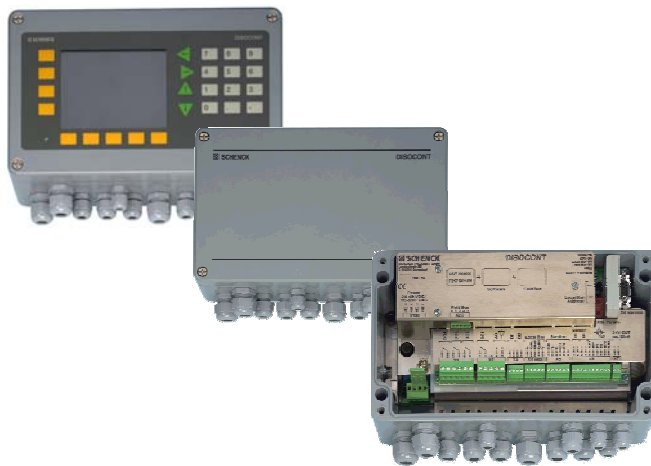


DISOCONT[®] Measurement, Control and Supervisory System



- 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 preferably 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

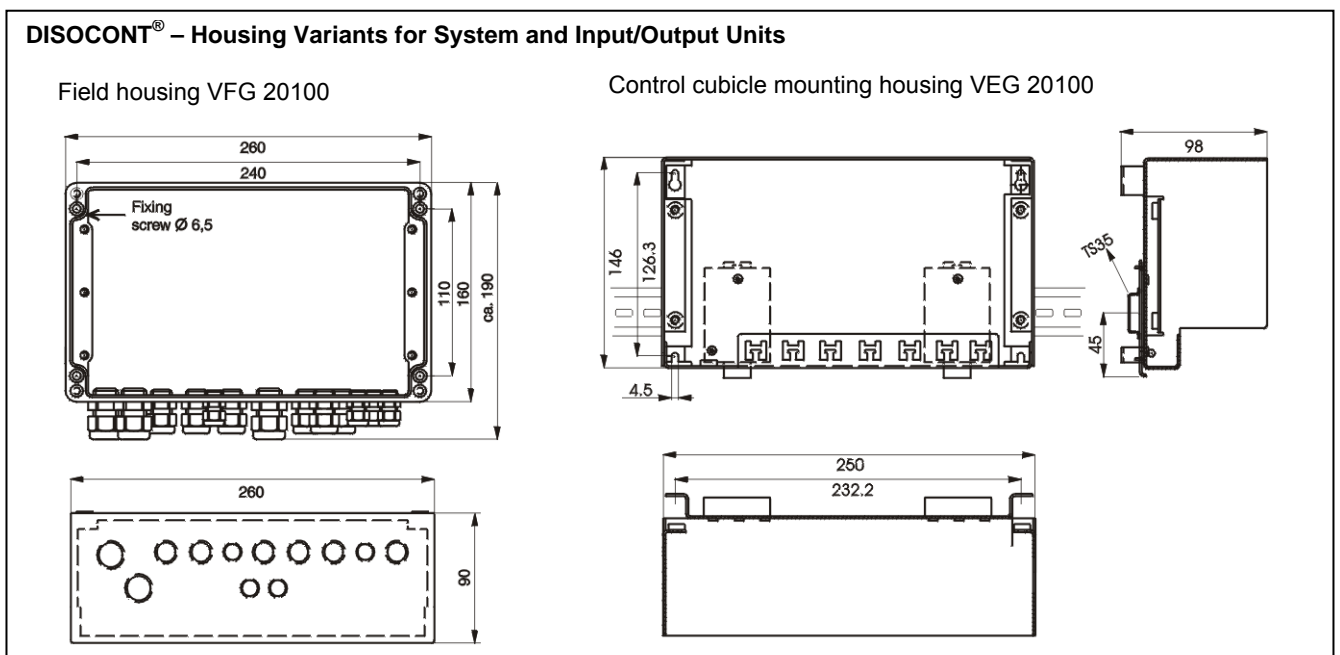
■ With loss-in-weight feeders (measuring and feeding):

