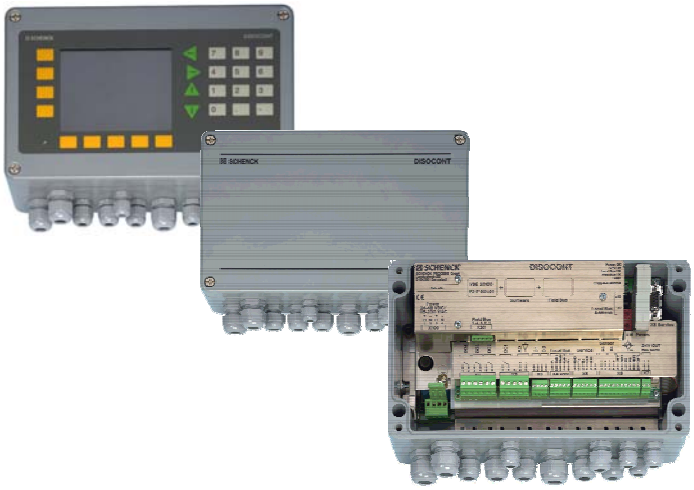
DISOCONT® Measurement, Control and Supervisory System



- **Field housing electronics integration able into scale mechanics**
- **New product line for 'MechaTronic scales' a synthesis of mechanics, electrics and software**
- **Reduced engineering planning and wiring costs**
- **Optimal communication structures because of modular fieldbus technology**

Application

DISOCONT is a modular electronics system applicable to any weighing and feeding system. It is used wherever bulk solids flow has to be measured, feeded or batched with the use of

- Loss-in-weight feeders (measuring/feeding)
- Weighfeeders
- Mass flow meters and feeders
- Solids flow meters and feeders
- Belt weighers
- Weighing hoppers

The DISOCONT electronics are preferrably integrated locally into the scale mechanics. So self-contained function units will be created - the MechaTronic scales - which offers numerous advantages:

- Reduced engineering because of minimal number of interfaces; only one unit has to be planned in
- No control cubicle
- Reduced cabling; only power and data cables have to be run
- At a glance - easy service because of the combination of mechanics and electronics

DISOCONT electronics may be conventionally installed in a control cubicle (e. g. for use with feeders in hazardous zones). The DISOCONT equipped with appropriate communication module optimally integrates into the automation structure via field bus.

Equipment

The DISOCONT electronics consist of a system unit and multiple optional expansion units. Its modular design enables the requisite units to be combined for a specific application, at a most cost effective price.

- System unit for all measuring and control functions; equipped with service plug for connection of laptop or control unit, for configuration, calibration and service with an exchangeable memory module for system specific settings and operating values
- Fieldbus communication modules plugged into system unit for transfer of all relevant data to the user's control and scale control system
- Input/output unit for conventional connection to user's control system and expanded control of the scale environment
- EasyServe - PC-program for commissioning and service
- Operator panel with clear graphic text display for local scale control and/or parametrization of standard applications
- Group control unit- operation, survey and control of scale groups, as shown in separate spec sheet

The internal DISOCONT communication bus permits a flexible arrangement of the I/O units, locally or in cabinets. All modules can be replaced with no need for recalibration and reconfiguration (Plug & Play).
The program includes housing options for installation at site and in control cubicles.

Technical features for all weighing and feeding systems:

- System accuracy for scales better than 0,05 % (DIN 43782)
- Galvanically isolated inputs/outputs
- Pluggable, fail-safe memory module
- Factory presettings for easy and quick commissioning
- Various languages loadable/transferrable
- Status, event, calibration, and batch reports
- Batch control with adaptive cut-off curve
- Integrated diagnostics and self testing functions (SPC)
- Simulation mode for testing and learning

Functions

DISOCONT is designed to acquire the actual feed rate [kg/h, t/h] via

- belt load and belt speed for belt weighers
- changes in weight of material in weigh hopper per unit of time for loss-in-weight feeders
- reactive force for solids flow meters
- direct mass flow measurement using the Coriolis force for mass flow meters

With **feeding** applications, the control deviation is acquired by feed rate set/actual comparison. Depending on type of scale, DISOCONT routes a control signal to

- speed-controlled weigh-feeder drive
- controllable loss-in-weight feeder discharge unit
- controllable solids and mass flow feeders' prefeeders

The control circuit exactly controls the actual feed rate for conformity with setpoint.

In batching mode, DISOCONT feeds a preset amount of material. System uses batch results for automatic selfoptimization.

