WDOS

WEIGHT INDICATOR - WEIGHING AND BATCHING

LAUMAS®



MULTILANGUAGE SOFTWARE



PROGRAM	MODEL
BASE	WDOS-MU
LOAD	WDOS-C
UNLOAD	WDOS-S
3 PRODUCTS	WDOS-3
* 6 PRODUCTS	WDOS-6
* 14 PRODUCTS	WDOS-14
Multiprogram	WDOS-MU

* *External 8-relay modules included*

CERTIFICATIONS

OIML R76:2006, class III, 3x10000 divisions, 0.2 μV/VSI / OIML R61 - WELMEC Guide 8.8:2011 (MID)

UL Recognized component - Complies with United States and Canada regulations

Complies with the Eurasian Customs Union regulations

Equivalent of the CE marking for the United Kingdom

NMI Trade Approved - Complies with Australian market regulations for legal for trade use

Complies with New Zealand regulations for legal for trade use

Complies with the Brazilian regulations for legal for trade use

NTEP - n_{max} 10000 - Class III/IIIL - Complies with United States regulations for legal for trade use

Complies with Chinese market regulations for legal for trade use

CERTIFICATIONS ON REQUEST

M — Conformity assessment (initial verification) in combination with Laumas weighing module

Complies with the regulations of the Russian Federation for legal for trade use

FIELDBUSES

MODBUS RTU / MODBUS/TCP · CANopen · PROFIBUS · DeviceNet · EtherNet/IP · ETHERNET TCP/IP · PI CERTIFIED PROFIBUS • PROFINET

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DESCRIPTION

- Weight indicator in DIN box suitable for front panel mounting.
- Dimensions: 96x130x96 mm (drilling template: 92x92 mm).
- Backlit LCD graphic display, resolution: 128x64 pixel, visible area: 60x32 mm.
- 6-digit semi-alphanumeric red LED display (10 mm height).
- 8 signalling LED.
- 10-key keyboard.
- IP54 front panel protection rating (IP65 front optional).
- Real-time clock/calendar with buffer battery.
- Removable screw terminal blocks.
- Multilanguage software (4 languages + 1 customizable).

INPUTS/OUTPUTS AND COMMUNICATION

- RS485/RS232 serial ports for communication via protocols ModBus RTU, ASCII Laumas or continuous one way transmission.
- 5 relay outputs controlled by the setpoint values or via protocols (4 outputs if the analog output is present).
- 3 optoisolated PNP digital inputs: status reading via serial communication protocols (2 inputs if the analog output is present).
- 1 load cell dedicated input.
- Current or voltage 16 bit optoisolated analog output (option on request).

MAIN FUNCTIONS

- Connections to:
  - PLC via analog output (on request);
  - PC/PLC via RS485/RS232 (up to 99 instruments with line repeaters, up to 32 without line repeaters);
  - remote display and printer via RS485/RS232;
  - up to 8 load cells in parallel by junction box;
  - intelligent junction box or other multichannel instruments: allow the use of advanced functions as digital equalization, load distribution analysis and automatic diagnostics.
- TCP/IP WEB APP: integrated software in combination with the Ethernet TCP/IP option for remote supervision, management and control of the instrument.
- Simultaneous display of net weight and gross weight.
- Digital filter to reduce the effects of weight oscillation.
- Theoretical calibration (via keyboard) and real calibration (with sample weights and the possibility of weight linearization up to 8 points).
- Tare weight zero setting.
- Automatic zero setting at power-on.
- Gross weight zero tracking.
- Semi-automatic tare (net/gross weight) and preset tare.
- Semi-automatic zero.
- Displaying of the maximum weight value reached (peak).
- Direct connection between RS485 and RS232 without converter.
- Weight value printing with date and time via keyboard or external contact.
- Printing (header) and language can be customized using the free "JollyPrint" PC software, available at www.laumas.com.

Approved versions for legal for trade use

- System parameters management protected by qualified access via software (password), hardware or fieldbus.
- Weight subdivisions displaying (1/10 e).
- Three operation mode: single interval or multiple ranges or multi-interval.
- Net weight zero tracking.
- Calibration.
- Alibi memory (option on request).
- The following values can be printed via keyboard or external contact: gross weight, net weight, tare, preset tare, date, time, ID code (alibi memory).

BASE PROGRAM

- Hysteresis and setpoint value setting.
- The indicator can be used as a remote display with setpoints.
- 12 groups selection by 5 setpoint via external selector switch or contact (option on request).

