under load condition																
		S	T	Weight stable																
U		S	Weight unstable																	
d...d	ADC value on 10 characters padded on front with blank spaces																			
v <sub>i</sub> ... v <sub>i</sub>	ADC value of the i-th channel in dependent channels working mode																			

<b>Example 1</b>	ADC voltage value equal to 450000 in independent channels working mode																				
	Command	R	A	Z	M																
	Answer	S	T	,	R	Z	,							4	5	0	0	0	0	,	v
<b>Example 2</b>	Reading of the 2 configured channels ADC values in dependent channels working mode, 1st channel ADC value = 15000, 2nd channel ADC value = 20000																				
	Command	M	V	O	L																
	Answer	R	Z	,										1	0	0	0	,			
		2	0	0	0	0	,	v	v												

## STPT - Setpoint setting

<b>Description</b>	Setpoint setting
<b>Note</b>	The transmitted values are valid until the indicator is turned off. To permanently save these on the instrument one should use the saving command (CMDSAVE). If one wants to save various set points one should set all of them and at the end transmit the saving command.

<b>Format</b>	S	T	P	T	n	t	x	x	x	x	x	x	t	y	y	y	y	y	y	
<b>Where</b>	n		Index of the digital output related to the setpoint format (0÷3) 0 to set the setpoint 1, 3 to set setpoint 4																	
	t	O	The following value is the on setpoint one																	
		F	The following value is the off setpoint one																	
x...x		Setpoint weight values in decimal format with no decimals on up to 6 digits.																		
y...y		If the scale has 3 decimals and the setpoint value is to be set equal 1.000 kg set xxxx (or yyyy) equal to 1000																		
NOTE: if the setpoint hysteresis is disabled the off value is ignored but must be less than the on value.																				

<b>Answer</b>	O	K	
---------------	---	---	--

<b>Example</b>	Sets the on value of the 2nd setpoint equal to 2.000 kg and the off value equal to 1.900 kg in a scale calibrated with 3 decimals																			
	Command	S	T	P	T	1	0	2	0	0	0	F	1	9	0	0				
	Answer	O	K																	

## TATO - Command for setting the activation, target and tolerance

<b>Description</b>	Command for setting the activation, target and tolerance
<b>Note</b>	Only by the tolerance Check mode. The transmitted values are valid until the indicator is turned off. To permanently save these on the instrument one should use the saving command (CMDSAVE). If the "KKKKK" tolerance is omitted, the "ZZZZZ" tolerance is considered as both the lower one as well as the upper one.

<b>Format</b>	T	A	T	O	,	X	X	X	X	X	X	,	Y	Y	Y	Y	Y	Y	,		
	Z	Z	Z	Z	Z	,	K	K	K	K	K	K									
<b>Where</b>	XXXXXX		is the activation threshold without decimal point																		
	YYYYYY		is the target weight without decimal point																		
	ZZZZZZ		is the lower tolerance without the decimal point																		
	KKKKK		is the upper tolerance without the decimal point																		

<b>Answer</b>	O	K	
---------------	---	---	--

<b>Example</b>	Setting the activation equal to 0.020 kg, target equal to 2.000 and tolerances equal to 0.100																			
	T	A	T	O	,		0	.	0	2	0	,		2	.	0	0	0	,	
		0	.	1	0	0	,		0	.	1	0	0							

## TLCK - Tare function status

**Description** Tare function status

**Format** T L C K

**Answer** T L C K e

**Where** e E Tare locked  
D Tare unlocked

**Example**

Tare disable	
Command	T L C K
Answer	T L C K D

## TLCKe - Tare function programming

**Description** Tare function programming

**Note** The transmitted values are valid until the indicator is turned off. To permanently save these on the instrument one should use the saving command (CMDSAVE).