Scale Specific Functions

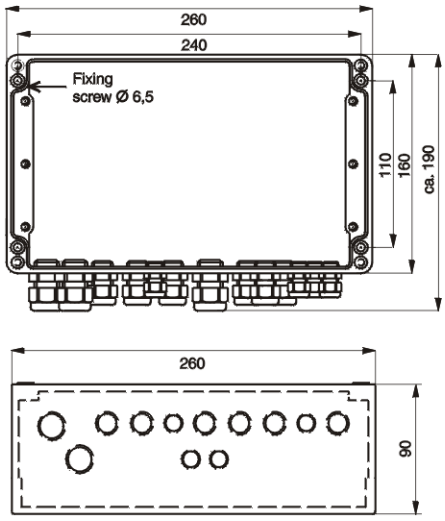
Depending on the loaded scale software, the following function are available.

- With belt weighers and weighfeeders:
  - Accurate belt speed measurement
  - Belt run monitoring
  - Shifting of control for weighing/feeding to point of discharge
  - Belt influence compensation (BIC)
  - Auto-calibration (automatic calibration programs), self-starting taring
  - Block control with weigh-feeders = constant belt load realized by pre-feeder control
  - On stream material check
- With solids flow meters and feeders:
  - Adaption to different measuring chute characteristics
  - Manual and automatic zeroing
  - On stream material check
- With mass flow meters and feeders:
  - Accurate speed and torque measurement
  - Manual and automatic zeroing
  - Highly constant feeding
  - On stream material check
- With loss-in-weight feeders (measuring and feeding):
  - Adaptive FUZZY interference peak elimination
  - Automatic correction of material flow properties during filling
  - Highly constant feeding
  - 4 sets of parameters for quick adaptation on different bulk solids
- Sequential batching:
  - Sequence of up to 10 material types
  - Adaptive feed control

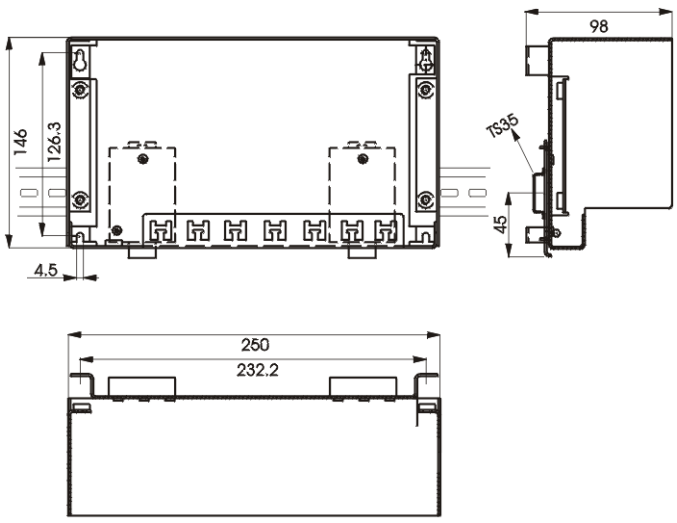
Dimensions [mm]

DISOCONT–Housing Variants for System and Input/Output Units

Field housing VFG 20100

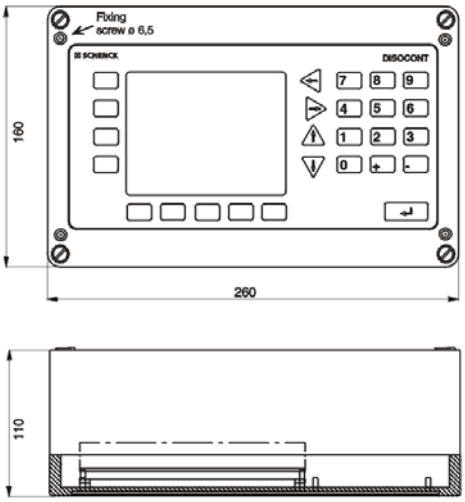


Control cubicle mounting housing VEG 20100

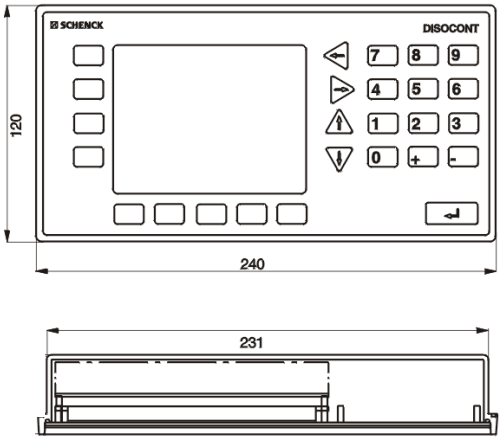


DISOCONT–Versions for Housing of the Control Unit

Field housing VLB 20120



VLB 20100, VLB 20105
In control panel/control cubicle housing



Technical Data

DISOCONT-System Unit VSE 20100

Power supply	24 VDC ±20 %; 110 V … 230 V -20 % +10 % (50 Hz or 60 Hz); 20 W
Ambient temperature	-25 °C ... +50 °C outside housing
Inputs*)	Load cell input (±6 V, R_i > 87 Ω) 2 NAMUR-Inputs (0,03 … 3000 Hz for speed, belt circuit/gate feedback signal) 2 isolated digital inputs (24 V, 20 mA, safety separated)
Outputs*)	1 isolated analog output (0/4 mA … 20 mA, max. 11 V) 4 relay outputs, safety separated (24 V or 230 V with combinations: 3 x 24 V and 1 x 230 V, or 3 x 230 V and 1 x 24 V; 8 A Ω / 1 A induct.)
Interfaces	RS232 (Service PC with EasyServe) Internal DISOCONT-Bus
Standards	CE, UL