BATCHING PROGRAM

- Graphical representation of the system load status.
- 99 settable formulas.
- Batching resume after a blackout.
- Automatic fall calculation.
- Tolerance error control.
- Precision batching through slow function.
- Precision batching through tapping function.
- Consumption storage.
- Production storage.
- Products stocks management.
- Printing of batching data.
- Alarm contact management.
- Selection of the first 12 formulas via external selector switch or contact (option on request).
- Batching start via external contact or keyboard.
- Manual batching with remote displays connected in parallel to the instrument.

Only for:
LOAD and 3/6/14 PRODUCTS programs

- Autotare at batching start.
- Setting a quantity to be batched greater than the scale capacity.

UNLOAD program

- Automatic loading of the product into the weighed structure.
- Management of batching with big bags.

3/6/14 PRODUCTS program

- Formulas programming in fixed or variable steps.
- Formulas setting in percentage.
- Intermediate unloadings during the batching.
- Partial unloadings at cycle end.

MULTIPROGRAM

- The Multiprogram instruments do not have any selected program but can be set by the installer with different operating modes: BASE, LOAD, UNLOAD, 3 PRODUCTS, 6 PRODUCTS, 14 PRODUCTS.

TECHNICAL FEATURES

Power supply and consumption	12÷24 VDC ±10%; 5 W (on request: 115÷230 VAC; 50÷60 Hz; 6 VA)
Number of load cells • Load cells supply	up to 8 (350 Ω) - 4/6 wires • 5 VDC/240 mA
Linearity • Analog output linearity	<0.01% full scale • <0.01% full scale
Thermal drift • Analog output thermal drift	<0.0005% full scale/°C • <0.003% full scale/°C
A/D Converter	24 bit (16000000 points) - 4.8 kHz
Divisions (with measurement range ±10 mV and sensitivity 2 mV/V)	±999999 • 0.01 μV/d
Measurement range	±39 mV
Usable load cells sensitivity	±7 mV/V
Conversion rate	5÷300 Hz
Display range	±999999
Decimals • Display increments	0÷4 • x1 x2 x5 x10 x20 x50 x100
Digital filter	10 levels
Relay outputs	5/4 - max 115 VAC/150 mA
Optoisolated digital inputs	3/2 - 5÷24 VDC PNP
Serial ports	RS485, RS232
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 115200 (bit/s)
Optoisolated analog output (option on request)	16 bit = 65535 divisions. 0÷20 mA; 4÷20 mA (up to 300 Ω) 0÷10 V; 0÷5 V; ±10 V; ±5 V (min 10 kΩ)
Humidity (condensate free)	85%
Storage temperature	-30 °C +80 °C
Working temperature	-20 °C +60 °C

c UL us	Relay outputs	5/4 - max 30 VAC, 60 VDC/150 mA
	Working temperature	-20 °C +50 °C
	Equipment to be powered by 12-24 VDC LPS or Class 2 power source	

METROLOGICAL SPECIFICATIONS OF TYPE-APPROVED INSTRUMENTS	OIML	NTEP	INMETRO
Applied standards by region	EU: 2014/31/UE; OIML R76:2006; EN45501:2015 Russian Federation: GOST OIML R76-1-2011 United Kingdom: Non-automatic Weighing Instrument Regulations 2016 Australia: National Measurement Regulations 1999 New Zealand: Weights and Measures Regulations 1999 China: Law on Metrology of the People's Republic of China	USA: NIST HANDBOOK 44, 2020; NCWM PUB 14, 2021	Brazil: Portaria Inmetro N°157/2022
Operation mode	single interval, multi-interval, multiple range	single interval, multi-interval, multiple range	single interval, multi-interval, multiple range
Accuracy class	III or IIII	III or IIIL	III
Maximum number of scale verification divisions	10000 (class III); 1000 (class IIII)	10000 (class III/IIIL)	10000 (class III)
Minimum input signal for scale verification division	0.2 μV/VSI		0.2 μV/VSI
Working temperature	-10 °C +40 °C	-10 °C +40 °C (+14 °F +104 °F)	-10 °C +40 °C

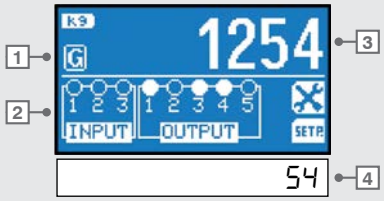
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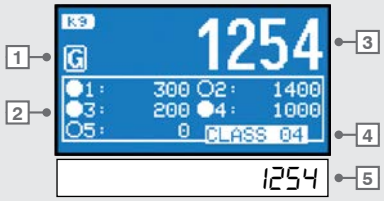
Example screens for BASE program

Net weight, gross weight and inputs/outputs status displaying



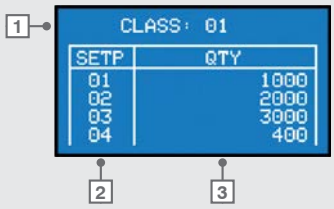
1. Gross weight symbol.
2. Inputs and outputs status.
3. Gross weight value.
4. Net weight value.

