USER GUIDE

PUE 7.1.300.1.HRP

Radwag

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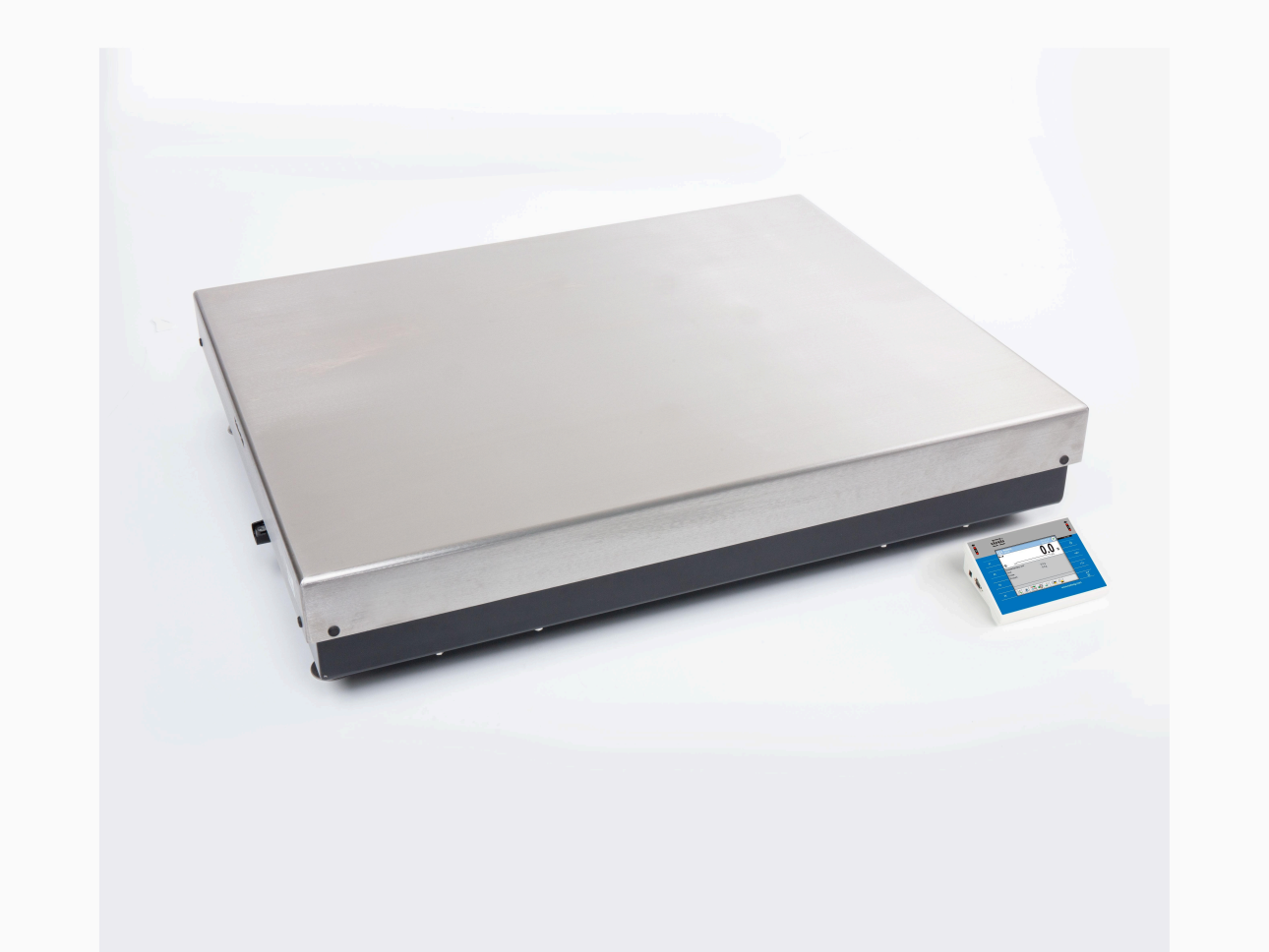

Software manual

ITKP-07-01-12-18-EN

CBCP-03

Character-Based Communication Protocol:
PUE 7.1 Terminal
PUE HY10 Terminal
WLY Precision Scale
WPY Multifunctional Scale
HY10 Multifunctional Scale

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1. GENERAL INFORMATION

A. Scales-indicator serial communication protocol serves for communication between RADWAG scales and peripheral device, it uses RS-232 and Ethernet interface.
B. It consists of commands sent from an external device to the scale and a responses from a scale.
C. Responses are sent every time after receiving a command (reaction for any command).
D. Using commands allows users to receive some information about the state of scale and/or influence the operation e.g.: Requesting weighing results, display control.