**Format** T L C K e

**Where** e E To lock the tare  
D To unlock the tare

**Answer** O K

**Example**

Tare locked	
Command	T L C K D
Answer	O K

## CMDSAVE - Data saving command

**Description** Data saving command

**Format** C M D S A V E

**Answer** O K

**Example**

Data saving command	
Command	C M D S A V E
Answer	O K

## NTGS – NET / GROSS Switch

<b>Description</b>	Switches the main weight display value from gross to net and vice versa					
<b>Note</b>	The command is executed only if one is in the "Net / Gross switch" functioning mode, <i>F . ModE &gt;&gt; Funct = ntGS</i> .					
<b>Format</b>	N	T	G	S		
<b>Answer</b>	O	K				
<b>Example</b>	Command	N	T	G	S	
	Answer	O	K			

## PRNT - Simple print function

<b>Description</b>	Simple print function execution					
<b>Format</b>	P	R	N	T		
<b>Answer</b>	O	K				
<b>Example</b>	Command	P	R	N	T	
	Answer	O	K			

## DISP - Displays of a message on the display

<b>Description</b>	Displays of a message on the display					
<b>Note</b>	<p>The message is displayed for the interval time set with the DINT command</p> <p>In the case in which the display shown in the command is of the numeric type (for example the standard display 00), and if in the transmitted message there are two consecutive points the message is stopped after the first of the two points. When the display is showing a message transmitted serially through the DISP command, the indicator does not display those messages usually shown in the scale status (ZERO, TARE, HOLD, ...).</p> <p>With approved instrument one needs to wait for the end of the current visualisation before being able to view the next one.</p>					
<b>Format</b>	D	I	S	P	0	0 c ... c
<b>Where</b>	c...c Message to display					
<b>Answer</b>	O	K				
<b>Example</b>	Displays the message "- OK -" on the display					
	Command	D	I	S	P	0 0 - O K -
	Answer	O	K			

## DINT - Interval of the message of the DISP command

<b>Description</b>	Sets the interval of the message displayed with the DISP command
<b>Note</b>	Value 0 sets an infinite interval <b>With approved instrument</b> the minimum settable time is 1 millisecond (0001HEX), and maximum settable time is 5 seconds (5000 milliseconds, 1388 HEX).

<b>Format</b>	D   I   N   T   t   t   t   t
<b>Where</b>	tttt Message interval time in milliseconds express in hexadecimal format

<b>Answer</b>	O   K
---------------	-------

<b>Example</b>	Sets a message interval time of 1 second (1000 ms, 03E8 hex)								
	Command	D	I	N	T	0	3	E	8
	Answer	O	K						

## PCOK - PC confirmation command

<b>Description</b>	PC confirmation command: the indicator shows on the display the "-PCOK-" message for about 2 seconds.
--------------------	-------------------------------------------------------------------------------------------------------

<b>Format</b>	P   C   O   K
---------------	---------------

<b>Answer</b>	O   K
---------------	-------

<b>Example</b>	Command	P	R	O	K				
	Answer	O	K						

## SPMU - Average piece weight setting

<b>Description</b>	Sets the average piece weight in the set AVG unit
<b>Note</b>	Only for the counting operating mode The APW are not accepted in the SPMU.12<CRLF> format; these must be in the SPMU0.12<CRLF> format. The APW are not accepted equal to zero.

<b>Format</b>	S   P   M   U   x   ...   x
<b>Where</b>	x...x Average piece weight value with decimal point on up to 8 characters

<b>Answer</b>	O   K
---------------	-------

<b>Example</b>	Sets an average piece value equal to 10.5								
	Command	S	P	M	U	1	0	.	5
	Answer	O	K						



## STAT - Instrument working state

<b>Description</b>	Reading of the instrument working state						
<b>Format</b>	S	T	A	T			
<b>Answer</b>	S	T	A	T	x	x	
<b>Where</b>	xx	State index in decimal format (see TABLE)					
<b>Example</b>	Instrument in the scale state						
	Command	S	T	A	T		
	Answer	S	T	A	T	0	1

Index	State
00	normal scale status
01	normal scale status in input
02	instrument in technical set-up
03	instrument in boot phase
04	instrument in rx/tx set-up phase
05	instrument in test phase of the serial ports
06	instrument in print test

## KEYP - Simulation of a key/button pressure

<b>Description</b>	Simulation of a key/button pressure
<b>Note</b>	In case the simulated key has two linked functions (key briefly pressed or at length, like the TARE key), if the KEYP command is followed by the release command of the (KEYR) key within a maximum time of 1,5 seconds, the simple function will be executed (key briefly pressed); otherwise the second function will be made (key pressed at length).

