

# Weighing Terminal PUE 5 – flexible solution based on Personal Computer

RADWAG presents a weighing terminal in hermetic stainless steel housing intended for industrial solutions. A large 12.1" colour display with active TFT matrix assures perfect readability from different viewing angles and significant distance. A touch panel allows easy operation without using a keyboard. Applying a personal computer gave flexibility in implementing programming and communication technology accessible for this group of devices. Widely known operating system, Windows XP, in embedded version gives the possibility for 3<sup>rd</sup> party companies to create software for this terminal.



Brief foredesign for PUE 5 assumed creating a device which would meet growing demands of customers concerning software flexibility, memory size and readability of displays. Particular care was taken to functionality and high quality of the device.

## General description

The device is enclosed in a stainless steel hermetic housing that allows it to operate in rugged industrial conditions (moisture, dust). The terminal can be washed using chemical agents like disinfectants and detergents. A 12,1" TFT display with resolution 800 by 600 pixels gives

perfect readability from different viewing angles. Terminals are operated using the touch screen (it is not equipped in a keyboard). Together with advantages of contemporary operating systems it allows intuitive usage of software even by not trained stuff.

The terminal can be supplied from mains. The acceptable range of input parameters 88-264 V, 50-60Hz. The standard version has following interfaces on board: RS 232C, RS 485, Ethernet, USB 2.0 x 2, 4 inputs/4 outputs (digital, optoisolated).

It can include maximum 2 weighing modules for connecting weighing platforms. The load cell excitation voltage amounts to +5V (one weighing module in standard make).

### **Scale and computer in one**

PUE 5 weighing terminals is an original solution that comprises both a computer and a weighing module in one housing. Both devices are connected via an internal interface. The weighing module is a fully functional scale without a display with all the parameters in the non-volatile memory chip placed on the module.

### **Expanded functionality and applicable peripheral devices**

Apart from standard interfaces it is possible to extend possibilities of the terminal by installing additional modules: analogue voltage output 0-10V, current loop 0-20mA or 4-20mA, relay module, I/O module, additional platform module, ProfiBus module.

Standard peripheral devices that can be connected to PUE 5 weighing terminals: barcode scanner, transponder card reader, receipt printer, label printer, additional display, large remote display, external buttons TARE and PRINT, and all devices connectable to USB interfaces of standard personal computers after installing drivers.

### **Computer specification**

The main board has been equipped with a 32-bit processor Celeron M 800MHz and operational memory DDR 512MB as well as the hard drive 120GB which assures significant processing speed and a large memory space for data. It gave the possibility to build fully autonomic one-stand appliances that can use the up-to-date technology of databases both situated in terminals or placed somewhere in the local net system. If necessary the capacity of the operational memory and hard drive can be expanded.

### **Terminal specification**

The PUE 5 weighing terminal has been designed to operate in rugged industrial conditions. The high hermetic level assures appropriate protection against moisture and dust, which allows using it almost in all conditions that can be encountered in industry.

The unique solution is applying widely known operating systems and the possibility of creating ones own applications. It expands flexibility and can reduce costs of connecting PUE 5 terminals to existing systems. In net solutions the device can work as a server or as a terminal operated on a production line. This terminal can cooperate with two weighing platforms.

### **Standard software**

Each weighing terminal is equipped with a basic application that constitutes a display for the weighing module and operation panel to assure functionality of basic scale.

On the base of basic software the following applications are being developed:

- Counting-labelling system
- Dosing/Recipes
- Control of prepackages
- Collecting weighings

### **Creating software**

The main idea accompanied designing the PUE 5 weighing terminal was to simplify creating programs by our customers and 3<sup>rd</sup> party companies.

The free software attached to every terminal includes DLL (Dynamic-Link Library) and an ActiveX control.

**DLL** is intended for Windows operating systems. It includes implementations of functions connected with operating on the internal weighing module. These functions can be called in external programs. It allows computer programmers to create their own software without being familiar with hardware, communication protocols. They can be used in programs written in different programming languages for Windows platform like VB, C++, C#.

The **ActiveX** control is a configurable GUI (Graphical User Interface) and simplifies creating ones own interface with a display and buttons typical for scales, without being familiar with hardware and communication protocols, by setting properties and implementing event

handlers as well as using different graphical options. It is applicable in different programming environments, i.e. VB, C++, C#. ActiveX technology allows to share data between different applications running under control of Windows operating system. This technology facilitates writing programs – it saves time needed to implement ones own communication between programs.

### Selected technical parameters

Housing	Stainless steel
Ingress protection Rating	IP 65
Display	TFT 12.1" (800x600)
Touch Panel	Resistive or infrared (IP 67)
Power Supply	88-264 VAC 50-60Hz
Supply of external devices	2 x 5V 500mA
Temperature range	operation 0°C ÷ +40°C storage 20°C ÷ +60°C
Maximum number of A/D divisions	8 388 608
OIML class	III
Number of verification intervals	6 000
Maximum input signal change	19mV
Max. voltage per verification interval	3.3 µV
Min. voltage per verification interval	1µV
Min. tensometer impedance	90 Ω
Max. tensometer impedance	1200 Ω
Bridge excitation voltage	5V
Connecting load cells	4 or 6 wires + shield
Processor	Celeron M 800MHz
Chipset	INTEL 855GME
RAM	DDR 512MB
Hard Drive	HDD 80GB
Ethernet	10/100Mbps
Serial interfaces	RS232C, RS485, 2 x USB 2.0
Inputs/Outputs	4 inputs, 4 outputs



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