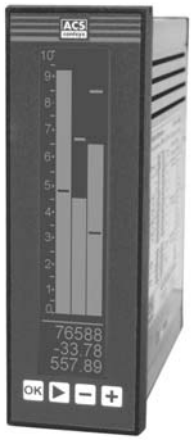
Digital Indication and Evaluation Device DDM / DDF / DXM / DXF

for 0..20 mA, 4..20 mA, 0..10 V, PT-100 or mV-differential signals

with sensor feeding and 4 limit values

DDM / DXM



DDF / DXF

+ LCD-graphic display with negativ-red indication
+ variable illumination itensitiy
+ selectable number of bar graphs: one, two or three bars
+ Linearization with 25 points possible
+ different input signals, intrinsically save possible
+ Galvanically separated analog output
+ Tendency switchable on relay outputs
+ Damping up to 99 sec. possible
+ Front panel mounting type M (48 x 144 mm / 144 x 48 mm)
+ With high quality of reading
+ Cleartextprogramming German and English
+ free scaling: input - display / display - analog output
+ Programming interface RS232 for PC
+ Sensor feeding 24V and 5V intrinsically save
+ Free programmable 4 relay outputs
+ Fault indicator relay
+ Saving static (without battery)
+ Housing for wall mounting IP66 type F
+ Overvoltage protection for sensor connection for version DDF-400 / DDF-420 / DXF-400 available

Version DDM-400 / DDF-400: One-channel evaluation device with analog output
Version DDM-420 / DDF-420: Two-channel evaluation device
Version DXM-400 / DXF-400: Three-channel evaluation device with mathematical function on the two input channels, with analog output output channel

Using:

The devices DDM-400 / DDM-420 / DXM-400 and the versions in the housing for wall mounting DDF-400 / DDF-420 / DXF-400 are made for evaluation, mathematical function, indication, evaluation at 4 relays and converting into standardized galvanically separated analog output.
The input can be connected to as well as current 0..20mA and voltage 0..10V. Optionally the device can evaluate Pt-100 resistors from –100..+500°C, mV-differential signals from ±30 mV_{diff} and frequency signals.
The different analog output signals are currents 0..20 mA, 4..20 mA, 20..0 mA, 20..4 mA or voltages 0..10V, 10..0V.
It is possible to put free programmable switch points with separate programmable hysteresis on the inputs or the mathematic function channel.
The device has two integrated current limited sensor feedings with 5V DC and 24V DC.
You can free scale the convert: input on display or: display on analog output. Because of scaling input on display the filling of a tank can be measured for e. g. in litres. With the integrated linearization (max. 25 linearity points) it is possible to linear the input and output signals, e. g. for calculation of volume in conical or lying cylindrical tanks.
On the input signals can be programmed an integration time from 0...99 sec., for blanking out wave movements in the tank. The device possesses a tendency evaluation in form of an indication on the display (with arrows) and as relay outputs (1 relay for tendence increasing, 1 relay for tendence decreasing).
The programming happens in cleartext process in german or english language through the membrane keyboard on the front in connection with the LCD-display.
All functions and adjustments are made from a micro-processor in connection with the LCD-display, because of that the cleartext processing is very easy. The programming of parameter and configuration values with programming interface is possible by using the programming tool. The programmed data will be saved durable in an EEPROM.

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Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
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Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

