
# Catalogue

Gineers Ltd. produces series of devices and software for complete setup of remote reading systems. We also produce various measuring and indicating devices for industrial use, standard and unique solutions in weight measurement. Gineers Ltd. is registered manufacturer of m-bus devices by "The Flag Association Limited".

The devices we offer are standard with various options, which allows flexible setup and upgrade of any m-bus remote reading system.

GINEERS Ltd. is also a manufacturer of various industrial panel meters. Devices from series 4100 and 4080 are functionally identical, with many options, but with different sizes and shapes. Industrial devices from 4080 and 4100 are designed to be mount on a front panel in command rooms of electrical substations, plants and other industrial buildings. It is possible to design and produce specific devices, to combine devices of the series in one single device with different possibilities - all depends on the client's request.

We also offer standard and unique solutions in the field of automation and process control, weight measurement, integrated systems for remote reading of data and physical quantities. Among that, we design and create suitable software, which can also be unique according to the requirements of particular client. Our weight measurement electronic indicators are generally two types - simplified weigh measure indicator, and a more complex one including many functions. Both are designed to be universal - they can be connected to random tensometric load cell and almost any kind of scale (according to OIML R76 standard) can be made. The additional functions are price calculating, counting functions, measuring in percent F.S., printing labels, connecting in network, sending data to a computer or PLC, controlling external devices such as relay switch. Every scale oriented parameter can be set up (access is both hardware and software way) by the user. Because we design it, of course we can change anything, if a client has request.

If you have any questions or need more information, please feel free to contact us!

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# G1602


G1602 is a universal microcontroller unit for weigh measuring. The unit general purpose is to measure mass in all kinds of applications, but could also be used in specific tasks. The user can change all metrological parameters of the scale (according to OIML R76-1), and also to use additional functions such as counting pieces, measure the weight in percent, connection to personal computer and so on. Special modes are implemented to protect the measurement against malicious acts. The unit comes in plastic box with protection class Ip55, but in special cases (special order from the client) the protection class can be up to IP67. The large display and ergonomic keyboard allows easy reading of the result and comfortable work. Applies the requirements of EN 45501:2001 (OIML R76-1).

## G1602 adjustable parameters:

| | |
|---|---|
| Number of measurement divisions | 300 □ 30 000 divisions |
| Value of the division | 1,2,5 *10$^{K}$gr, K=-1 □ +6 |
| Decimal point position, from right to left | 1..4 |
| Button ZERO range | 1 □ 20% F.S |
| Tracking zero for 1s | 0 □ 1,9e |
| Button TARE range | 0% □ 100% F.S |
| Maximum displayed measured value | Max + (1e □ 100e) |
| Tracking of load cell hanging for 20s | 0,0e □ 1,9e |
| Counting function | On/Off |
| Percent function | On/Off |
| Choice of working with predefined articles | On/Off |
| Choice of working with labeling printer | On/Off |
| Choice of working with block condition after the measurement | On/Off |

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## Technical specifications of G1602

| | |
|---|---|
| weight measuring by means of converting resistance change to voltage | |
| input resistance of the measuring circuit | >1 MΩ |
| output resistance of the load cell | 82Ω - 10kΩ |
| display | Triple super red - 5 digits for weight, digit height 20,0mm, two 6-digit displays for single and total price, digit height 10 mm. |
| keyboard | 16-button keyboard with metal-made buttons |
| serial interface | RS-232C included, RS-485 optional; Channel: 9600bps, 8, N, 1 |
| measuring full cycle | < 2 s |
| measurement error | 0,5e; for 3000 divisions according to OIML R76-1 (BDS EN 45501:2001) |
| power consumption | < 2 W |
| work temperature | от -10 °C до 40 °C |
| storage temperature | от -50 °C до +90 °C |
| dimensions (H/W/D) | 170/190/70 mm |
| mounting | on horizontal or vertical surface |
| protection class | IP55, to IP67 - special order |
| own weight | 0,7 kg |
| power supply | 220VAC (+10/-15%), 50Hz(+2/-2Hz); 12V DC - special order |



Additional functions and accessories:

With special order it is possible to build dosing and automation functions by means of additional controller, providing control to weigh unit and additional peripheral devices.

We also provide special software for reading measurements and controlling the scale, based on G1602. We offer different kinds of software, working on both DOS and Windows platforms. Thus, a special variant is the program for truck scales, providing ease of use .

