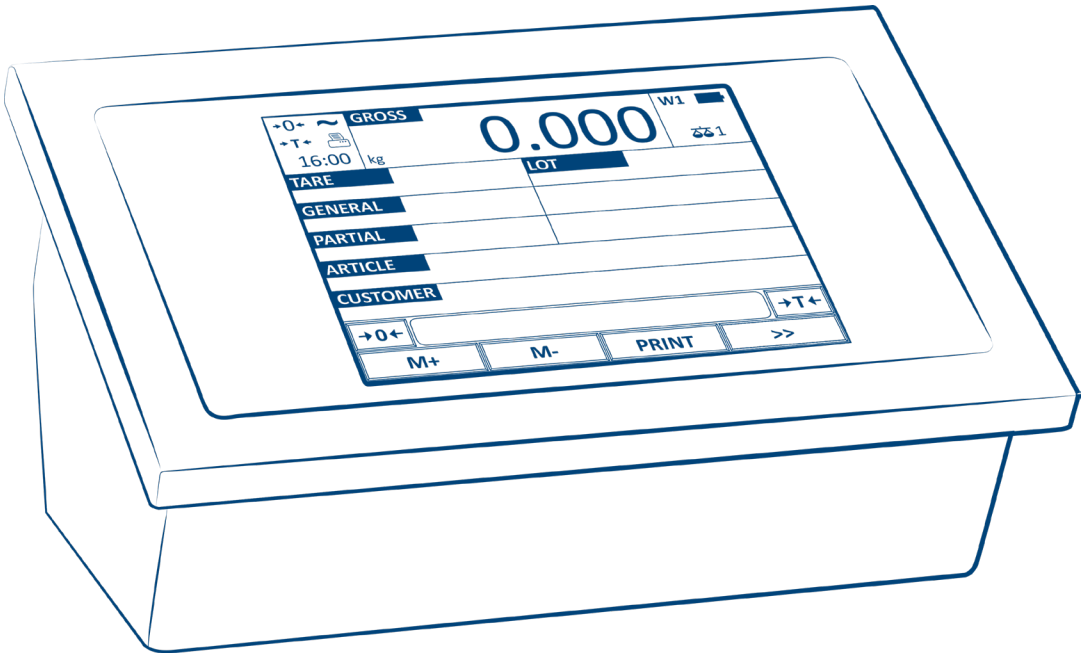
DINI ARGEO
Scales - Weighing systems

3590ET - 3590EGT

Serial commands

TECHNICAL MANUAL ENGLISH



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1. Format of the serial commands

This manual describes the available commands on EGT series scale instruments.
The commands are described following the typographical convention:

Description	Description of the command.
Notes	Special notes, if needed.

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

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

Example	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:

Command	ASCII	C	M	D	1	<CR>	<LF>		
	Decimal	67	77	68	49	13	10		
	Hexadecimal	43	4D	44	31	0D	0A		
Answer	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.

Instrument configuration

To work with the commands described in the present manual set the following parameters in the scale technical setup:

Setup parameter	Selectable values
Serial ports → Pc port configuration → Baud rate	Select the baud rate
Serial ports → Pc port configuration → Parity type	Select the parity type
Serial ports → Pc port configuration → Word length	Select the word length
Serial ports → Pc port configuration → Stop bit	Select the stop bits
Serial ports → Pc port configuration → CTS status	Select the CTS status
Serial ports → Pc port configuration → Protocol	Standard Extended For alibi memory
Serial ports → Pc port configuration → Communication mode	On demand

2. 485 Communication

To work with 485 protocol set the following parameter in the scale technical setup:

Setup parameter	Value
Serial ports → Pc port configuration → Communication mode	RS485 mode
Serial ports → Pc port configuration → 485 address	485 scale address (0 to 99)

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. Scale instrument answers

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>	Unrecognized command
E	R	R	0	5	<CR>	<LF>	Internal factory use
E	R	R	0	6	<CR>	<LF>	Internal factory use
E	R	R	0	7	<CR>	<LF>	Password protected (related to BASIC application)

4. Commands divided by argument

1.1 Weight reading commands

Command	Description	Page
RALL	Reading of the scale data	41
READ	Reading of the scale weight	43
REXT	Reading of the scale weights	44
GR10	Get the net weight in high resolution	26
R	Reading of the scale weight	40

1.2 Weight setting commands

Command	Description	Page
SPMU	Sets the average piece weight in the set AVG unit	47
STPD	This command is the same as STPT	47
STPT	Setpoint setting	49
T	Semi automatic tare function	50
TARE	Semi automatic tare function	50
TMAN	Preset tare function	50
W	Preset tare function	53
X	Sets the average piece weight in the set AVG unit	55
ZERO	Zero scale function	56
Z	Zero scale function	56

1.3 Scales commands

Command	Description	Page
CGCH	Change the weighing channel	17
CMDOFF	Turns the indicator off	18
CMDRESET	Restarts the indicator	18
CMDSAVE	Save the setup parameter	18
CMDSETUP	Enter in the setup environment	19
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MVOL	Get the micro Volts of the selected instrument channel	33
NTGS	Switches the main weight display value from gross to net and vice versa	34
Q	Change the weighing channel	39
RAZF	Get the ADC value of the selected instrument channel	42
SN	Reading of the instrument serial number	47
STAT	Reading of the instrument working state	48
VER	Reading of the instrument model and firmware version	52

1.4 Power commands

Command	Description	Page
ALIM	Reading of power supply and battery levels	11

1.5 Alibi memory commands

Command	Description	Page
ALRD	Alibi memory reading	12
ALDL	Clearing of the alibi memory	11
PID	Stores weigh data in the alibi memory and get alibi ID value	37

1.6 Analog output command

Command	Description	Page
ANOU	Analog output value setting	12

1.7 Keys related commands

Command	Description	Page
ATS	Enable / Disable the automatic transmission of the pressed keys	13
CLEAR	Simulates the pressure of the CLEAR key	17
C	Simulates the pressure of the CLEAR key	17
EKBB	Clear the keyboard buffer	21
EXIT	Simulates the pressure of the OK key	22
GKBB	Reading of the pressed buffered keys	25
KEYE	Keyboard enable	30
KEYP	Simulation of a key / button pressure	30
KEYR	Simulation of the release of the key	31