Gross weight and setpoint displaying



1. Gross weight symbol.
2. Setpoint status and value.
3. Gross weight value.
4. Number of setpoint class *(only for instruments equipped with E/EC option)*.
5. Gross weight value.

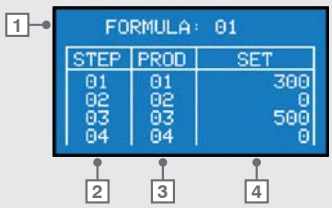
Setpoint programming



1. Selected class.
2. Setpoint number.
3. Setpoint value.

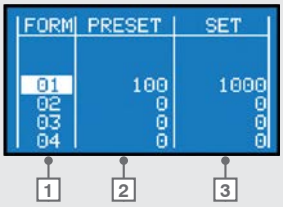
Example screens for BATCHING programs

Formulas programming
3/6/14 PRODUCTS program



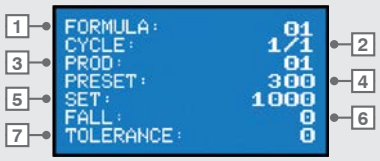
1. Selected formula.
2. Step number.
3. Product number.
4. Set value.

Formulas programming
LOAD and UNLOAD programs



1. Selected formula.
2. Preset value.
3. Set value.

Details of batching product displaying
LOAD and UNLOAD programs



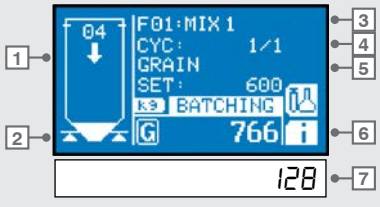
1. Formula number.
2. Running cycle.
3. Product number.
4. Preset value.
5. Set value.
6. Fall value.
7. Tolerance value.

Production displaying for each formula
(amount of batched product and number of cycles performed)



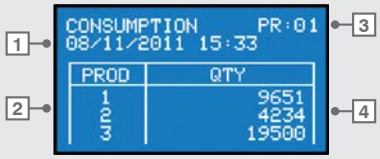
1. Date and time of last deletion.
2. Formulas list.
3. Selected formula.
4. Batched quantity and number of cycles performed.

Displaying during the batching
3/6/14 PRODUCTS program



1. Product number and arrow indicating the product loading.
2. Product level on the scale.
3. Formula number and name.
4. Running cycle.
5. Product number or name.
6. Gross weight value.
7. Batching product weight.

Consumptions displaying for each product
3/6/14 PRODUCTS program



1. Date and time of last deletion.
2. Products list.
3. Selected product.
4. Consumptions.

Stocks displaying for each product
3/6/14 PRODUCTS program



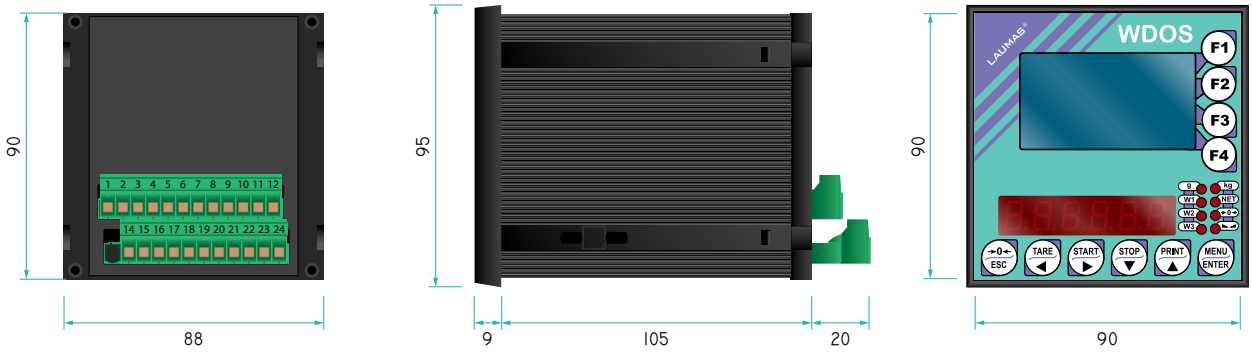
1. Current date and time.
2. Products list.
3. Selected product.
4. Stocks.

