

miniPond 3P Multifunctional Process Weighing Controller

Approved automatic module for use in process automation



The **miniPond 3P** controller provides the necessary functions **for trade-approved weight measurement, dosing and totalization** for automatic weighing scales in industrial processes.

The integrated time-optimized dosing process enables a more precise and faster mode of operation compared to concepts which carry out the switch-off in the higher-level control system (e.g. PLC).

The versatile miniPond 3P is suitable for a wide range of applications and can be customized to the specific task at hand and different filling goods through parameter settings. Clear, application-oriented menus and dialogs allow intuitive operation. The integrated web server and effective diagnostic tools facilitate commissioning, parameterization, remote access and remote maintenance via a network. In addition, full access to functions, parameters and data is available via the Modbus interface or the optional fieldbus.

Features

- Evaluation electronics for strain gauge load cells
- High internal measurement resolution and stability
- Fast and precise control of the dosing process powered by long-proven algorithms
- High operational reliability due to comprehensive monitoring functions
- Diagnostic tools and support for commissioning, optimization and troubleshooting
- User-friendly weight and status display
- Plain-text operator guidance in 5 languages
- Durable design for industrial use

Configuration and operation

- Local operator terminal
- Fieldbus and other interfaces
- Web server for parameter input and backup, data exchange, firmware download, remote terminal and filling curve analysis

Functions

- Configurable operating modes:
 - Automatic catchweighing,
 - Automatic gravimetric filling and dosing,
 - Automatic discontinuous totalizing
- Weight registration with stability detection
- Two-stage dosing: coarse and fine
- Dosing in filling and dispensing mode
- Automatic zero setting or taring
- Automatic free-fall compensation:
 - proportional control with quick adaptation
- Automatic checkweighing with tolerance evaluation
- Totalization
- 1 additional set point, freely configurable
- Fault monitoring with alarm and logging
- Totals memory and counter
- Logging of actual weights and filling data
- Integrated alibi memory

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Measurement & control technology

- 24-bit A/D converter, conversion rate: 110 Hz
- Input signal range: up to 2 / up to 4 mV/V (select.)
- Load cell excitation: 5 VDC for strain gauge load cells, max. 4 x 350Ω
- Displayed weight resolution: max. 200,000d (10,000d approved for verification)
- Configurable weighing range, also as multi-range or multi-interval scale, 2 ranges
- Signal sensitivity: 0.5 μV/e (approved for verific.)
- Switch-off accuracy better than 1 ms due to optimized signal processing
- Multi-stage, parameterizable digital filters for suppression of vibrations on the weighing system, coupled with efficient evaluation and control algorithms
- Automatic stability detection of the weight values
- Adjustment with test weights or mathematically by entering the load cell parameters

Approved weighing modes

- Automatic catchweighing: Weight registration with stability criterion
- Automatic gravimetric filling and dosing: Filling in containers/packs/bags
- Automatic discontinuous totalizer: Totalizing Bulk Scale

Data collection / Statistics

- Actual-weight logging
- Approved totals memory
- Alibi memory for traceability
- Filling data recording for diagnosis
- Filling curve in real time
- Error logbook
- Data is retained in the event of power loss

Connectivity / Networking

- Ethernet TCP/IP
- Serial COM port (RS-422/485 or RS-232)
- Modbus (TCP and RTU)
- Web interface
- WebSocket (RFC6455)
- Optional fieldbus: Profibus DP or Profinet, further protocols on request

Digital I/Os

- 8 inputs / 8 outputs, 0.4 A short-circuit proof
- 24 VDC, galvanically connected

Display / Keypad / Operation

- Graphic LCD display, LED-backlit
- Weight display with 20 mm digit height
- 9 keys, 4 of which are context-related multiple-function soft keys
- Plain-text dialog guidance in 5 languages (DE, EN, FR, IT, ES), plus 1 additional language freely definable via language file
- Clear display of process data and status
- 3 operating levels with password protection

Mounting variants

- Main unit can be mounted inside a control cabinet on DIN rail (flat or upright) or mounting plate, display unit separately e.g. on operator station, or
- On the cabinet's door or front panel: main unit inside behind the display unit (panel mount kit)
- No cut-out necessary on the door/front panel. Template provided for drilling only 7 holes.

Power supply

- 24 VDC 3.5 W (with display unit and 4 load cells)

Environmental conditions

- -10 ... +40 °C (for legal-for-trade applications)
- -10 ... +60 °C (for non-legal-for-trade use)
- -20 ... +70 °C (storage and transport)
- 0 ... 90 % rel. humidity (non-condensing)

Housing

- Control unit: zinc-plated steel; IP20
168 x 140 x 52 mm; 0.7 kg
- Operator terminal: ABS; IP65 (when mounted)
170 x 130 x 18 mm; 0.2 kg

Approvals

The instruments are tested and certified by the National Metrology Institute of Germany (PTB) and approved for official verification in all EU countries.

- 2014/31/EU (NAWID) to OIML R76:
Accuracy Class III 10,000e and Class IIII 1,000e
- 2014/32/EU (MID) to OIML R61, R51, R107
- 2014/34/EU (ATEX) Zone 22 (operator terminal)
- ISO 9001:2015 QM System and CE conformity