1.8 Display commands

Command	Description	Page
DINT	Sets the interval of the message displayed with the DISP command	20
DISP	Displays of a message on the system message area	20
GINR	Get the numeric value inserted by the user	24
IALA	Set the instrument scale in the alphanumerical input state	28
INUN	Set the instrument scale in the numeric input state	29
RUBU	Reading of the last data inserted by the user after the execution of the IALA command	46
WUBU	Writes data in the user buffer	54

1.9 Audio buzzer commands

Command	Description	Page
BEEP	Activates the scale buzzer acoustic device	15
BPO	Activates the scale buzzer acoustic device for no more than 10 seconds	16
BPF	Turns the scale buzzer acoustic device off	16

1.10 Serial ports commands

Command	Description	Page
BAUD	Set the baud rate of the pc serial port	14
BRIDGE	Activates a bridge between printer or AUX serial port and PC serial port	16
ECO	Echo of the received characters	21
ECHO	Echo of the received characters	21

1.11 Print commands

Command	Description	Page
PRNT	Simple print function execution	38
PRV	Sets the print format related to a print function	38
P	Simple print function execution	36
TOPR	Sends data to the printer port	51

1.12 Digital inputs commands

Command	Description	Page
GETI	Reading of the digital inputs status	24
INPU	Reading of the digital inputs status	28

1.13 Digital ouputs commands

Command	Description	Page
OUTP	Set the digital outputs states	35

1.14 Database related commands

Command	Description	Page
GREC	Reading of the selected record of a database	27
NREC	Reading of the number of occupied records and the total number of records of a database	34
RREC	Reading of a record of a database	45
SREC	Selects a record of a database	47
WREC	Writing of a record of a database	54

5. Commands in alphabetical order

ALDL

Description	Clearing of the alibi memory.
Note	Not allowed in legal for trade instruments and if the scale is not in the weighing state.

Format	A	L	D	L		

Answer	A	L	D	L	O	K	

Example	Command	A	L	D	L		
	Answer	A	L	D	L	O	K

ALIM

Description	Reading of power supply and battery levels.

Format	A	L	I	M	[N]
Where	N: character 'N'. If present the command answer will have the millivolt values.				

Answer	P	W	:		x	...	x		B	T	:		y	...	y

Where

x...x Decimal value

y...y Decimal value

	ALIM		ALIMN	
	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

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

ALRD

Description	Alibi memory reading.

Format	A	L	R	D	w	w	w	w	w	-	n	n	n	n	n	n	
Where	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).															

Answer																													
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	
Where	S	Scale number (0 to 4).																											
	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).																											

Example	Command	A	L	R	D	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									

ANOU

Description	Analog output value setting.
Note	Allowed in technical setup only

Format	A	N	O	U	x	x	x	x	
Where	xxxx	DAC value in hex format (0h to FFFFh).							

Answer	O	K	

Example	Command	A	N	O	U	6	7	8	9	
	Answer	O	K							

ATS

Description	Enable / Disable the automatic transmission of the pressed keys.
Note	Works on EGT-AF01 only.

Format	A	T	X	e	
Where	e 0 disable 1 enable				

Answer	A	T	S	O	K	

Example	Command	A	T	S	1		
	Answer	A	T	S	O	K	

BAUD

Description	Set the baud rate of the pc serial port.
Note	The answer is sent at the present baud rate, then the new one is set.

Format	B	A	U	D	[P]	n	

Where

P Character 'P'. If present set new baud rate permanently. If omitted the baud rate is automatically set at the setup value after 2 seconds of communication silence.

n Baud rate index.

Value	Baud rate [bps]
0	9600
1	19200
2	38400
3	57600
4	115200

Answer	O	K	

Example	Temporarily set 19200 as pc serial port baud rate.						
	Command	B	A	U	D	1	
	Answer	O	K				

BEEP

Description	Activates the scale buzzer acoustic device.
Note	Works on EGT-AF01 only.

Format	B	E	E	P	n	n	d	d	d	d	d

Where

nn Index of the acoustic note.

Value	Note	Frequency [Hz]
0	DO C	261.52
1	DO# Cis	277.02
2	RE D	293.44
3	RE# Dis	310.72
4	MI E	329.60
5	FA F	349.12
6	FA# Fis	369.68
7	SOL G	391.84
8	SOL# Gis	414.96
9	LA A	440.00
10	LA# Ais[1] / B[2]	465.92
11	SI B[1] / H[2]	493.84

[1]Anglo-Saxon
[2]German

ddddd Duration time of the acoustic sound in milliseconds expressed as decimal value.
Value 00000 turns the buzzer off.

Answer	O	K	

Example	1 second FA/F note.											
	Command	B	E	E	P	0	5	0	1	0	0	0
	Answer	O	K									

BPF

Description	Turns the scale buzzer acoustic device off.
Note	Works on EGT-AF01 only.

Format	B	P	F	

Answer	B	P	F	O	K	

Example	Command	B	P	F			
	Answer	B	P	F	O	K	

BPO

Description	Activates the scale buzzer acoustic device for no more than 10 seconds.
Note	The emitted note is LA/A (440 Hz). Works on EGT-AF01 only.

Format	B	P	O	

Answer	B	P	O	O	K	

Example	Command	B	P	O			
	Answer	B	P	O	O	K	

BRIDGE

Description	Activates a bridge between printer or AUX serial port and PC serial port.
Note	Not allowed when the instrument scale is in the DOSAGE (33) state. The bridge connection terminates when there are no exchanged data on the serial lines for more than 10 seconds.