2. LIST OF RS COMMANDS

Commands	Description of commands
Z	Zeroing
T	Tarring
OT	Get tare value
UT	Set tare value
S	Send the stable result in basic unit
SI	Send the result immediately in basic unit
SIA	Send immediate results from all platforms in basic units
SU	Send the stable result in current unit
SUI	Send the result immediately in current unit
C1	Switch on continuous transmission in basic unit
C0	Switch off continuous transmission in basic unit
CU1	Switch on continuous transmission in current unit
CU0	Switch off continuous transmission in current unit
DH	Set lower threshold
UH	Set upper threshold
ODH	Read lower threshold
OUH	Read upper threshold
SS	Simulation of pressing ENTER/PRINT key
P	Change platform
NB	Give balance serial number
SM	Set mass value of a single item
RM	Set reference mass value
BP	Activate sound signal
OMI	Give available working modes

OMS	Set working mode
OMG	Give current working mode
PC	Send all implemented commands

	Each command have to be terminated in CR LF.

3. RESPOND MESSAGE FORMAT

After sending a request message you can receive:

XX_A CR LF	command accepted and in progress.
XX_D CR LF	command completed (appears only after XX_A).
XX_I CR LF	command comprehended but cannot be executed.
XX _ ^ CR LF	command comprehended but time overflow error appeared.
XX _ v CR LF	command comprehended but the indication below the.
XX _ OK CR LF	Command done.
ES_CR LF	Command not comprehended.
XX _ E CR LF	error while executing command – time limit for stable result exceeded (limit time is a descriptive parameter of the scale).

XX - command name.
_ - substitutes spaces.

4. COMMAND'S DESCRIPTION

4.1. Zeroing

Syntax **Z CR LF**

Possible answers:

Z_A CR LF **Z_D CR LF**	– command accepted and in progress. – command completed.
Z_A CR LF **Z_^ CR LF**	– command accepted and in progress. – command comprehended but zero range overflow appeared.
Z_A CR LF **Z_E CR LF**	– command accepted and in progress. – time limit for stable result exceeded.
Z_I CR LF	– command comprehended but cannot be executed.

4.2. Tarring

Syntax: **T CR LF**

Possible answers:

T_A CR LF **T_D CR LF**	– command accepted and in progress. – command completed.
T_A CR LF **T_v CR LF**	– command accepted and in progress. – command comprehended but tare range overflow appeared.
T_A CR LF **T_E CR LF**	– command accepted and in progress. – time limit for stable result exceeded.
T_I CR LF	– command comprehended but cannot be executed.

4.3. Get tare value

Syntax: **OT CR LF**

Reply: **OT_TARA CR LF** – command executed.

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
O	T	space	tare	space	unit			space	CR	LF

Tare - 9 characters justified to the right.
Unit - 3 characters justified to the left.

Tare values are always send in adjustment unit.

4.4. Set tare value

Syntax: **UT_TARE CR LF**, where **TARE** – tare value.

Possible replies:

UT_OK CR LF	– command completed.
UT_I CR LF	– command correct, but not accessible at the moment.
ES CR LF	– command incorrect (e.g. incorrect tare format).

Use dots as decimal points in tare values.

4.5. Send the stable result in basic unit

Syntax: **S CR LF**

Possible answers:

S_A CR LF **S_E CR LF**	– command accepted and in progress. – time limit for stable result exceeded.
S_I CR LF	– command comprehended but cannot be executed.
S_A CR LF **MASS FRAME**	– command accepted and in progress. – mass value in basic unit is returned.

Frame format:

1	2-3	4	5	6	7-15	16	17	18	19	20	21
S	space	stability	space	sign	mass	space	unit			CR	LF

<u>Example:</u>

S CR LF – computer command.
S _ A CR LF – command accepted and in progress.
S _ _ _ _ - _ _ _ _ _ _ 8 . 5 _ g _ _ CR LF – command done, mass value in basic unit is returned.

4.6. Send the result immediately in basic unit

Syntax: **SI CR LF**

Possible answers:

SI_I CR LF	– command comprehended but cannot be executed at the moment.
MASS FRAME	– mass value in basic unit is returned.

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	I	space	stability	space	sign	mass	space	unit			CR	LF

<u>Example:</u>

S I CR LF – computer command
S I _ ? _ _ _ _ _ _ _ 1 8 . 5 _ k g _ CR LF – command done, mass value in basic unit is returned immediately.

4.7. Send immediate results from all platforms in basic units

Syntax: **SIA CR LF**

Possible answers:

SIA_I CR LF	– command comprehended but cannot be executed at the moment.
MASS FRAME „P1" CR LF **MASS FRAME „P2" CR LF**	– mass values are immediately returned from all platforms in basic units.

Frame format with mass from subsequent platforms as indicator reply:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
P	n	space	stability	space	sign	mass	space	unit			CR	LF

n - weighing platform number.
mass - 9 characters justified to the right.
unit - 3 characters justified to the left.

