

DATA-COMMUNICATION-MODULE DATACont DC 6000

with Ethernet TCP/IP, PROFIBUS DP, Modbus RTU, Modbus TCP

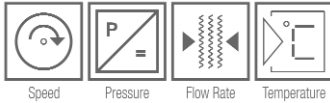


The data communication module DataCont DC 6000 is available with different inputs. The device processes analog signals (0(4) - 20 mA, 2-/3-wire; 0(2) - 10 V and impulse signals up to 150 Hz as well as digital input signals. The recorded measuring values collected through the different inputs can be monitored for limit values and be exported to the SPS by a normed interface (e.g. PROFIBUS-DP).

Up to 12 modules with a maximum of 96 measuring inputs can be networked by the internal CAN bus.

The optional available integration of a ring buffer upgrades the data communication module to a measuring data collection system (data logger). The stored data can be saved in an external SQL-data file directly via USB interface or Ethernet TCP/IP interface and analysed with the free software Esters Efficiency Management and Device Manager (E3DM), using the tables and graphics.

- Integrated recording function to register measurement data (ring buffer 2 GB)
- Individual recording intervals for every measuring channel up to one measuring value per second
- Integration into IT networks via Ethernet TCP/IP for remote data transmission
- Complete configuration of the device via USB interface and Ethernet TCP/IP
- Transmission of the logged measuring values in an external SQL data file (MS SQL)
- Integration into industry bus systems via PROFIBUS DP, Modbus RTU/TCP
- Up to 12 devices suitable for networking via internal CAN bus
- Optional connection of a gas analysis by RS 232 interface or mA-input (e.g. Awite, Bieler & Lang, Chemec, Esders, ExTox, Fresenius, Pronova, Union Instruments)



Technical details

The devices of the series DC 6000 are designed as a modular system. The system enables the configuration of inputs and outputs as well as the relevant interfaces and software options according to the individual requirements of the installation and application. This section provides an overview of all technical information of the series.

MEASURING INPUTS

mA-INPUTS	0 (4) - 20 mA, 2-/3-wire (temperature) = -100 - 2000 °C (14 bit), input resistance < 100 ohm at 20 mA or 0 (4) - 20 mA, 2-/3-wire (pressure) = 0 - 30 bar (14 bit), input resistance < 100 ohm
V-INPUTS	0 (2) - 10 V, 2 mA
IMPULSE INPUTS	up to 1 kHz at 5 % duty cycle, impulse lengths 2500 ms
DIGITAL INPUTS	digital gate input for control signals from the SPS

RELAY

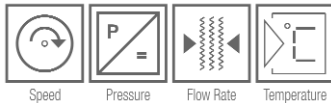
LIMIT VALUE OUTPUT	N/O contact (normally open), changer, load 30 V, 1 A inductive
ALARM INDICATOR OUTPUT	N/C contact (normally closed), changer, load 30 V, 1 A inductive

ELECTRICAL VALUES

ACCURACY	± 0,05 % EW ± 1 digit at 23 °C
POWER SUPPLY	24 V, DC ± 3 V

ENVIRONMENTAL INFLUENCES

AMBIENT TEMPERATURE	-10 to +55 °C
STORAGE TEMPERATURE	-20 to +85 °C
TEST VOLTAGE	3 kV
HUMIDITY CLASS	E-DIN 40040
ELECTROMAGNETIC COMPATIBILITY	acc. to EN 61000



DISPLAY, HOUSING, WEIGHT

DISPLAY 6-digit LCD-display for flow rate in Nm³/h (resolution 0,1 Nm³)
8-digit LCD-display in Nm³ (resolution 0,1 Nm³)
display height 8 mmm

STANDARD HOUSING dimensions: 100 mm (W) x 100 mm (H) x 107 (D) mm
RAIL MOUNTING protection class: IP20
net weight: approx. 480 g

PROTECTIVE HOUSING (OPTION M104) dimensions: 343 mm (W) x 330 mm (H) x 210 mm (D)
WALL MOUNTING with tab and high-strength cable gland
protection class: IP65