- 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:

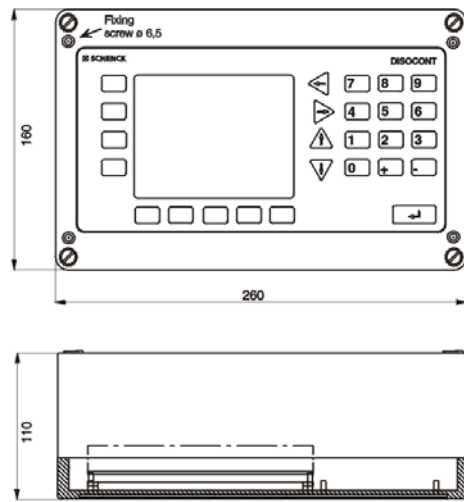
- Sequence of up to 10 material types
- Adaptive feed control

Dimensions (mm)



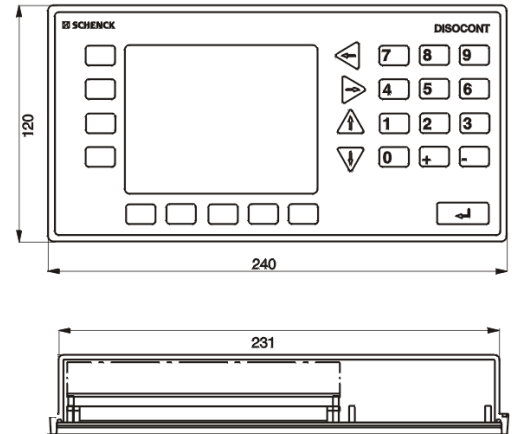
DISOCONT® – Versions for Housing of the Control Unit

Field housing VLB 20120



VLB 20100, VLB20105

In control panel/control cubicle housing



Technical Data

DISOCONT® - System Unit VSE 20100

Power supply	24 VDC \pm 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, $R_i > 87 \Omega$) 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	RS 232 (Service PC with EasySer- ve) Internal Disocont-Bus
Standards	CE, UL

Field Housing VFG 20100 for System or Input/Output Units

Material	Glass fibre reinforced plastics
Dimensions	260 mm x 160 mm x 90 mm
Protected to	IP 65 (as per IEC 60 529), NEMA4-type

DISOCONT® - Input/Output Unit VEA 20100

Power supply	24 VDC \pm 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	RS 232 (printer) Internal Disocont-Bus
Standards	CE, UL

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

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

Material	Stainless steel
Dimensions	250 mm x 146 mm x 98 mm For installing an DIN top-hat-rail or for wall mounting
Protected to	IP 20 (as per IEC 60 529)

DISOCONT[®]-Control Unit VLB 20120 in Field Housing

Material	Glass fibre reinforced plastics
Dimensions	260 mm x 160 mm x 110 mm
Protected to	IP 65 (as per IEC 60 529), NEMA4-type
Display	LCD-graphics display (100 mm x 75 mm) Character height (3,5 mm or 9 mm)
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 2180

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DISOCONT[®]-Control Unit VLB 20100 in Control Panel/Cubicle Housing

Material	Plastics
Dimensions	Required space: 240 mm x 120 mm x 65 mm Cut-out: 231+0,5 mm x 111+0,5 mm
Protected to	Front to IP 65 (as per IEC 60 529) Rear to IP 20 (as per IEC 60 529)
Display	LCD-graphics display (100 mm x 75 mm) Character height (3,5 mm or 9 mm)
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 in-
put/output unit for power supply.**

**DISOCONT[®]-control unit VLB 20105 in control-
panel / control cubicle housing like VLB 20100,
however**

Dimensions	240 mm x 120 mm x 85 mm required space
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