

**Transmission protocol standard:**

1. Transmission speed = 9600.
2. Data bits = 8.
3. Stop bits = 1.
4. Parity - None.
5. Data format = ASCII.
6. Command definition:

"ENQ" = 05h

"ACK" = 06h

"NAK" = 15h

"SOH" = 01h

"STX" = 02h

"ETX" = 03h

"EOT" = 04h

"DC1" = 11h

"DC2" = 12h

"DC3" = 13h

"DC4" = 14h

**Protocol:**

No	PC sends	Scale sends	Notes
1	ENQ		Inquiry about ready send data state
2		ACK	Scale answers "ACK" = YES or "NAK" = NO – in the situation PC repeats "ENQ"
3	DC1		
4		Data frame	Scale sends only weight data

or:

No	PC sends	Scale sends	Notes
1	ENQ		Inquiry about ready send data state
2		ACK	Scale answers "ACK" = YES or "NAK" = NO – in the situation PC repeats "ENQ"
3	DC2		
4		Data frame	Scale sends weight, unit price and total price data

Data frame is as follows:

No	Scale sends	Notes
1	STX	Start of data frame
2, n+1	In turn: D1, ..., Dn	Next bytes (ASCII characters) data frame
n+2	BCC	BCC = xor (logic sum) bytes from No. 2 to No. n+1
n+3	ETX	End of data frame

Data frame for weight (RD1):

Byte	Byte meaning	Notes
D1	STA	Sign "S" – for weight indication stabilized since 500 ms. Sign "U" for non yet weight indication stabilized
D2	SIGN	Sign " " (Space) for weight equal or above "zero" Sign "-" for weight below "zero"
D3..D8	In turn: C4, C3, KD, C2, C1, C0	C4..C0 ASCII digits for weight (C0 – least significant digit) KD = "." – decimal dot sign (format: 99.999 kg)
D9, D10	UN	Signs "kg" (D9 = "k", D10 = "g")

Data frame for total price (RD2) and unit price (RD3):

Byte	Byte meaning	Notes
D1..D8	C6, C5, C4, C3, C2, KD, C1, C0	C6..C0 ASCII digits for total price (or unit price) (C0 – least significant digit)

Data frame for command "DC1"

No.	Scale sends	Notes
1	SOH	Start of transmission
2	Weight frame RD1	Weight at the scale
3	EOT	End of transmission

Data frame for command "DC2"

No.	Scale sends	Notes
1	SOH	Start of transmission
2	Total price data frame RD2	Total price calculated at the scale
3	Weight data frame RD1	Weight at the scale
4	Unit price data frame RD3	Unit price typed in from scale keypad
5	EOT	End of transmission

In weight, unit price and total price digits leading zeros are replaced by Spaces (except unity digit (C2)). In the way digit 0 is shown as " 0.00". Decimal dot position is constant for all numbers (like at the scale display). If for any number ensured overflow than all digits including sign "SIGN" have ASCII values "F".

Time intervals used by scale:

- Between bytes  $\geq 100 \mu\text{s}$
- From PC inquiry to scale answer  $\leq 10 \text{ ms}$  (There is recommended  $100..200 \mu\text{s}$ , but no more than 1 ms).

Time intervals used by PC (ECR):

- There is enough use 1 stop bit.