PROTECTIVE HOUSING WITH EX-ZONE (OPTION M105) dimensions: 385,5 mm (W) x 487 mm (H) x 210 mm (D)
WALL MOUNTING with tab and high-strength cable gland
protection class: IP65

SWITCHBOARD HOUSING (OPTION M112) switchboard disruption: 151±1 mm x 332,5 ±1 mm
SWITCHBOARD DOOR MOUNTING front frame: 169,7 mm (W) x 351 mm (H)
front frame height: 51 mm
installation depth: 140 mm
max. wall thickness: 23 mm
protection class: IP30

PORTABLE HOUSING (OPTION M122) dimensions: 147 mm (W) x 364 mm (H) x 261 mm (D)
protection class: IP30

SWITCHBOARD HOUSING (OPTION M113) switchboard disruption: 151±1 mm x 332,5 ±1 mm
SWITCHBOARD DOOR MOUNTING front frame: 169,7 mm (W) x 351 mm (H)
front frame height: 51 mm
installation depth: 140 mm
max. wall thickness: 23 mm
protection class: IP65

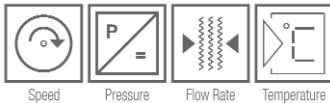
PORTABLE HOUSING (OPTION M123) dimensions: 147 mm (W) x 364 mm (H) x 261 mm (D)
protection class: IP65

SOFTWARE & RECORDER

GAS ANALYSIS data transmission of connected gas analysis (Awite, Bieler & Lang (GMC Biogas 08), Chemec (BC20, BC30), Esders (Goliath Biogas), ExTox (ET-4D2, ET-8D), Fresenius Umwelttechnik (BioBasic), Pronova (SSM6000), Union Instruments (INCA, Kalorimeter))

E3DM Esters Energy Efficiency and Device Manager
Energy Management- and Configuration Software for Microsoft Windows (32 Bit)

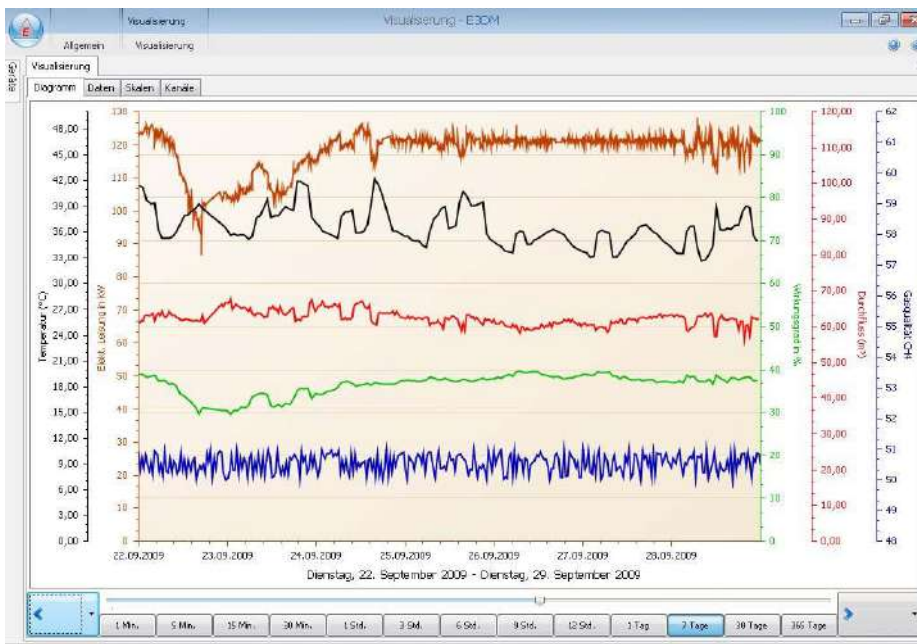
RECORDER (OPTIONAL) ring buffer 2 GB
data recorder for logging of measurement values over a period of several years.