Format	B	R	I	D	G	E	p	

Where

p Serial port connected to the PC serial port

Value	Description
0	PC port connected to AUX port
1	PC port connected to printer port

Answer	O	K		

Example	Connects the printer serial port with the PC serial port.								
	Command	B	R	I	D	G	E	1	
	Answer	O	K						

C

Description	Simulates the pressure of the CLEAR key.		
Format	C		
Answer	O	K	
Example	Command	C	
	Answer	O	K

CGCH

Description	Change the weighing channel.					
Format	C	G	C	H	C	
Where	c Channel number (decimal value, 0 switches to the remote scale).					
Answer	O	K				
Example	Switches to the scale channel 2.					
	Command	C	G	C	H	2
	Answer	O	K			

CLEAR

Description	Simulates the pressure of the CLEAR key.					
Format	C	L	E	A	R	
Answer	O	K				
Example	Command	C	L	E	A	R
	Answer	O	K			

CMDOFF

Description	Turns the indicator off.							
Format	C	M	D	O	F	F		
Answer	O	K						
Example	Command	C	M	D	O	F	F	
	Answer	O	K					

CMDRESET

Description	Restarts the indicator.								
Format	C	M	D	R	E	S	E	T	
Answer	O	K							
Example	Command	C	M	D	R	E	S	E	T
	Answer	O	K						

CMDSAVE

Description	Save the setup parameter.							
Note	Works in the setup environment only.							
Format	C	M	D	S	A	V	E	
Answer	O	K						
Example	Command	C	M	D	S	A	V	E
	Answer	O	K					

CMDSETUP

Description	Enter in the setup environment.
Note	Command accepted in the BOOT_START state only.

Format	C	M	D	S	E	T	U	P	

Answer	O	K	

Example	Command	C	M	D	S	E	T	U	P		
	Answer	O	K								

DINT

Description	Sets the interval of the message displayed with the DISP command.
Note	Value 0 sets an infinite interval.

Format	D	I	N	T	t	t	t	t	
Where	tttt Message interval time in milliseconds express in hexadecimal format.								

Answer	O	K

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

DISP

Description	Displays of a message on the system message area.
Note	The message is displayed for the interval time set with the DINT command. During the visualization of the message, the customizable area is locked.

Format	D	I	S	P	0	0	c	...	c	
Where	c...c Message to display.									

Answer	O	K

Example	Displays the message “GOOD MORNING” on the system message area.																		
	Command	D	I	S	P	0	0	G	O	O	D		M	O	R	N	I	N	G
	Answer	O	K																

ECHO

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.						

Example	Command	E	C	H	O	A	B	C	D	
	Answer	E	C	H	O	A	B	C	D	

ECO

Description	Eco of the received characters.
Note	Works on EGT-AF01 only.

Format	E	C	O	[c	...	c]	
Where	c...c	Arbitrary characters.					

Answer	E	C	O	c	...	c	
Where	c...c	Same characters of the received command.					

Example	Command	E	C	O	1	2	3	4	5	
	Answer	E	C	O	1	2	3	4	5	

EKBB

Description	Clear the keyboard buffer.

Format	E	K	B	B	

Answer	O	K	

Example	Command	E	K	B	B	
	Answer	O	K			

EXIT

Description	Simulates the pressure of the OK key.

Format	E	X	I	T	

Answer	This command has no answer.

Example	Command	E	X	I	T	
	Answer					

FREZ

Description	Stores the present data weights in the scale frozen data area.
Note	Doesn't work on EGT-AF04.

Format	F	R	E	Z	

Answer	O	K	

Example	Command	F	R	E	Z		
	Answer	O	K				

GETI

Description	Reading of the digital inputs status.

Format	G	E	T	I	

Answer	x	x	x	x	

Where	xxxx Digital inputs status in hexadecimal format. Bit 0 is related to digital input 1, bit 1 to digital input 2 and so on.

Example	Reading of the digital inputs status with input 2 and input 5 activated.					
	Command	G	E	T	I	
	Answer	0	0	1	2	

GINR

Description	Get the numeric value inserted by the user.
Note	Use the INUN (pag. 29) command to set the numeric input state.

Format	G	I	N	R	

Answer	d	...	d	

Where	d...d Numeric value inserted by the user in decimal format without decimal point.

Example	Command	G	I	N	R	
	Answer	2	5			

GKBB

Description	Reading of the pressed buffered keys.

Format	G	K	B	B						

Answer	No buffered keys	O	K						
	Buffered keys	x_1	x_1	x_2	x_2	...	x_n	x_n	

Where	$x_i x_i$	Code of the i-th key. The keys are listed in the order they were pressed.
		See Table 1 for key codes.
		For a PC keyboard key the code is A 0 y y
		Where yy is the PC key code.

Example	Reading of the buffered keys when the user pressed the 1st touch screen element (in the example related to the insertion of the preset tare), then inserted a tare value equal to 1.5 and finally pressed Enter.									
	Command	G	K	B	B					
	Answer	1	8	0	3	0	C	0	7	0	E

Code	Key	Code	Key	Code	Key	Code	Key
00	TARE / ESC	**0F**	SHIFT	**1E**	7th touch el.	**2D**	22th touch el.
01	SCALE SWITCH	**10**	2nd F	**1F**	8th touch el.	**2E**	23th touch el.
02	CLEAR	**11**	Backspace	**20**	9th touch el.	**2F**	24th touch el.
03	1/F1	**12**	Up	**21**	10th touch el.	**30**	25th touch el.
04	2/F2	**13**	Down	**22**	11th touch el.	**31**	26th touch el.
05	3/F3	**14**	Back	**23**	12th touch el.	**32**	27th touch el.
06	4/F4	**15**	Forward	**24**	13th touch el.	**33**	28th touch el.
07	5/F5	**16**	123	**25**	14th touch el.	**34**	29th touch el.
08	6/F6	**17**	Print	**26**	15th touch el.	**35**	30th touch el.
09	7/F7	**18**	1st touch el.	**27**	16th touch el.	**36**	1st toolbar el.
0A	8/F8	**19**	2nd touch el.	**28**	17th touch el.	**37**	2nd toolbar el.
0B	9/F9	**1A**	3rd touch el.	**29**	18th touch el.	**38**	3rd toolbar el.
0C	ZERO/.	**1B**	4th touch el.	**2A**	19th touch el.	**39**	4th toolbar el.
0D	0	**1C**	5th touch el.	**2B**	20th touch el.		
0E	OK/>>	**1D**	6th touch el.	**2C**	21th touch el.		