DISOCONT-Input/Output Unit VEA 20100

Power supply	24 VDC ±20 %; 110 V … 230 V -20 % +10 % (50 Hz or 60 Hz); 20 W
Ambient temperature	-25 °C ... +50 °C outside housing
Inputs*)	1 isolated analog output (0/4 ... 20 mA / 250 Ω) 4 potential-free digital inputs (24 V, 20 mA, safety separated)
Outputs*)	1 isolated analog output (0/4 mA ... 20 mA, max. 11 V) 1 Impuls output (max. 50 mA) 5 relay outputs, safety-separated (24 V or. 230 V with combinations: 4 x 24 V and 1 x 230 V or 4 x 230 V and 1 x 24 V; 8 A Ω / 1 A induct.)
Interfaces	RS232 (printer) Internal DISOCONT-Bus
Standards	CE, UL

*) Internal signals are freely configured for physical in-/outputs.

Field Housing VFG 20100 for System or Input/Output Units

Material	Glass fibre reinforced plastics
Dimensions [mm]	260 x 160 x 90
Protected to	IP65 (as per IEC 60529), NEMA4-type

Control Cubicle Housing VEG 20100 for System Unit or Input/Output Unit

Material	Stainless steel
Dimensions [mm]	250 x 146 x 98 For installing an DIN top-hat-rail or for wall mounting
Protected to	IP20 (as per IEC 60529)

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DISOCONT-Control Unit VLB 20120 in Field Housing

Material	Glass fibre reinforced plastics
Dimensions [mm]	260 x 160 x 110
Protected to	IP65 (as per IEC 60529), NEMA4-type
Display [mm]	LCD-graphics display (100 x 75) Character height (3,5 or 9)
Keyboard	Flexible membrane keyboard
Power supply	24 VDC ±20 %; 110 V … 230 V -20 % +10 % (50 Hz or 60 Hz); 20 W
Ambient temperature	-20 °C ... +50 °C outside housing
Interface	Internal DISOCONT-Bus interface
Standards	CE

DISOCONT-Basic Units
System Unit VSE 20100 with power supply
Memory Module VSM 20100, VSM 20101, VSM 20102
Field housing without electronics VFG 20100 Suitable for system unit, input/output unit
Control cubicle housing without electronics VEG 20100 Suitable for system unit, input/output unit

DISOCONT-Function Modules
Belt weigher software
Weighfeeder software
Loss-in-weight feeder software
Solids flow meter software
Solids flow feeder software
Mass flow meter software
Mass flow feeder software
Sequential batching software

Optional DISOCONT-Master group rate control station see separate data sheet BVD 2391

DISOCONT-Control Unit VLB 20100 in Control Panel/Cubicle Housing

Material	Plastics
Dimensions [mm]	Required space: 240 x 120 x 65 Cut-out: 231 + 0,5 x 111 + 0,5
Protected to	Front to IP65 (as per IEC 60529) Rear to IP20 (as per IEC 60529)
Display [mm]	LCD-graphics display (100 x 75) Character height (3,5 or 9)
Keyboard	Flexible membrane keyboard
Ambient temperature	0 °C ... +50 °C outside housing
Interface	Internal DISOCONT-Bus interface
Standards	CE

The control unit VLB 20100 requires an input/output unit for power supply.

DISOCONT-control unit VLB 20105 in control-panel/control cubicle housing like VLB 20100, however:

Dimensions [mm]	Required space: 240 x 120 x 85
Power supply	100 V … 240 V (50 Hz or 60 Hz); 15 W

DISOCONT-Expansion Units
Input/output unit VEA 20100 with power supply
Control unit VLB 20120 in field housing with power supply
Control unit VLB 20100 in control panel/cubicle housing with 2 m cable for connection to VEA 20100 input/output unit
Control unit VLB 20105 in control-panel/control cubicle complete with power supply
EasyServe - PC-Program VPC 20150 on CD

Optional Communication Modules
MULTICONT- SE-Bus-, Modbus-, J-Bus or 3964(R) - Module VSB 20100
DeviceNet (CAN) - Module VCB 20100, VCB 20101
PROFIBUS DP - Module VPB 20100
Ethernet/TCP - Modbus Module VET 20100
Ethernet/IP - Module VET 20101