INTERFACES

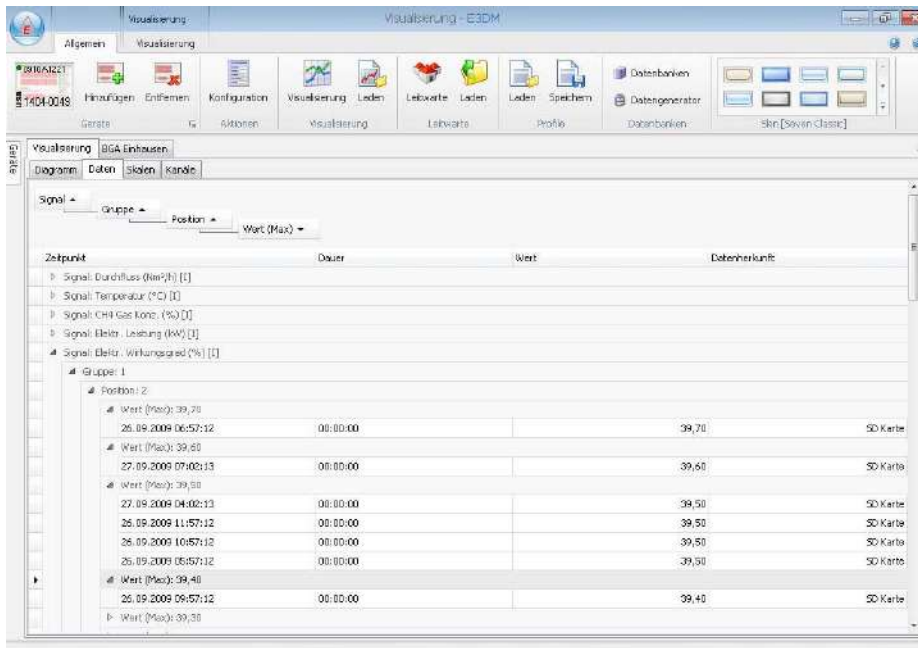
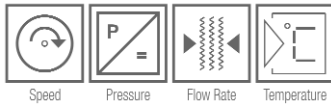
RS 232	9-pin connection for gas analysis
USB	Mini-USB connection (5-pin, USB 2.0) for configuration and data transfer through PC
CAN BUS (OPTIONAL)	internal communication of up to 12 curable devices
PROFIBUS DP (OPTIONAL)	data transmission via PROFIBUS DP protocol
MODBUS RTU (OPTIONAL)	data transmission via Modbus RTU protocol
MODBUS TCP (OPTIONAL)	data transmission via Modbus TCP protocol
ETHERNET TCP/IP (OPTIONAL)	integration into the IT network for configuration and data transfer by PC

Software E3DM - Esters Energy Efficiency and Device Manager



The graphic visualization of the measured values continuously recorded in the ring buffer can be freely configured by the user. In the illustration the following measured values are displayed:

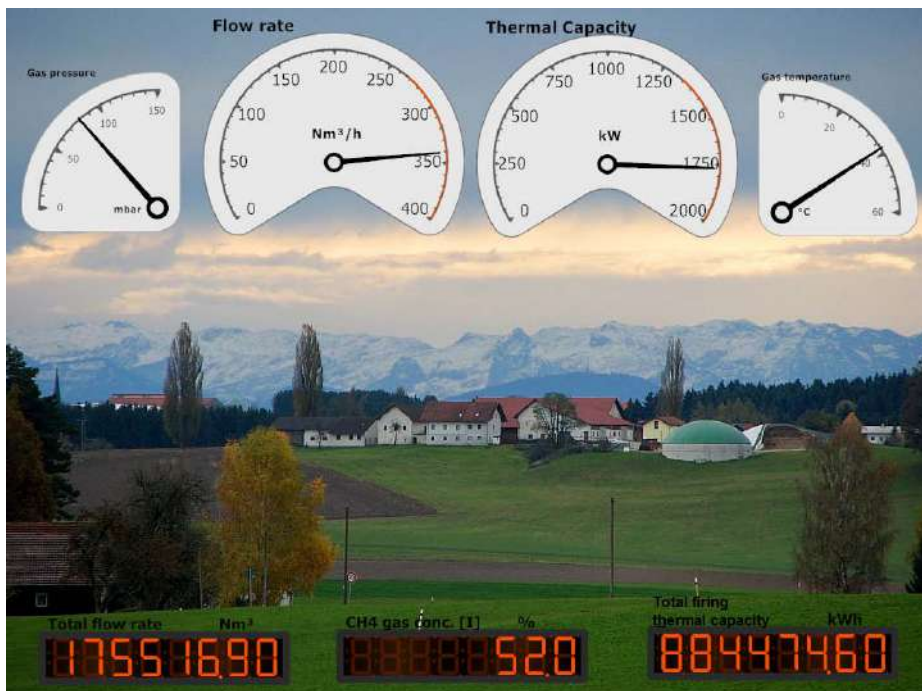
- efficiency factor in %
(Wirkungsgrad in %)
- flow (m³)
(Flow rate m³)
- gas quality (CH₄)
(Gasqualität (CH₄))
- electrical capacity in kW
(elektrische Leistung in kW)
- temperature in °C
(Temperatur in °C)



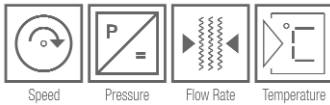
In the tabular visualization of the measured values continuously stored in the ring buffer the reported data can be assorted with multi-level column sort.

The illustration shows the data arranged according to signal and height of the measured values.

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In the master display the actual measured values are mapped. The amount of the displayed values and the graphical illustration can be adjusted individually.



Order information and type overview

The ordering code consists of the device type DC 6000 and an 8-digit code, which is divided into 2 sections with four points.

DC 6000-xxxx-00yy

In the following tables the first four points are defined according to the desired equipment. The fifth and sixth positions are already defined by digit sequences. The last two digits define the content of functions (such as ring buffer, interfaces for industrial bus systems).

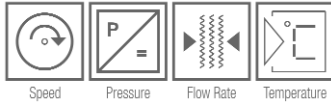
Example:

DC 6000-0670-001C M104

The DC 6000 has 8 mA-inputs, 6 digital inputs and 2 limit monitors. The unit is also equipped with the optional functions PROFIBUS DP interface, Ethernet TPC/IP interface, a 2 GB ring buffer and is built into the field housing M104 for wall mounting.

mA-input

DC 6000-xxxx-00yy	0410	0418	0430	0438	0470	0478	0670	0678	0730	0738
INPUTS										
1: 0 (4) - 20 mA, 2/3-wire	●	●	●	●	●	●	●	●	●	●
2: 0 (4) - 20 mA, 2/3-wire	●	●	●	●	●	●	●	●	●	●
3: 0 (4) - 20 mA, 2/3-wire			●	●	●	●	●	●	●	●
4: 0 (4) - 20 mA, 2/3-wire			●	●	●	●	●	●	●	●
5: 0 (4) - 20 mA, 2/3-wire					●	●	●	●		
6: 0 (4) - 20 mA, 2/3-wire					●	●	●	●		
7: 0 (4) - 20 mA, 2/3-wire					●	●	●	●		
8: 0 (4) - 20 mA, 2/3-wire					●	●	●	●		
DIGITAL INPUTS										
Number of digital inputs							6	6	10	10
LIMIT MONITORS (RELAYS)										
Number of N/O contacts	2	2	2	2	2	2	2	2	2	2
SOFTWARE										
Integration of gas analysis		●		●		●		●		●
Power supply: 24 V, DC	●	●	●	●	●	●	●	●	●	●
USB & RS 232	●	●	●	●	●	●	●	●	●	●
Software E3DM	●	●	●	●	●	●	●	●	●	●