Table 1. Key codes

GR10

Description	Get the net weight in high resolution.
Note	The weight has 1 decimal more than the scale number of decimals.

Format	G	R	1	0	[x]	
Where	x E to enable the compatibility mode. D to disable the compatibility mode.					

Answer	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	u	u		
Where	ss	E	R	Remote scale selected and remote scale disconnected.																
		T	L	Tilt condition error.																
		O	L	Over load condition.																
		U	L	Under load condition.																
		S	T	Weight stable.																
		U	S	Weight unstable.																
		Z	R	Zero zone.																
	c	Selected scale (0 remote scale).																		
	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”).																		

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

GREC

Description	Reading of the selected record of a database.

Format	G	R	E	C	d	d	
Where	dd	Database index (0÷instruments available databases – 1).					

Answer	G	R	E	C	,	d	,	r	r	r	r
Where	d rrrr	Database index. Selected record index. NULL if the database hasn't a selected record.									

Example	Reading of the selected record of the database 2 when the index of the selected record is equal 1.											
	Command	G	R	E	C	0	2					
	Answer	G	R	E	C	,	2	,	0	0	0	1

IALA

Description	Set the instrument scale in the alphanumerical input state.

Format	I	A	L	A	0	0	x	x	y	

Where		
	xx	Maximum length of the input string (1÷32).
	y	0 Starts input with an empty value.
		1 Starts input with a predefined value.

Answer	O	K	

Example	Input of a 10 character text starting from an empty value.										
	Command	I	A	L	A	0	0	1	0	0	
	Answer	O	K								

INPU

Description	Reading of the digital inputs status.

Format	I	N	P	U	n	
Where	n	Digital input index (0÷8, 0 to read all the inputs together).				

Answer	I	N	P	U	n	x	x	x	x	

Where

n Digital input index.
xxxx Digital input(s) status in hexadecimal format.

n = 0	n > 0
Bit 0 is related to digital input 1, bit 1 to digital input 2 and so on	0000 Input n not activated 0001 Input n activated

Example 1	Reading of the digital input 1 status when it is activated.									
	Command	I	N	P	U	1				
	Answer	I	N	P	U	1	0	0	0	1
Example 2	Reading of all digital inputs status with inputs 2 and 8 activated.									
	Command	I	N	P	U	0				
	Answer	I	N	P	U	0	0	0	8	2

INUN

Description	Set the instrument scale in the numeric input state.
Note	Until the instrument is in the input state the STAT (pag. 48) command returns the value 35. To get the inserted value use the GINR (pag. 24) command.

Format	I	N	U	N	m	,	l	...	l	,	h	...	h	,	i	...	i	,	s	s	,	d	,	0

Where

m	1st character message displayed on the title bar of the numeric input window
l...l	Lower bound value the user can insert
h...h	Upper bound value the user can insert
i...i	Initial value displayed
ss	Input size in digits
d	Number of decimals

Answer	O	K	

Example

Insertion of a value between 0.00 and 100.00 with 2 decimals with 50.0 as initial value.

Command	I	N	U	N	M	,	0	,	1	0	0	0	0	,	5	0	0	0	,	5
	,	2	,	0																
Answer	O	K																		

KEYE

Description	Keyboard enable.

Format	K	E	Y	E	[T]	e	
Where	e E to enable the keyboard. D to disable the keyboard. Te E to enable the touch screen. D to disable the touch screen.						

Answer	O	K	

Example	Keyboard disable.						
	Command	K	E	Y	E	D	
	Answer	O	K				

KEYP

Description	Simulation of a key / button pressure.

Format	K	E	Y	P	x	x	
Where	xx Key code in hexadecimal format (see Table 1 at pag. 25 for the key codes).						

Answer	O	K	

Example 1	Simulation of the pressure of the ZERO key.							
	Command	K	E	Y	P	0	C	
	Answer	O	K					
Example 2	Simulation of the pressure of the 1st toolbar button.							
	Command	K	E	Y	P	3	6	
	Answer	O	K					

KEYR

Description	Simulation of the release of the key.

Format	K	E	Y	R	

Answer	O	K	

Example	Command	K	E	Y	R	
	Answer	O	K			

LNKF

Description	Sets the print format related to a print function. Note: Not available in the AF01 software version with release less than 02.01, in the AF02 software version with release less than 01.02, in the AF03 software version with release less than 02.01, in the AF04 software version with release less than 02.00, in the AF05 software version with release less than 02.02, in the AF08 software version with release less than 01.01 and in the BATCH1 software version with release less than 02.00.

Format	L	N	K	F	,	x	x	,	y	y	

Where	xx Print function index (1 ÷ instrument available print functions). yy Print format index (0 ÷ instrument available print formats).

Answer	O	K

Example	Sets the print format of the print function 5 equal to 10.										
	Command	L	N	K	F	,	0	5	,	1	0
	Answer	O	K								

MVOL

Description	Get the micro Volts of the selected instrument channel.

Format	M	V	O	L	

Answer																																
Independent channels working mode.																																
	s	s	,	V	L	,	v	v	v	v	v	v	v	v	v	v	,	u	V													
Dependent channels working mode.																																
	V	L	,	v_1	v_1	v_1	v_1	v_1	v_1	v_1	v_1	v_1	v_1	v_1	,	v_2	v_2	v_2	v_2	v_2	v_2	v_2	v_2										
	v_2	v_2	[,	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	[,	v_4	v_4	v_4	v_4	v_4	v_4	v_4	v_4										
	v_4	v_4]]	,	u	V																											

Where				
	ss	E	R	Remote scale selected and remote scale disconnected.
		T	L	Tilt condition error.
		O	L	Over load condition.
		U	L	Under load condition.
		S	T	Weight stable.
		U	S	Weight unstable.
		Z	R	Zero zone.
	v...v	Micro Volts value on 10 characters padded on front with blank spaces.		
	$v_{i...}$ v_i	Micro Volts value of the i-th channel in dependent channels working mode.		

