dataPond 3F High-Speed Dosing/Filling Controller

Approved automatic weighing controller for high-performance filling & packing machines

dataPond 3F is a **high-performance weighing controller** with firmware specifically designed for fast dosing, filling and bagging processes, including powerful evaluation and control technology. This controller enables consistently precise filling results even in high-speed machines at cycle rates of over 2,000 fillings per hour. It controls and monitors the entire dosing process and also **offers many functions and setting options** to solve the typical problems of filling technology.

The versatile dataPond 3F controller can be used stand-alone or networked and can be customized to different types of machines and 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
- Ultra-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

Filling and dosing control functions

- Two-stage dosing: coarse and fine
- Dosing in filling and dispensing mode
- 220 sets of parameters for filling weights and material parameters
- Automatic zero setting or taring
- Automatic dosing time optimization
- Automatic free-fall compensation: 3 selectable modes with quick adaptation
- Automatic checkweighing with tolerance evaluation
- Automatic topping-up when below tolerance
- Batch mode (preselection by count or total weight)
- Final filling of prefilled packages
- Additional mode: totalizing scale
- 4 additional set points, freely configurable
- Monitoring of material flow rate, dosing time and faults with alarm and logging
- Totals memory, counter and statistics

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Measurement & control technology
- 24-bit A/D converter, conversion rate: 110 Hz
- Input signal range: up to 2 or up to 4 mV/V (selectable)
- 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 highly efficient evaluation and control algorithms
- Automatic free-fall compensation in 3 selectable modes: proportional control (statistic/classic) and adaptive, predictive control (depending on the mass flow) for maximized adaptability
- Adjustment with test weights or mathematically by entering the load cell parameters

Data collection / Statistics
- Actual-weight logging
- Totals memory
- Batch and product statistics
- 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
- 16 inputs / 16 outputs, 0.4 A short-circuit proof
- 24 VDC, galvanically connected
- Configurable function or assignment (can also be used as remote IO for the PLC)

Display / Keypad / Operation
- Graphic LCD display, LED-backlit
- Weight display with 20 mm digit height
- 25 keys (numeric keypad, navigation, 8 function 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
- Copy function for parameter sets simplifies data entry
- 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

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