<b>Format</b>	K   E   Y   P   x   x
<b>Where</b>	xx    Key code in hexadecimal format (see Table)

<b>Answer</b>	O   K
---------------	-------

<b>Example</b>	Simulation of the pressure of the ZERO key						
	Command	K	E	Y	P	0	4
	Answer	O	K				

Key code	Key
00	00: MODE key;
01	01: F key;
02	02: ENTER key;
03	03: TARE key;
04	04: scale ZERO key;
05	05: numeric 0 key;
06	06: numeric 1 key;
07	07: numeric 2 key;
08	08: numeric 3 key;
09	09: numeric 4 key;
0A	0A: numeric 5 key;
0B	0B: numeric 6 key;
0C	0C: numeric 7 key;
0D	0D: numeric 8 key;
0E	0E: numeric 9 key;
0F	0F: INFO key;
10	10: C key.

## KEYR - Simulation of the release of the key

<b>Description</b>	Simulation of the release of the key					
<b>Format</b>	K	E	Y	R		
<b>Answer</b>	O	K				
<b>Example</b>	Command	K	E	Y	R	
	Answer	O	K			

## KEYE - Keyboard status

<b>Description</b>	Keyboard status					
<b>Format</b>	K	E	Y	E		
<b>Answer</b>	K	E	Y	E	e	
<b>Where</b>	e E the keyboard is enabled D the keyboard is disabled					
<b>Example</b>	Keyboard disable					
	Command	K	E	Y	E	
	Answer	K	E	Y	E	D

## KEYEe - Keyboard enable

<b>Description</b>	Keyboard enable					
<b>Note</b>	The transmitted values are valid until the indicator is turned off. To permanently save these on the instrument one should use the saving command (CMDSAVE).					
<b>Format</b>	K	E	Y	E	e	
<b>Where</b>	e E to enable the keyboard D to disable the keyboard					
<b>Answer</b>	O	K				
<b>Example</b>	Keyboard disable					
	Command	K	E	Y	E	D
	Answer	O	K			

**RALL - Reading of the scale data**

<b>Description</b>	Reading of all scale data
--------------------	---------------------------

<b>Format</b>	R	A	L	L	
---------------	---	---	---	---	--

<b>Answer</b>	s	s	,	c	,	n	n	n	n	n	n	n	u	u	,	g	g	g	g	g	g	g	u	u
	,	p	p	t	t	t	t	t	t	u	u	,	t <sub>n</sub>	t <sub>n</sub>	t <sub>n</sub>	t <sub>n</sub>	t <sub>n</sub>	t <sub>n</sub>	u <sub>n</sub>	u <sub>n</sub>	,	s <sub>s</sub>		
	s <sub>s</sub>	s <sub>s</sub>	,	c <sub>k</sub>	c <sub>k</sub>	c <sub>k</sub>	,	k	k	k	,	n	n	n	,	r	r	r	r	r	-	d	d	d
	d	d	d																					

<b>Where</b>	ss		T	L	Tilt condition error	
			O	L	Over load condition	
			U	L	Under load condition	
			S	T	Weight stable	
			U	S	Weight unstable	
	c		Number of scale (always 1)			
	n...n		Net weight on 7 characters			
	uu		Unit of measure ("g", "kg", "t", "lb")			
	g...g		Gross weight on 7 characters			
	uu		Unit of measure ("g", "kg", "t", "lb")			
	pp		Tare type (" " with semi-automatic tare, "PT" with preset tare)			
	t...t		Tare value on 7 characters			
	uu		Unit of measure ("g", "kg", "t", "lb")			
	t <sub>n</sub> ...t <sub>n</sub>		Last totalization net weight on 7 characters			
	u <sub>t</sub> u <sub>t</sub>		Last totalization unit of measure ("g", "kg", "t", "lb")			
	s <sub>s</sub> s <sub>s</sub> s <sub>s</sub>		Scale state, decimal value on 3 digits padded with zeroes on front 000 weighing 001 numeric value input 002 set-up menu			
	c <sub>k</sub> c <sub>k</sub> c <sub>k</sub>		Pressed keys counter, decimal value on 3 digits padded with zeroes on front (*)			
	kkk		Pressed key code, decimal value on 3 digits padded with zeroes on front			
nnn		Number of totalizations, decimal value on 3 digits padded with zeroes on front				
r...r		Alibi rewrite ID value on 5 digits padded with zeroes on front				
		Alibi ID value on 6 digits padded with zeroes on front				