Example 1	Channel voltage value equal to 5145 µV in independent channels working mode.																				
	Command	M	V	O	L																
	Answer	S	T	,	V	L	,							5	1	4	5	,	u	,	V

Example 2	Reading of the 2 configured channels voltages in dependent channels working mode, 1st channel voltage = 1000 µV, 2nd channel voltage = 2000 µV.																				
	Command	M	V	O	L																
	Answer	V	L	,							1	0	0	0	,						
		2	0	0	0	,	u	V													

NREC

Description	Reading of the number of occupied records and the total number of records of a database.

Format	N	R	E	C	x	x	
Where	xx	Index of the database (0÷instrument number of databases - 1).					

Answer	N	R	E	C	,	x	,	y	y	y	y	,	z	z	z	z	
Where	x	Index of the database.														
	yyyy	Number of occupied records.														
	zzzz	Total number of records of the database.														

Example	Database 1 has 500 records with 100 of them occupied.															
	Command	N	R	E	C	0	1									
	Answer	N	R	E	C	,	1	,	0	1	0	0	,	0	5	0	0	

NTGS

Description	Switches the main weight display value from gross to net and vice versa.

Format	N	T	G	S	

Answer	O	K	

Example	Command	N	T	G	S	
	Answer	O	K			

OUTP

Description	Set the digital outputs states.
Note	Works only on outputs with no linked function.

Format	O U T P x [x] y y y y	
Where	x[x]	Digital output index in hexadecimal (0÷10), use 0 to set all the outputs together.
	yyyy	With x equal 0 Bit 0 is related to output 1, bit 1 to output 2 and so on.
	yyyy	With x different from 0. 0000 Output to be activated. 0001 Output to be deactivated.

Answer	O K

Example 1	Activate the digital output 2.									
	Command	O	U	T	P	2	0	0	0	1
	Answer	O	K							
Example 2	Deactivate the output index 4.									
	Command	O	U	T	P	4	0	0	0	0
	Answer	O	K							
Example 3	Activate outputs 1 and 5 and deactivate the remaining ones.									
	Command	O	U	T	P	0	0	0	1	1
	Answer	O	K							

P

Description	Simple print function execution.

Format	P

Answer	No answer.

Example	Command	P
	Answer	

PAPER

Description	Reading of paper status of the connected printer with paper sensor. *Note: Available just in the AF03 software version.*

Format	P A P E R

Answers	KO	No answer from the printer.
	OK	Paper ok.
	LOW	Paper low.
	OUT	Out of paper.

Example	Command	P A P E R
	Answer	O K

PID

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	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	n

Where				
	ss	E	R	Remote scale selected and remote scale disconnected.
		T	L	Tilt condition error.
		O	L	Over load condition.
		U	L	Under load condition.
		S	T	Weight stable.
		U	S	Weight unstable.
		Z	R	Zero zone.
	c	Instrument channel.		
	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	

Example	Data stored in alibi with a gross weight equal to 15 kg and a preset tare of 1 kg when the instrument is on channel 1.																		
	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												

PRNT

Description	Simple print function execution.

Format	P R N T

Answer	O K

Example	Command	P R N T
	Answer	O K

PRV

Description	Sets the print format related to a print function.

Format	P R V , x x , y y
Where	xx Print function index (0 ÷ instrument available print functions - 1). yy Print format index (0 ÷ instrument available print formats).

Answer	P R V O K

Example	Sets the print format of the print function 5 equal to 10.	
	Command	P R V , 0 5 , 1 0
	Answer	P R V O K

Q

Description	Change the weighing channel.

Format	Q	c	
Where	c	Channel number (decimal value, 0 switches to the remote scale).	

Answer	No answer.

Example	Switches to the scale channel 2.			
	Command	Q	2	
	Answer			

R

Description	Reading of the scale weight.

Format	R

Answer	With PC standard protocol.																												
	s	s	,	w_t	w_t	,	w	w	w	w	w	w	w	w	,	u	u													
	With PC extended protocol.																												
	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																					

Where				
	ss	E	R	Remote scale selected and remote scale disconnected.
		T	L	Tilt condition error.
		O	L	Over load condition.
		U	L	Under load condition.
		S	T	Weight stable.
		U	S	Weight unstable.
		Z	R	Zero zone.
	w_t	G	S	Gross weight.
		N	T	Net weight.
	c	Instrument channel.		
	w...w	Gross weight 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 padded with blank spaces on front.		

Example 1	Standard protocol with a net weight of 2.000kg.																
	Command	R															
	Answer	S	T	,	N	T	,				2	.	0	0	0	,	k	g

Example 2	Extended protocol with a preset tare of 1.000kg and a gross weight of 2.000kg read from scale channel 1.																		
	Command	R																	
	Answer	S	T	,	1	,					2	.	0	0	0	k	g	,	P	T
							1	.	0	0	0	k	g						

RALL

Description	Reading of the scale data.

Format	R	A	L	L	

Answer	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	,	x	,	t_n	t_n	t_n	t_n	t_n	t_n	t_n	u_t	u_t	,	t_g	t_g	t_g	
	t_g	t_g	t_g	t_g	u_t	u_t	,	s_s	s_s	s_s	,	c_k	c_k	c_k	,	k	k	k	,	n	n	n	,	r	
	r	r	r	r	-	d	d	d	d	d	d														

Where				
	ss	E	R	Remote scale selected and remote scale disconnected.
		T	L	Tilt condition error.
		O	L	Over load condition.
		U	L	Under load condition.
		S	T	Weight stable.
		U	S	Weight unstable.
		Z	R	Zero zone.
	C	Instrument channel.		
	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 on 10 characters padded with blank spaces on front.		
	x	Last totalisation scale.		
	t_n... t_n	Last totalization net weight on 7 characters padded with blank spaces on front.		
	u_t u_t	Last totalization unit of measure (“g”, “kg”, “t”, “lb”).		
	t_g... t_g	Last totalization gross weight on 7 characters padded with blank spaces on front.		
	s_s s_s s_s	Scale state, decimal value on 3 digits padded with zeroes on front.		
	c_k c_k c_k	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 (see Table 1 at pag. 25 for the key codes in hexadecimal format).		
	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.		
	d...d	Alibi ID value on 6 digits padded with zeroes on front.		