Another options are several kinds of serial or parallel interfaces (RS-485, M-bus, etc) which are completed when special requirements are present from the client.

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# G5102


G5102 is a universal microcontroller device for weigh measurement. This is the simplified version of G1602 in cases, where only weight measurement is needed. Basic set-up for random tensometric cell can be made, but the options are limited, compared to G1602. The measurement principle here is based on the well-known theory of double integration. This gives the module incredible noise immunity to power supply. The standard unit comes in a high quality plastic box, with dimensions of 170x160x70mm, keyboard with four buttons and class of protection IP55. When special requirements are present, the class of protection can be up to IP67.

| G5102 adjustable parameters: | |
|---|---|
| Number of measurement divisions | 500 □ 15 000 divisions |
| Value of the division | 1,2,5 *10$^{K}$g, K=-1 □ +6 |
| Decimal point position, from right to left | 1..4 |
| Tracking of load cell hanging for 20s | 0,0e □ 1,9e |
| Counting function | On/Off |
| Settling time | 10ms - 300ms |
| Serial channel baudrate | 1200 - 19200bps |

All other metrological parameters are non-changeable. They are:

- button ZERO range - 2% F.S.;
- button TARE range - 50% F.S., subtractive multi-tare;
- max indication - F.S. + 8e;
- initialization of zero position < 10% F.S.;
- speed of 'zero tracking' - 0,5e/1s;
- average measurements for standstill criteria - 16.

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| Technical specifications of G5102 | |
|---|---|
| weight measuring by means of converting resistance change to voltage | |
| input resistance of the measuring circuit | >1 MΩ |
| output resistance of the load cell | 82Ω - 10kΩ |
| display | 5-digit display, digit height 25,4mm |
| keyboard | 4-button membrane keyboard |
| serial interface | RS-232C standard, RS-485 optional; Set-up: 9600bps, 8, N, 1 |
| measuring full cycle | according to service set-up and calibration |
| measurement error | 0,5e; up to 3000 according to OIML R76-2 (БДС EN 45501:2001) |
| power consumption | < 1,5 W |
| work temperature | from -10 °C to +40 °C |
| storage temperature | from -50 °C to +90 °C |
| dimensions (H/W/D) | 170/160/70 mm (w/o connectors) |
| mounting | on horizontal or vertical surface |
| protection class | IP55 standard, up to IP67 optional |
| own weight | 1,9 kg |
| power supply | 220VAC (+10/-15%), 50Hz(+2/-2Hz); 12V DC optional |



Additional functions and accessories:

The idea behind this unit is simplifying, therefore - low-cost solution. For this reason there are not many additional functions or accessories except the mentioned one. Anyway, any changes and improvements of the functionality are possible upon customer request.

Various types of interfaces can be added for connection of the scale to net of other devices (labeling printers, data acquisition and control systems, etc.).

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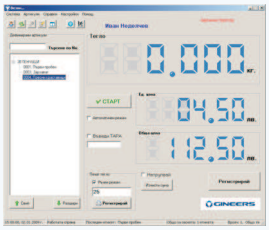
# Software



Gineers Ltd. also develops scale software for different kinds of PC operating systems. In these computerized world it is normal solution for everybody to automate his production or measurement cycle, collecting all needed information for quick reports, print notes, bills, etc. It is essential to have good software, made by manufacturer, and to know that he will do changes for you, if needed. That is our main purpose - to give flexibility and usability to our clients.

We have several universal programs, intended to use with our scales, and a few very specific as well. We are always ready to change our programs or to write something new, if that will help client to organize better his production process.

| Short description of our software, used with weigh scales | |
|---|---|
| Autoscales v1.1 and v2.0b (Windows) | intended for use with truck scales up to 100t |
| Govedo 1.2 (Windows) | special software for animal processing |
| Scale collector v1.1 (DOS/Windows) | simple collector of measurements; articles; price calculation; simple reports |
| Scale collector v2.0 (Windows) | v1.1, plus client info, detailed reports, printing of weigh notes |
| Simple scale | another variant of scale collector |
| ViVenda Labels | program for label printing. Controls the scale and labeling printer. Detailed reports |

Connection between the scale and PC is through standard serial RS-232C/RS-485 interface. Our software uses either MySQL server or self-made database files. Requirements for a PC, running our software, are not high - for the windows software the requirement is MySQL server v.4.1.12 and higher to work satisfiable.