<u>Example:</u>

Let us assume that both platforms are connected to scale.
S I A CR LF – computer command.
P 1 _ ? _ _ _ _ _ _ 1 1 8 . 5 _ g _ _ CR LF
P 2 _ _ _ _ _ _ _ _ _ 3 6 . 2 _ k g _ CR LF – command done, mass values from both platforms are returned in basic units.

4.8. Send the stable result in current unit

Syntax: **SU CR LF**

Possible answers:

SU_A CR LF **SU_E CR LF**	– command accepted and in progress. – timeout while waiting for stable results.
SU_I CR LF	– command comprehended but cannot be executed.
SU_A CR LF **MASS FRAME**	– command accepted and in progress. – mass value in current unit is returned.

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	space	stability	space	sign	mass	space	unit			CR	LF

Example:
S U CR LF – computer command.
S U _ A CR LF – command accepted and in progress.
S U _ _ _ - _ _ 1 7 2 . 1 3 5 _ N _ _ CR LF – command done, mass value in current unit is returned.

4.9. Send the result immediately in current unit

Syntax: **SUI CR LF**

Possible answers:

SUI_I CR LF	– command comprehended but cannot be executed.
MASS FRAME	– mass value in current unit is returned immediately.

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	I	stability	space	sign	mass	space	unit			CR	LF

Example:

S U I CR LF – computer command
S U I ? _ - _ _ _ 5 8 . 2 3 7 _ k g _ CR LF – command executed and mass returned.

4.10. Switch on continuous transmission in basic unit

Syntax: **C1 CR LF**

Possible answers:

C1_I CR LF	– command comprehended but cannot be executed.
C1_A CR LF **MASS FRAME**	– command comprehended and in progress. – mass value in basic unit is returned.

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	I	space	stability	space	sign	mass	space	unit			CR	LF

4.11. Switch off continuous transmission in basic unit

Syntax: **C0 CR LF**

Possible answers:

C0_I CR LF	– command comprehended but cannot be executed.
C0_A CR LF	– command comprehended and executed.

4.12. Switch on continuous transmission in current unit

Syntax: **CU1 CR LF**

Possible answers:

CU1_I CR LF	– command comprehended but cannot be executed.
CU1_A CR LF **MASS FRAME**	– command comprehended and in progress. – mass value in current unit is returned.

Frame format:

1	2	3	4	5	6	7-15	16	17	18	19	20	21
S	U	I	stability	space	sign	mass	space	unit			CR	LF

4.13. Switch off continuous transmission in current unit

Syntax: **CU0 CR LF**

Possible answers:

CU0_I CR LF	– command comprehended but cannot be executed.
CU0_A CR LF	– command comprehended and executed.

4.14. Set lower threshold

Syntax: **DH_XXXXX CR LF**, where: **XXXXX** – mass format.

Possible answers:

DH_OK CR LF	– command executed.
ES CR LF	– command not comprehended (wrong mass format).

4.15. Set upper threshold

Syntax: **UH_XXXXX CR LF**, where: **XXXXX** – mass format.

Possible answers:

UH_OK CR LF	– command executed.
ES CR LF	– command not comprehended (wrong mass format).

4.16. Read lower threshold

Syntax: **ODH CR LF**

Possible answers: **DH_MASA CR LF** – command executed.

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
D	H	space	mass	space	unit			space	CR	LF

Mass - 9 characters justified to the right.
Unit - 3 characters justified to the left.

4.17. Read upper threshold

Syntax: **OUH CR LF**

Possible answers: **UH_MASA CR LF** – command executed

Frame format:

1	2	3	4-12	13	14	15	16	17	18	19
U	H	space	mass	space	unit			space	CR	LF

Mass - 9 characters justified to the right
Unit - 3 characters justified to the left

4.18. Simulation of pressing ENTER/PRINT key

Syntax: **SS CR LF**

Sending a command **S S CR LF** to a scale causes automatic saving of a weighing record in the database and simultaneous activating a declared printout template.

⚠	***While sending the command to a scale, all criteria for successful measurement execution have to be met, i.e. result control, stable mass indication, etc.***

4.19. Change platform

Syntax: **PN CR LF**, where **N** – number of platforms (1 to 4).

Possible answers:

PN_OK CR LF	– command completed
PN_I CR LF	– command correct, but not accessible at the moment
ES CR LF	– command incorrect (e.g. incorrect number of platforms)

4.20. Give balance serial number

Syntax: **NB CR LF**

Possible answers:

NB_A_"x" CR LF	– command understood, returns serial number.
NB_I CR LF	– command understood but not accessible at this moment.

x – serial number of the device (inserted in between inverted commas).

Example:

NB CR LF – give serial number.
NB_A_"123456" CR LF – serial number of the device – 123456.