<b>Example</b>	Last totalization net is 3.500 kg																							
	Command			R	A	L	L																	
	Answer																							
	S	T	,	1	,			3	.	5	0	0	k	g	,			5	.	0	0	0	k	g
	,	P	T			1	.	5	0	0	k	g	,			3	.	5	0	0	k	g	,	
		1	,	0	1	5	,	0	5	5	,	0	0	3	,	0	0	0	0	0	-	0	0	0
0	0	2																						



**PID - Stores weigh data in the alibi memory**

**Description** Stores weigh data in the alibi memory and get alibi ID value

**Format** P I D

**Answer** P I D s s , c , w w w w w w w w w w u u , p p t  
 t t t t t t t t t u u , r r r r r - n n n n n

<b>Where</b>	ss	T L	Tilt condition error
		O L	Over load condition
		U L	Under load condition
		S T	Weight stable
		U S	Weight unstable
	c	Scale number (always 1)	
	w...w	Gross weight on 10 characters padded with blank spaces on front	
	uu	Unit of measure ("g", "kg", "t", "lb")	
	pp	Tare type (" " with semi-automatic tare, "PT" with preset tare)	
	t...t	Tare value	
r...r	Alibi rewrite ID value on 5 digits padded with zeroes on front		
n...n	Alibi ID value on 6 digits padded with zeroes on front		
In case of error with no weight data stored in alibi memory in place of rrrrr-nnnnnn there is			
N O			

<b>Example</b>	Data stored in alibi with a gross weight equal to 15 kg and a preset tare of 1 kg																								
	Command		P	I	D																				
	Answer																								
	P	I	D	S	T	,	1	,					1	5	.	0	0	0	k	g	,	P	T		
				1	.	0	0	0	k	g	,	0	0	0	0	0	-	0	0	0	0	0	5		

## PIDD - Stores weigh data in the alibi memory with date and time

<b>Description</b>	Stores weigh data in the alibi memory, get alibi ID value, date and time
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<b>Format</b>	P   I   D   D
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<b>Answer</b>	P	I	D	S	S	,	C	,	W	W	W	W	W	W	W	W	W	U	U	,	P	P	T	
	t	t	t	t	t	t	t	t	t	u	u	,	r	r	r	r	r	r	-	n	n	n	n	n
	d	d	/	m	m	/	y	y	b	b	h	h	:	m	m	:	s	s						

<b>Where</b>	ss	T L	Tilt condition error	
		O L	Over load condition	
		U L	Under load condition	
		S T	Weight stable	
		U S	Weight unstable	
	c		Scale number (always 1)	
	w...w		Gross weight on 10 characters padded with blank spaces on front	
	uu		Unit of measure ("g", "kg", "t", "lb")	
	pp		Tare type (" " with semi-automatic tare, "PT" with preset tare	
	t...t		Tare value	
	r...r		Alibi rewrite ID value on 5 digits padded with zeroes on front	
	n...n		Alibi ID value on 6 digits padded with zeroes on front	
	d...y		Date in the "dd/mm/yy"	
	bb		2 space characters, 32 decimal ascii character	
	h...s		Time in the "hh:mm:ss" format	
		In case of error with no weight data stored in alibi memory in place of rrrrr-nnnnnn there is <table border="1"><tr><td>N</td><td>O</td></tr></table>	N	O
N	O			
		In the case in which the date/time is not detected or set, the weight is transmitted but not the date and time; "NO DATE TIME" is in its place.		