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

(*) Every pressed key is stored in an internal instrument buffer. Every time the RALL command is executed a key is retrieved from the buffer following the last in first out rule, this way the keys are retrieved in the reverse order they were pressed.

RAZF

Description	Get the ADC value of the selected instrument channel.

Format	R	A	Z	F

Answer

Independent channels working mode.

s	s	,	R	Z	,	d	d	d	d	d	d	d	d	d	d	,	v	v

Dependent channels working mode.

R	Z	,	v_1	v_1	v_1	v_1	v_1	v_1	v_1	v_1	v_1	v_1	,	v_2	v_2	v_2	v_2	v_2	v_2	v_2	v_2	v_2	v_2
[,	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	[,	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	v_3	[,	v_4
v_4	v_4	v_4	v_4	v_4	v_4	v_4	v_4	v_4]	,	v	v												

Where

ss	E	R	Remote scale selected and remote scale disconnected.
	T	L	Tilt condition error.
	O	L	Over load condition.
	U	L	Under load condition.
	S	T	Weight stable.
	U	S	Weight unstable.
	Z	R	Zero zone.
d…d	ADC value on 10 characters padded on front with blank spaces.		
v_1… v_1	ADC value of the i-th channel in dependent channels working mode.		

Example 1

ADC voltage value equal to 450000 in independent channels working mode.

Command	R	A	Z	F															
Answer	S	T	,	R	Z	,					4	5	0	0	0	0	,	v	v

Example 2

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	,	v	v													

READ

Description	Reading of the scale weight.

Format	R	E	A	D	

Answer	With PC standard protocol.																								
	s	s	,	w_t	w_t	,	w	w	w	w	w	w	w	w	,	u	u								
	With PC extended protocol.																								
	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																	
	If the print vector 100 is not empty the answer to the READ command depends on that format.																								

Where	ss	E	R	Remote scale selected and remote scale disconnected.
		T	L	Tilt condition error.
		O	L	Over load condition.
		U	L	Under load condition.
		S	T	Weight stable.
		U	S	Weight unstable.
		Z	R	Zero zone.
	w_t	G	S	Gross weight.
		N	T	Net weight.
	c	Instrument channel.		
	w...w	Gross weight 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 padded with blank spaces on front.		

Example 1	Standard protocol with a net weight of 2.000kg.																								
	Command	R	E	A	D																				
	Answer	S	T	,	N	T	,				2	.	0	0	0	,	k	g							
Example 2	Extended protocol with a preset tare of 1.000kg and a gross weight of 2.000kg read from scale channel 1.																								
	Command	R	E	A	D																				
	Answer	S	T	,	1	,						2	.	0	0	0	k	g	,	P	T				
							1	.	0	0	0	k	g												

REXT

Description	Reading of the scale weights.

Format	R	E	X	T	

Answer	c	,	s	s	,	w	w	w	w	w	w	w	w	w	w	,	p	p	t	t	t	t	t	t
	t	t	t	t	,	n	n	n	n	n	n	n	n	n	n	,	a	a	a	a	a	a	a	a
	a	a	,	u	u																			

Where				
	c	Instrument channel.		
	ss	E	R	Remote scale selected and remote scale disconnected.
		T	L	Tilt condition error.
		O	L	Over load condition.
		U	L	Under load condition.
		S	T	Weight stable.
		U	S	Weight unstable.
		Z	R	Zero zone.
	w...w	Net weight on 10 characters padded with blank spaces on front.		
	pp	Tare type (“ ” with semi-automatic tare, “PT” with preset tare).		
	t...t	Tare value on 10 characters padded with blank spaces on front.		
	n...n	Number of pieces (EGT AF02 only) on 10 digits padded with blank spaces on front.		
	a...a	Average piece weight (EGT AF02) on 10 characters with 5 decimals padded with blank spaces on front.		
	uu	Unit of measure (“g”, “kg”, “t”, “lb”).		

Example 1	Standard protocol with a net weight of 2.000kg.																			
	Command	R	E	X	T															
	Answer	1	,	S	T	,						1	.	0	0	0	,	P	T		
					2	.	0	0	0	,									0	,
					0	.	0	0	0	0	0	,	k	g						

RREC

Description	Reading of a record of a database.

Format	R R E C , d , r r r r	
Where	d	Database index (0÷instruments available databases – 1).
	rrrr	Record index (0÷database total number of records – 1).

Answer	If the record is empty.	
	R R E C , d , r r r r , N U L L , c c	
	If the record is not empty.	
	R R E C , d , r r r r , f_1 ... f_1 ; ... f_n ... f_n ; , c c	
Where	d	Database index.
	rrrr	Record index.
	$f_{1...}$ f_1	1st record field value.
	$f_{n...}$ f_n	nth record field value.
	cc	Checksum (*).

Example	Reading of the 2nd field of the 3rd instrument database.	
	Command	R R E C , 2 , 0 0 0 1
	Answer	R R E C , 2 , 0 0 0 1 , T e x t 1 ; V
		a l u e 1 ; 3 2 ; 0 ; 0 ; , 3 0

(*) The checksum is the sum modulo 256 of the field values expressed in hexadecimal format:

- The sum modulo 256 of the ASCII values of the characters of the **"NULL"** string if the record is empty, that is **3B**.
- The sum modulo 256 of the ASCII values of the characters **f1...f1; ...; fn...fn** if the record is not empty.

In the shown example the checksum is the sum modulo 256 of the ASCII values of the characters **Text 1; Value 1; 32; 0; 0;**.