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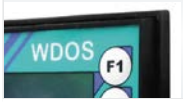
OPTIONS ON REQUEST AND COMPATIBILITY WITH BATCHING PROGRAMS

POWER SUPPLY

115/230 VAC

Power supply 115/230 VAC; 50/60 Hz; 6 VA.
- *Not compatible with fieldbuses and USB port.*
- *Not compatible with EAC certifications.*

ACCESSORIES



IP65 panel gasket.

INTERFACES AND FIELD BUSES

ANALOG OUTPUT

✶ Optoisolated 16 bit **analog output**.
- *One input and one output not available.*

RS485+

✶ **Additional RS485** port.
- *One input and one output not available.*
- *Not compatible with E/EC option.*

CANopen

✶ **CANopen** protocol.
- *Available for base program only.*
- *Not compatible with 115 VAC and 230 VAC.*

DeviceNet

✶ **DeviceNet** protocol.
- *Available for base program only.*
- *Not compatible with 115 VAC and 230 VAC.*

PROFIBUS

✶ **Profibus DP** protocol.
- *Not compatible with 115 VAC and 230 VAC.*

EtherNet/IP

✶ **Ethernet/IP** protocol - Ethernet port.
- *Available for base program only.*
- *Not compatible with 115 VAC and 230 VAC.*

ETHERNET TCP/IP

✶ **Ethernet TCP/IP** protocol - Ethernet port.
Integrated software for remote supervision, management and control of the instrument.
- *Not compatible with 115 VAC and 230 VAC.*

✶ *Select one option among those marked with an asterisk.*

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OPTIONS ON REQUEST AND COMPATIBILITY WITH BATCHING PROGRAMS



✶ **Modbus/TCP** protocol - Ethernet port.
➔ *Not compatible with 115 VAC and 230 VAC.*



✶ **PROFINET IO** protocol - Ethernet port.
➔ *Available for base program only.*
➔ *Not compatible with 115 VAC and 230 VAC.*



DATAUSB
USB port for data storage to pen drive (included).
These data (weighed values, batchings, alarms) can be imported and processed on the PC using the PROG-DB software included in the supply.
➔ *Not compatible with 115 VAC and 230 VAC.*



USB male/female extension cable with IP68 panel connector; length: 50 cm,
sealing cap and cover included.



Ethernet male/female extension cable with IP68 panel connector; length: 30 cm,
sealing cap included.



Ethernet male/male extension cable with IP68 connector; length: 5 m.
Use in combination with Ethernet extension cable option with IP68 panel connector; length: 30 cm.



Weight reading from 0-10 VDC input (15 kΩ).



Weight reading from 4-20 mA input (120 Ω).

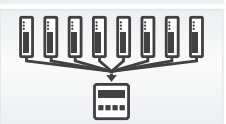
APPLICATIONS - SOFTWARE



Alibi memory.



DATAPC
Data transfer from the instrument to the PC, via RS232 (directly) or RS485 (by converter) serial port.
These data (weighed values, batchings, alarms) can be imported and processed on the PC using the PROG-DB software included. We suggest to use this option when the indicator is always connected to the PC.



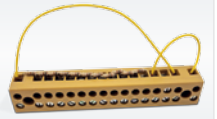
Single gross weight values reading by others transmitting instruments (up to 8) via RS485 serial port.
➔ *Available for base program only.*

OPTIONS ON REQUEST AND COMPATIBILITY WITH BATCHING PROGRAMS

EXPANSIONS



✶ EC
Base: 12 groups selection by 5 setpoint via external selector switch.
Load, Unload, 3/6/14 Products: selection of the first 12 formulas via external selector switch.



✶ E
Base: 12 groups selection by 5 setpoint via external contact.
Load, Unload, 3/6/14 Products: selection of the first 12 formulas via external contact.



Simultaneous use of E/EC option with the analog output.



External 5-relay module to increase the capacity of SPDT contacts to 115 VAC/2 A.
➔ *Not compatible with models 6/14 PRODUCTS.*



External 8-relay module to manage from 1 to 6 products; 8 relays up to max 115 VAC/2 A.
Module included with models 6/14 PRODUCTS.

12÷24 VDC	RELE6PROD24V
115/230 VAC	RELE6PROD230V



RELE14PROD
External 8-relay module to manage from 7 to 14 products to be added to RELE6PROD module;
8 relays up to max 115 VAC/2 A.
Module included with model 14 PRODUCTS.

✶ *Select one option among those marked with an asterisk.*

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