4.21. Set mass value of a single item

Syntax: **SM_XXXXX CR LF**, where: _ – space, XXXXX – mass format.

Possible answers:

SM_OK CR LF	– command understood.
SM_I CR LF	– command understood but not accessible at this moment (e.g. mode other than „Parts counting").
ES CR LF	– command not recognised (mass format incorrect).

Command supported for „Parts counting" mode exclusively.

4.22. Set reference mass value

Syntax: **RM_XXXXX CR LF**, where: _ – space, XXXXX – mass format

Possible answers:

RM_OK CR LF	– command understood.
RM_I CR LF	– command understood but not accessible at this moment (e.g. mode other than „Deviations").
ES CR LF	– command not recognised (mass format incorrect).

Command supported for „Deviations" mode exclusively.

4.23. Activate sound signal

Syntax: **BP_TIME CR LF**

Where: _ – space, **TIME** – parameter, decimal specifying how long shall the sound last, parameter given in [ms]. Recommended range <50 - 5000>.

Possible answers:

BP_OK CR LF	– command carried out, BEEP sound signal activated.
BP_I CR LF	– command understood but not accessible at this moment.
ES CR LF	– no parameter or incorrect format.

Example:

BP_350 CR LF – activate BEEP for 350 [ms].
BP_OKCR LF – BEEP activated.

⚠	***If value greater than the permissible high limit is given, than BEEP sound is operated for the maximum permissible amount of time.***
⚠	***BEEP sound activated via BP command is inhibited if in-course of its activation the sound is activated by means of other device: keypad, touch panel, proximity sensors.***

4.24. Give available working modes

Syntax: **OMI CR LF**

Possible answers:

OMI CR LF **n_Mode name CR LF** **OK CR LF**	– command carried out, accessible working modes returned.
OMI_I CR LF	– command understood but not accessible at this moment.

Mode name – parameter, working mode name, inserted in between inverted comas. The name takes form given on a particular balance display, it is provided in a currently selected language.
n – parameter, decimal value determining working mode number.

Working modes list:

1	Weighing
2	Parts Counting
3	Deviations
4	Dosing
5	Recipes
6	Weighing Animals

7	Density
8	Control of packaged goods PGC
9	Comparator
10	Vehicle scale

Working modes numbering is identical for each kind of balance. The numbers are assigned to working modes names. Some balances give only the number as a response.

Example:

OMI CR LF – give accessible working modes
OMI CR LF – accessible working modes are given
2_"Parts Counting" CR LF – number + name
4_"Dosing" CR LF
5_"Recipes" CR LF
OK CR LF – command carried out

4.25. Set working mode

Syntax: **OMS_n CR LF**

Where: n – parameter, decimal value determining working mode number. To see detailed description go to OMI command.

Possible answers:

OMS_OK CR LF	– command carried out.
OMS_I CR LF	– command understood but not accessible at this moment.
OMS_E CR LF	– error in-course of command execution, no parameter or incorrect format.

Example:

OMS_2 CR LF - set working mode "Parts counting".
OMS_OK CR LF - working mode "Parts counting".

4.26. Give current working mode

Syntax: **OMG CR LF**

Possible answers:

OMG_n_Mode name CR LF	– command carried out, current working mode given.
OMG_I CR LF	– command understood but not accessible at this moment.

Mode name – working mode name, presented in a form that is displayed for a particular device type, written in a currently selected language.

n – parameter, decimal value determining working mode number. To see detailed description go to **OMI** command.

Example:

OMG CR LF – give current working mode.
OMG_2_Parts counting CR LF – balance operates in working mode “Parts counting”.

4.27. Send all implemented commands

Syntax: **PC CR LF**

Possible answers:

PC_A_"Z,T,S,SI,SU,SUI,C1,C0,CU1,CU0,DH,ODH,UH,OUH,OT,UT,SIA, SS,PC,P1,P2,P3,P4,NB,SM,RM,BP,OMI,OMS,OMG" – command executed, the indicator have sent all the implemented commands.

5. MANUAL PRINTOUTS / AUTOMATIC PRINTOUTS

Users can general manual or automatic printouts from the scale.

- Manual printouts can be performed after loading the pan and stabilizing indication by pressing **ENTER/PRINT**.
- Automatic printouts can be performed only after loading the pan and stabilizing indication.

Format frame:

1	2	3	4 -12	13	14	15	16	17	18
stability	space	sign	mass	space	unit			CR	LF

Stability character	[space] if stable. [?] if not stable. [^] if an indication over the range. [v] if fan indication below the range.
sign	[space] for positive values or [-] for negative values.
mass	9 characters justified to the right.
unit	3 characters justified to the left.
command	3 characters justified to the left.

Example:

_ _ _ _ _ _ 1 8 3 2 . 0 _ g _ _ CR LF – the printout generated from the scale after pressing **ENTER/PRINT**.