As follows:

Character	T	e	x	t		1	;	V	a	l	u	e		1	;	3	2	;	0	;	0	;
ASCII value (hexadecimal)	54	65	78	74	20	31	3B	56	61	6C	75	65	20	31	3B	33	32	3B	30	3B	30	3B

The sum of the ASCII values in hexadecimal is 630.
The sum modulo 256 in hexadecimal is 30.
In the answer string the checksum value is splitted on 2 characters: the character **'3'** and the character **'0'**.

RUBU

Description	Reading of the last data inserted by the user after the execution of the IALA command.
Note	See pag. 28 for IALA command.

Format	R	U	B	U	

Answer	c	...	c	
Where	c...c	Data inserted by the user.		

Example	Command	R	U	B	U		
	Answer	A	B	1	2	3	

SN

Description	Reading of the instrument serial number.

Format	S N

Answer	S N : s ... s
Where	s...s Instrument serial number.

Example	Command	S	N									
	Answer	S	N	:	1	2	3	4	5	6	7	8

SPMU

Description	Sets the average piece weight in the set AVG unit.
Note	Works on EGT-AF02 only.

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

Answer	O K

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

SREC

Description	Selects a record of a database.

Format	S R E C , d , r r r r
Where	d Database index (0÷instruments available databases – 1). rrrr Record index (0÷database total number of records – 1), set 9999 to deselect the database record.

Answer	S R E C , d , r r r r , O K
Where	d Database index. rrrr Record index.

Example	Selects the record 1 of the database 2.												
	Command	S	R	E	C	,	2	,	0	0	0	1	
	Answer	S	R	E	C	,	2	,	0	0	0	1	O	K

STAT

Description	Reading of the instrument working state.

Format	S	T	A	T	

Answer	S	T	A	T	x	x	
Where	xx	State index in decimal format (*see Table 2*).					

Example	Instrument in the scale state.							
	Command	S	T	A	T			
	Answer	S	T	A	T	0	1	

Index	State
00	Instrument start-up
01	Scale
03	Menu
04	Setup
10	Scale switch
11	Reception / transmission of setup
12	Serial test
13	Print test
33	Dosage
34	Stand-by
35	User input
36	Auto zero
37	Diagnostic
38	Digital output diagnostic

Table 2. Instrument states

STPD

This command is the same as STPT (pag. 49) with STPD in place of STPT.

STPT

Description	Setpoint setting.

Format	S	T	P	T	n	t	x	x	x	x	x	x	t	y	y	y	y	y	y

Where	n	Index of the digital output related to the setpoint in hexadecimal format (0÷F) 0 to set the setpoint 1, 1 to set setpoint 2, ..., F to set setpoint 16.	
	t	O	The following value is the on setpoint one.
		F	The following value is the off setpoint one.
	x...x y...y	Setpoint weight values in decimal format with no decimals on up to 6 digits. 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.		

Answer	O	K

Example	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	O	2	0	0	0	F	1	9	0	0
	Answer	O	K													

T

Description	Semi automatic tare function.		
Format	T		
Answer	No answer.		
Example	Command	T	
	Answer		

TARE

Description	Semi automatic tare function.					
Format	T	A	R	E		
Answer	O	K				
Example	Command	T	A	R	E	
	Answer	O	K			

TMAN

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										
Example 1	Sets a preset tare equal to 1.5 kg.											
	Command	T	M	A	N	1	.	5				
	Answer	O	K									
Example 2	Sets a preset tare equal to 10 kg.											
	Command	T	M	A	N	1	0					
	Answer	O	K									

TOPR

Description	Sends data to the printer port.

Format	T	O	P	R	c	...	c	
Where	c...c	Characters to send to the printer port. To send non printable charact s (i.e. CR) use \ddd where ddd is the decimal value of the character.						

Answer	O	K

Example	Sends to the printer “LINE 1<CR><LF>LINE 2<CR><LF>”																			
	Command	T	O	P	R	L	I	N	E		1	\	0	1	3	\	0	1	0	L	I
		N	E		2	\	0	1	3	\	0	1	0							
	Answer	O	K																	

VER

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	EGT-AF01 release 1.00 connected.																
	Command	V	E	R													
	Answer	V	E	R	,	1	0	0	,	E	G	T	-	A	F	0	1

W

Description	Preset tare function.

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

Answer	No answer.

Example 1	Sets a preset tare equal to 1.5 kg.					
	Command	W	1	.	5	
	Answer					
Example 2	Sets a preset tare equal to 10 kg.					
	Command	W	1	0		
	Answer					

WREC

Description	Writing of a record of a database.

Format	To delete the record.																										
	W	R	E	C	,	d	,	r	r	r	r	,	c	c													
	To write the record fields.																										
	W	R	E	C	,	d	,	r	r	r	r	,	f_1	...	f_1	;	...	f_n	...	f_n	;	,	c	c				
Where	d	Database index (0÷instruments available databases – 1).																									
	rrrr	Record index (0÷database total number of records – 1).																									
	$f_{1...}$ f_1	1st record field value.																									
	$f_{n...}$ f_n	n^{th} record field value.																									
	cc	Checksum (*).																									

Answer	W	R	E	C	,	d	,	r	r	r	r	
Where	d	Database index.										
	rrrr	Record index.										

Example	Writing of the record 5 of the archive 2																										
	Command	W	R	E	C	,	2	,	0	0	0	5	,	T	e	x	t		5	;	V							
		a	l	u	e		5	;	3	2	;	0	;	0	;	,	3	8										
	Answer	W	R	E	C	,	2	,	0	0	0	5																

(*) The checksum is computed in the same way of the RREC (pag. 46) command.

WUBU

Description	Writes data in the user buffer.
Note	Allows to set the data that will be displayed when the IALA (pag. 28) command is executed with the initial value display enabled.

Format	W	U	B	U	c	...	c	
Where	c...c Characters to insert in the user buffer.							

Answer	O	K	

Example	Insert the string “AB123” in the user buffer										
	Command	W	U	B	U	A	B	1	2	3	
	Answer	O	K								

X

Description	Sets the average piece weight in the set AVG unit.
Note	Works on EGT-AF02 only.