We can easily port our programs to Linux platform.

*Anything in software can be changed, if you have any suggestions - please contact us!*

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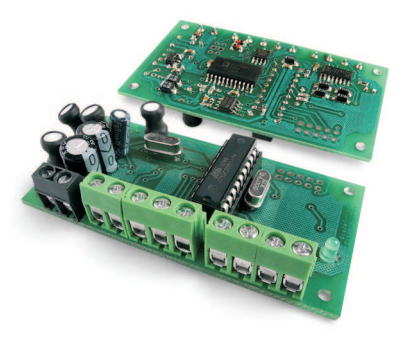
# SCT



Sct is a small PCB, intended to be embedded in bigger devices. The purpose of SCT is to measure signal from a load cell and to transmit continuously data to another controller or personal computer. SCT has modern sigma-delta ADC, EEPROM memory and serial RS-232/RS-485 interface. It is set and calibrated via personal computer, using GINEERS software. The size of the board are 77x50mm and is ideally suited in dosing and automation systems, where weight measurement is needed, but it is not the main part of the system. Additionally, there are four lines for controller-to-controller interface (one line on interrupt), but these can be also used for digital inputs/outputs by the user, to act when certain weight is reached. The biggest advantage of this unit is his price.

| SCT adjustable parameters via RS-232: | |
|---|---|
| Number of measurement divisions | 500 □ 30 000 divisions |
| Value of the division | 1,2,5 *10$^{K}$g, K=-1 □ +6 |
| Calibration | 0 - 60 000 g/kg |
| Selection of switching outputs for 2 loads | |
| ID on serial RS-485 network | 1 - 63 |
| Serial channel baudrate | 4800/9600 bps |

The other metrological parameters are constants, hard coded in firmware. These are:
- 10% initial zero load;
- 2% semi-automatic function ZERO (command via interface);
- 100% semi-automatic function TARE (command via interface);
- maximum load MAX + 8e;
- zero tracking - 0.5e/1s;
- equilibrium - less than 2 ADC divisions difference in two full measurement cycles
- measurement cycle = 1.0s

*Anything in firmware can be changed, if you have any suggestions - please contact us!*

Scales

## 4080 series

Series 4080 are industrial programmable measuring and indicating devices with four-digit LED-display (75/22mm) for panel mounting. Their dimensions are (H/W/D) 48/96/85 mm standard and may vary on special request. At this moment we have devices for measurement of voltage, current, frequency, power, resistance, weight. It is possible that unit for measuring any physical value (such as temperature, pressure, humidity, etc.) can be purchased. They can be purchased with free-potential contacts for remote signalization.

## 4100 series

Series 4100 are industrial programmable measuring and indicating devices with four-digit LED-display (94/29mm) for panel mounting. Their dimensions are (H/W/D) 144/144/65 mm standard. At this moment we have devices for measurement of voltage, current, frequency, power, resistance, weight. It is possible that unit for measuring any physical value (such as temperature, pressure, humidity, etc.) can be purchased. They can be purchased with free-potential contacts for remote signalization.

## 5036 series

Series 5036 are industrial programmable measuring and indicating devices with five-digit LED-display (35x12 mm) for panel mounting with dimensions (H/W/D) 48/48/72 mm. At this moment we have devices for measurement of voltage, current, frequency, programmable timers and (motor) hour meters. It is possible that unit for measuring any physical value (such as temperature, pressure, humidity, etc.) can be purchased.

## Weight measurement

We offer standard and unique solutions in weight measurement area for industrial or commercial use. We produce standard and price-calculating weight-measuring units with standard interface for connection to PC with automatic blocking, measurement data saving, preparing detailed reports for all the data form the measurements, etc.

## M-bus devices

M-BUS is reliable and cheap interface/protocol for connection and communication between different types of devices. It has become a standard in building networks for remote reading of tax meters. We produce variety of devices needed for complete building a m-bus network for remote reading of meters, including the software for processing the data read.

## Industrial automation

We produce various kinds of automation control devices applicable in the industry. Although these devices are build on common base, as every device is unique we produce them only on special request. We also have the software to control these devices from PC.

## Special software

We produce PC/embedded software for industrial control, creation and management of databases, preparing detailed reports, etc. We also make special software by client's specifications.

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If you have any questions or special requirements, please feel free to contact us on our web-site **www.gineers.com** or by phone **(+359-2) 975-81-05**!

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