mA-input and pulse input

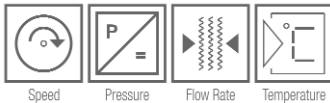
DC 6000-xxxx-00yy	0014	0034	0074
INPUTS			
1: 0 (4) - 20 mA, 2/3-wire	●	●	●
2: Impulse	●	●	●
3: 0 (4) - 20 mA, 2/3-wire		●	●
4: Impulse		●	●
5: 0 (4) - 20 mA, 2/3-wire			●
6: Impulse			●
7: 0 (4) - 20 mA, 2/3-wire			●
8: Impulse			●
DIGITAL INPUTS			
Number of digital inputs			
LIMIT MONITORS (RELAYS)			
Number of N/O contacts			
Power supply: 24 V, DC	●	●	●
USB & RS 232	●	●	●
Software E3DM	●	●	●

mA-input and Volt input

DC 6000-xxxx-00yy	0672
INPUTS	
1: 0 (4) - 20 mA, 2/3-wire	●
2: 0 (4) - 20 mA, 2/3-wire	●
3: 0 (4) - 20 mA, 2/3-wire	●
4: 0 (4) - 20 mA, 2/3-wire	●
5: 0 (2) - 10 V, 2 mA	●
6: 0 (2) - 10 V, 2 mA	●
7: 0 (2) - 10 V, 2 mA	●
8: 0 (2) - 10 V, 2 mA	●
DIGITAL INPUTS	
Number of digital inputs	6
LIMIT MONITORS (RELAYS)	
Number of N/O contacts	2
Power supply: 24 V, DC	●
USB & RS 232	●
Software E3DM	●

Volt input

DC 6000-xxxx-00yy	0411	0431	0473	0731	0673
INPUTS					
1: 0 (2) - 10 V, 2 mA	●	●	●	●	●
2: 0 (2) - 10 V, 2 mA	●	●	●	●	●
3: 0 (2) - 10 V, 2 mA		●	●	●	●
4: 0 (2) - 10 V, 2 mA		●	●	●	●
5: 0 (2) - 10 V, 2 mA			●		●
6: 0 (2) - 10 V, 2 mA			●		●
7: 0 (2) - 10 V, 2 mA			●		●
8: 0 (2) - 10 V, 2 mA			●		●
DIGITAL INPUTS					
Number of digital inputs				10	6
LIMIT MONITORS (RELAYS)					
Number of N/O contacts	2	2	2	2	2
Power supply: 24 V, DC	●	●	●	●	●
USB & RS 232	●	●	●	●	●
Software E3DM	●	●	●	●	●



Relay input

DC 6000-xxxx-00yy	0000	0400	0C00	0C08	1C00	1C08	6400	6408	4008	C000	C008	0780
DIGITAL INPUTS												
Number of digital inputs												14
LIMIT MONITORS (RELAYS)												
Number of N/C contacts							2	2				
Number of N/O contacts		2	4	4	8	8	2	2				2
Number of changers							2	2	2	4	4	
SOFTWARE												
Integration of gas analysis				●		●		●	●		●	
Power supply: 24 V, DC	●	●	●	●	●	●	●	●	●	●	●	●
USB & RS 232	●	●	●	●	●	●	●	●	●	●	●	●
Software E3DM	●	●	●	●	●	●	●	●	●	●	●	●

Optional device functions and housings

GDR 1404-xxxx-00	
0	without option
1	PROFIBUS DP interface
2	Modbus RTU interface
4	Modbus TCP interface
0	without option
1	CAN bus interface
4	Ethernet TCP/IP interface
5	CAN bus, Ethernet TCP/IP interface
8	ring buffer 2 GB (data recorder)
9	ring buffer 2 GB (data recorder), CAN bus interface
C	ring buffer 2 GB (data recorder), Ethernet TCP/IP interface
D	ring buffer 2 GB (data recorder), CAN bus, Ethernet TCP/IP interface

HOUSING	
M104	field housing for wall mounting, protection class IP65
M105	field housing with Ex zone for wall mounting, protection class IP65
M112	switchboard door housing, protection class IP30
M122	portable housing, protection class IP30
M113	switchboard door housing, protection class IP65
M123	portable housing, protection class IP65