Format	X	x	...	x	
Where	x...x	Average piece weight value with decimal point on up to 8 characters.			

Answer	No answer.

Example	Sets an average piece value equal to 10.5.						
	Command	X	1	0	.	5	
	Answer						

Z

Description	Zero scale function.		
Format	Z		
Answer	No answer.		
Example	Command	Z	
	Answer		

ZERO

Description	Zero scale function.					
Format	Z	E	R	O		
Answer	O	K				
Example	Command	Z	E	R	O	
	Answer	O	K			

6. Simple example

The following is a simple example of an application written in C# language that every second sends the READ command to the connected scale and prints in the console the received weight and unit.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.IO.Ports;
using System.Text.RegularExpressions;
namespace TestCom
{
    class Program
    {
        static void Main(string[] args)
        {
            SerialPort port = new SerialPort("COM5"); //set the serial port

            //configure the serial port
            port.BaudRate = 9600;
            port.Parity = Parity.None;
            port.StopBits = StopBits.One;
            port.DataBits = 8;
            port.Handshake = Handshake.None;

            //open the serial port
            try
            {
                port.Open();

                if (!port.IsOpen)
                {
                 Console.WriteLine(port.PortName + " port open error!");
                 return;
                }
            }
            catch (Exception ex)
            {
             //serial port open error: print the error message in the console and terminate
             Console.WriteLine(ex.Message);
             return;
            }

            string Command = "READ\r\n"; //command to send
            string Rx; //reception string

            //regular expression related to the READ command answer (ss,wtwt,wwwwwwww,uu)
            Regex regexp = new Regex("^[A-Z]{2}\\,[A-Z]{2}\\,[\\x20]*(?<weight>\\-?[0-9]+(\\.[0-9]+)?)\\," +
            "(?<um>[a-z]{2})\\r\\n$");

            Console.WriteLine("Press Q to quit");
            //main loop
            while (true)
            {
```

```
        //check for Q key pressure
        if (Console.KeyAvailable)
        {
            ConsoleKeyInfo key = Console.ReadKey();
            if (key.Key == ConsoleKey.Q)
            break; //Q pressed: quit
        }

        port.Write(Command); //send the command to the scale
        Rx = "";

        DateTime timesend = DateTime.Now; //start timeout timer
        TimeSpan elapsed;

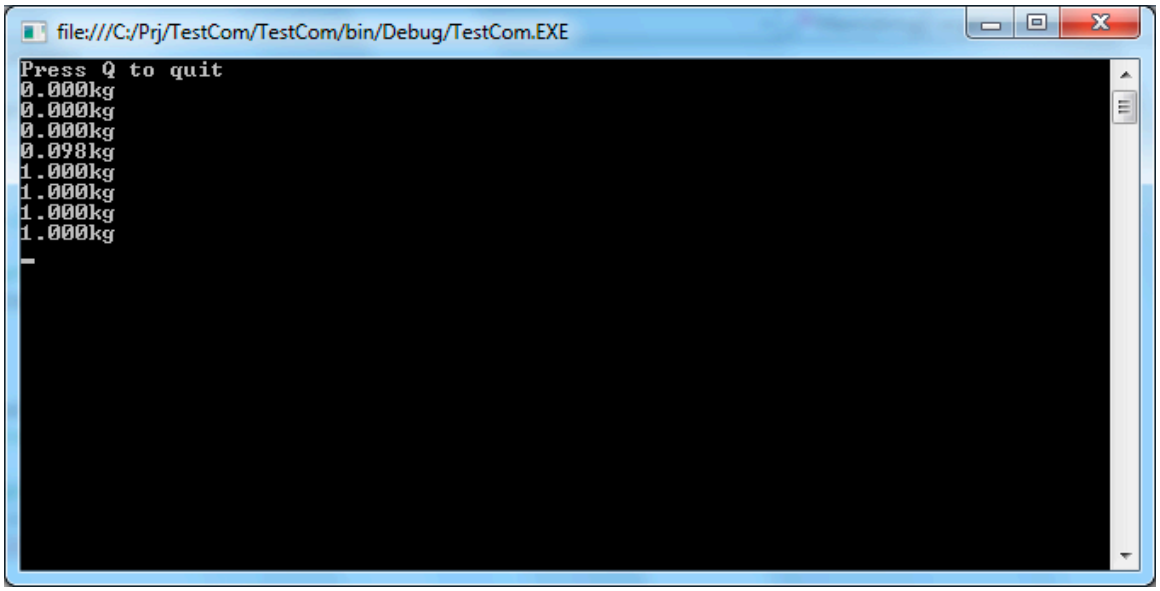
        //reception cycle
        while (true)
        {
        string datarx = port.ReadExisting(); //read available characters from the serial port
        Rx += datarx; //append received data to the global reception string Rx

        Match mtch = regexp.Match(Rx); //check READ answer match

        //answer matched
        if (mtch.Success)
        {
            //reception string processing
            string weight = mtch.Groups["weight"].Value.Trim(); //weight
            string um = mtch.Groups["um"].Value.Trim(); //unit
            Console.WriteLine(weight.ToString() + um); //write weight and unit in the console

           //wait 1 second before to send the command to the scale again
           System.Threading.Thread.Sleep(1000);
           break;
         }
         else //answer not matched
         {
          elapsed = DateTime.Now.Subtract(timesend);
          if (elapsed.TotalSeconds > 1.0) //timeout elapsed: quit from reception cycle
          {
            Console.WriteLine("-----");
            break;
              }
              System.Threading.Thread.Sleep(10); //wait 10 ms to allow other data to be received
          }
       } //reception cycle end
    } //main loop end
   port.Close(); //serial port closing
   }
  }
}
```

The console output is displayed in **Figure 1**.


file:///C:/Prj/TestCom/TestCom/bin/Debug/TestCom.EXE
Press Q to quit
0.000kg
0.000kg
0.000kg
0.098kg
1.000kg
1.000kg
1.000kg
1.000kg

NOTES

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