<b>Example</b>	Data stored in alibi with a gross weight equal to 15 kg and a preset tare of 1 kg																							
	Command			P   I   D   D																				
	Answer																							
	P	I	D	S	T	,	1	,					1	5	.	0	0	0	k	g	,	P	T	
					1	.	0	0	0	k	g	,	0	0	0	0	0	-	0	0	0	0	0	5
2	1	/	0	5	/	1	4	/			0	9	:	4	3	:	1	7						

## ALRD - Alibi memory reading

<b>Description</b>	Alibi memory reading
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<b>Format</b>	A   L   R   D   w   w   w   w   w   -   n   n   n   n   n   n
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<b>Where</b>	wwwww	Rewrite id (decimal value on 5 digits padded on front with zeroes)
	nnnnnn	Alibi id number (decimal value on 6 digits padded on front with zeroes)

<b>Answer</b>	s	,	w	w	w	w	w	w	w	w	w	w	u	u	,	p	p	t	t	t	t	t	t	t
	t	t	t	u	u																			
	s					Scale number (always 1)																		
	wwwwwwwwww										Gross weight (decimal value with decimal point on 10 characters padded on front with blanks)													
	uu		Unit of measure ("g", "kg", "t", "lb")																					
	pp		Tare type (2 blank spaces with no tare or semi-automatic tare, "PT" with preset tare)																					
	ttttttttt										Tare value (decimal value with decimal point on 10 characters padded on front with blanks)													

<b>Example</b>	Command		A	L	R	D	0	0	0	0	0	0	-	0	0	0	0	0	0	1					
	Answer																								
	1	,					2	.	0	0	0	k	g	,	P	T								1	.
	0	0	0	k	g																				

## ALDL - Clearing of the alibi memory

<b>Description</b>	Clearing of the alibi memory
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<b>Note</b>	Not allowed in legal for trade instruments and if the scale is not in the weighing state
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<b>Format</b>	A   L   D   L
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<b>Answer</b>	A   L   D   L   O   K
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<b>Example</b>	Command		A	L	D	L																	
	Answer		A	L	D	L	O	K															

## 5. Communication strings

### Short string

**01ST,GS, 0.0,kg<CR><LF>**

where

<b>01</b>	Code 485 of the instrument (2 characters), only if communication mode 485 is enabled
<b>ST</b>	Scale status (2 characters): <u>US</u> - Weight unstable <u>ST</u> - Weight stable <u>OL</u> - Weight overload (out of range) <u>UL</u> - Weight underload (out of range) <u>TL</u> - Scale not level (inclinometer active)
<b>,</b>	ASCII 044 character
<b>GS</b>	Type of weight data (2 characters)
<b>,</b>	ASCII 044 character
<b>0.0</b>	Weight (8 characters including the decimal point)
<b>,</b>	ASCII 044 character
<b>kg</b>	Unit of measurement (2 characters)
<b>&lt;CR&gt;&lt;LF&gt;</b>	Transmission terminator, characters ASCII 013 and ASCII 010

### Extended string

**011,ST, 0.0,PT 20.8, 0,kg<CR><LF>**

where

<b>01</b>	Code 485 of the instrument (2 characters), only if communication mode 485 is enabled
<b>1</b>	ASCII 049 character
<b>,</b>	ASCII 044 character
<b>ST</b>	Scale status (2 characters): <u>US</u> - Weight unstable <u>ST</u> - Weight stable <u>OL</u> - Weight overload (out of range) <u>UL</u> - Weight underload (out of range) <u>TL</u> - Scale not level (inclinometer active)
<b>,</b>	ASCII 044 character
<b>0.0</b>	Net weight (10 characters including the decimal point)
<b>,</b>	ASCII 044 character
<b>PT</b>	Indication of pre-set manual tare (2 characters)
<b>20.8</b>	Tare weight (10 characters including the decimal point)
<b>,</b>	ASCII 044 character
<b>0</b>	Number of pieces (10 characters)
<b>,</b>	ASCII 044 character
<b>kg</b>	Unit of measurement (2 characters)
<b>&lt;CR&gt;&lt;LF&gt;</b>	Transmission terminator, characters ASCII 013 and ASCII 010



# NOTES

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