

IT6000E *LOSS IN WEIGHT*

Controller For Differential Loss-In-Weight Scale For Continuous Discharging Of Bulk Material



IT6000E *LOSS IN WEIGHT* is a controller for loss-in-weight weighing systems used for the discharging of bulk material in continuous processes for food, chemical products, building materials and other sectors of industry.

IT6000E *LOSS IN WEIGHT* connects to analog or digital scales of all types, including Ex-area applications.

IT6000E *LOSS IN WEIGHT* is suited for the continuous supply of product to

- Extruders
- Injection die casting machines
- Continuous mixers
- And other process equipment requiring constant material flow.

The raw material is discharged at constant flow rate from the weigh hopper via screw, vibratory or rotary feeder.

IT6000E *LOSS IN WEIGHT* controls the feeding device to adjust the actual flow rate to the preset target.

The automatic refilling of the weigh hopper is controlled via selectable setpoints and takes place without interrupting the feeding process.

The current process status is indicated on the clearly arranged color display.

The most important features are:

- Raw material file for 15 products to store the material-related batching parameters
- Selection of product via display/keyboard or external inputs
- Gravimetric or volumetric mode selectable via keyboard or external input, also during running operation
- Resolution of flow rate display configurable from 0.1kg/h to 1t/h for batch sizes from some 10kg/h to 1000t/h and more
- Options for dynamic adaptation of target flow rate via keyboard or analog input
- Powerful PID controller for tracking the actual flow with reference to target
- Controller parameters can be adjusted during running operation
- Clear operator prompting with display of total quantity, current flow rate, target and chosen product
- Graphic display of relevant process status on color screen.

Precise batching as result of:

- Precise flow rate monitoring through high resolution of weight and millisecond time base
- Fast filters, self-adjusting to process
- PID controller with freely adjustable tuning constants
- Direct control of feeding device via analog output or serial RS485/RS232 interface to connect frequency inverter.

Simple and secure operation:

- Operator prompting on high-contrast TFT color display
- Visualization of process status with color graph
- Numeric sealed membrane keyboard with multiple key assignment for alphanumeric entries or optional PC keyboard
- Clear text display of all process or error messages
- Operator prompting in English and German (other languages in preparation).

Simple integration:

- Stand-alone operation or remotely controlled via external inputs/outputs
- Entry of target via keyboard, analog input
- Control of feeding device through analog output 4-20mA/0-10V, option to serially control frequency inverters of several makes
- Optional analog output 4-20mA/0-10V to output the current flow rate.

Data logging:

- Optional data logging on printer or to file
- Event log for recording of error messages and other process-relevant data
- Access to files via SFTP, alternatively storage on USB device.

Security:

- Power-fail safe storage of data
- Password protection for all data
- Battery-backed realtime clock
- Plain text display of error messages.

Weighing electronics:

- Integrated signal amplifier for connection of up to 16 strain gauge loadcells in 4- or 6- wire mode
- Fast signal processing (more than 200 updates per second)
- Internal resolution 524,000d.

Fieldbus:

Connection to PLC or process control system via Modbus TCP.

Ethernet interface (option: WLAN):

Integrated Ethernet or WLAN interface, remote access to internal event log possible via SFTP.

Integrated USB interface (option):

To connect printer, PC keyboard or USB device for recording of event logs.

Electrical connections:

115 (-15%) – 240 (+10%) VAC;
50/60 Hz, option: 12–30VDC,
power consumption max. 20 VA.

Operating temperature:

-10°C to +40°C, max. 95% relative humidity, non-condensing.

Accessories:

- Column for floor mounting
- Log printer
- Dust and splash cover.

Ex2/22 version:

for installation in Ex zones 2 and 22.

Typical batching cycle:

- Select product from material file via keyboard or external inputs;
- Enter target flow rate via keyboard;
- Continuous discharging of material out of weigh hopper, capturing of weight difference per measuring interval and comparison with target flow rate;
- PID controller calculates updated actuating variable for the control of the feeding device to bring actual flow in line with target;
- Alternative operating mode 'volumetric' without closed loop control when product flow fluctuates widely, eg because of lumping;
- Optional dynamic adjustment of target flow via analog input, eg for feeding into an extruder;
- 'Freezing' of actuating variable for refilling of hopper when weight falls below hopper min. weight.

Construction:

Desk/wall version



- Stainless steel housing, IP69K
- For desk-top or wall-mount installation or with optional column for floor mounting
- Dimension WxHxD:
330x239x134mm

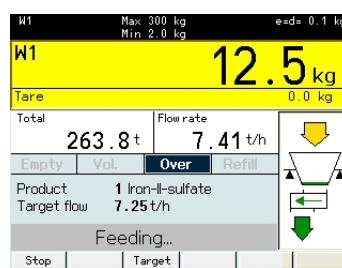
Panel-mount version



- Stainless steel housing, IP65
- Panel-mount installation
- Dimension WxHxD:
285x224x69mm
- Cut-out in panel:
268x207mm

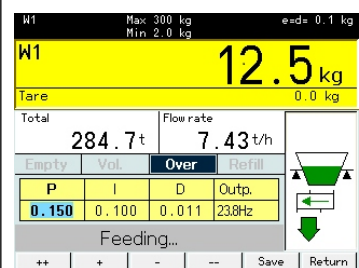
Display / operation:

Status display



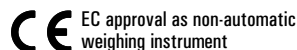
Display of all relevant process data while batching is in progress.

Tuning of PID controller



Tuning of PID constants during running operation.

Directives: 2009/23/EC, 2004/108/EC, 2006/95/EC, 2004/22/EC



EC approval as non-automatic weighing instrument

Standards: EN 45501, OIML R76-1, EN 61000-6-2, EN 61000-6-3, NAMUR NE21, EN 60950



NTEP approval as indicating element



ETL certified in compliance with UL 60950-1 and CSA C22.2 No. 60950-1



EMI compliance with FCC Part 15