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Technical data

Auxiliary power:	230V AC +/-10%, 50 - 60Hz,	power input < 9 VA, dependent on version and options
	24V DC +/-10%,	power input < 9 W, dependent on version and options
Inputs:	voltage input	measure span 0 to 10,5V, max. +/-14V, Burd > 250kΩ
	current input	measure span 0 to 21 mA, max. +/- 50 mA, Burd = 59Ω ± 1%
	mV input	measure span +/- 31,5 mV_{diff}
	PT-100 input	measure span –130 to +530°C, sensor supply 2x 0,8 mA
	frequency input	on inquiry
Scale:	Zoom (turn-down)	max. 1:30 = min. measure span 3,3%
	increase of zero shift	max. 96,5%
Correctness:	resolution of input signals	16 bit, equals 65536 steps
	deviation of linearity	<0,02% from the measurement end value
	deviation of temperature	<0,03%/10K from the measurement end value
	basis differ	<0,05% from the measurement end value
Sensor supply:	up to two channel, every 1x supply A and 1x B, max. current every channel >23 mA current limited	
Supply Standard:	sensor supply A	24 V DC +/-7%, max. 23 mA, current limited
	sensor supply B	5 V DC +/-0,5%, max. 23 mA, current limited
Supply intrinsically save: ⟨Ex⟩	sensor supply A	20,4V +/-5%, max. –90 mV every 1 mA load
	sensor supply B	5V +/-0,5%, max. -0,4 mV every 1 mA load
Outputs:	voltage output, can be inverted	0..10V min. Burd 5 kΩ
	current output, can be inverted	0..20 mA / 4..20 mA max. Burd 800 Ohm
Scale:	zoom (turn-down)	max. 1:30 = min. measure span 3,3%
	increase of zero shift	max. 96,5%
Correctness:	resolution of output signals	16 bit, equals 65536 steps
	deviation of linearity	<0,02% from the measurement end value
	deviation of temperature	<0,03%/10K from the measurement end value
	basis differ	<0,05% from the measurement end value
Relay outputs:	switching outputs	4 x relays (changer)
	max. capacity	440 V AC / 300 V DC / 5A / 2000 VA / 50 to 220W
	operation mode	working or quiescent current (programmable)
	hysteresis	free programmable
Interface:	optional programming interface RS232 for PC, for up- or download of configuration or prarameter values. Use only with programming tool GM-400	
Indication:	LCD-graphic display 42x200 dot`s, negative-red indication, backlight can be adjusted in 5 steps (0 = dark over 1, 3, 7 to F = bright) by rotary encoding switch at the top of housing (type M) or under frontpanel (type F).	
Operating:	Parametration and configuration happens via 4 keys on the front.	
ambient conditions:	ambient temperature	-20...65°C
	storage temperature	-20...70°C
EMV-Norms:	emission	appropriate EN 50081-1
	imission	appropriate EN 50082-2
Over voltage protection:	only for housing for wall mounting, every pin from analog input and sensor feeding to PA-pins (31,32)	
(only type F)	max. signal voltage	30V (peak value)
	nominal discharge peak current	2500A (wave 8/20μs)
Housing:		
Front panel mounting (type M):	protection	front IP54, housing IP20, clamps IP00
	dimension type V (HxWxD)	144 mm x 48 mm x 137 mm (without clamps)
		144 mm x 48 mm x 146 mm (with clamps)
⟨Ex⟩	dimension	144 mm x 48 mm x 175 mm
	weight:	230 V AC - version: 800g
		24 V DC - version: 580g
	material:	PVC and ABS
For wall mounting (type F):	kind of protection	IP66
	dimension without PG (HxWxD)	236,7 mm x 185 mm x 136,5 mm
	dimension with PG (HxWxD)	265,7 mm x 185 mm x 136,5 mm
	weight:	230 V AC - version: 2050g
		24 V DC - version: 1850g
	material	ABS and Polycarbonat
Connection:		
Front panel mounting:	screw connector, plugable, 6-/4 pin	0,2 bis 2,5 mm^2, rigrid or flexibele
Housing for wall mounting:	pins 1 to 30, 33 to 38	0,2 bis 2,5 mm^2, rigrid or flexibele
	pins 31, 32	0,2 bis 4,0 mm^2, rigrid or flexibele
Data intrinsically save: ⟨Ex⟩	certificat	II (2) G D [EEx ib] IIC or IIB
	sensor feeding 24V	U_o = 23,1V / I_o = 34 mA / P_o = 780 mW / C_i < 1 nF
	sensof feeding 5V	U_o = 5,9V / I_o = 34 mA / P_o = 200 mW / C_i = 230 nF
	sensor measurement current	U_o = 5,9V / I_o = 3 mA / P_o = 10 mW / C_i < 1 nF / L_i < 1 mH
	supply 24V + sensor measurement current	U_o = 23,1V / I_o = 37 mA / P_o = 850 mW / C_i < 1 nF / L_i < 1 mH
	supply 5V + sensor measurement current	U_o = 5,9V / I_o = 37 mA / P_o = 210 mW / C_i = 230 nF / L_i < 1 mH
	max. extern voltage	U_m = 253 V AC
	max. extern temperature	$T_a \leq$ 65°C

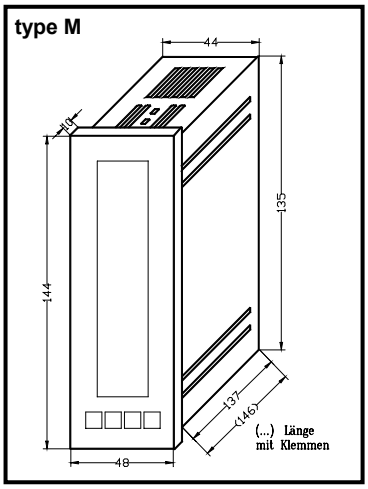
Digital Indication and Evaluation Device DDM / DDF / DXM / DXF

for 0..20 mA, 4..20 mA, 0..10 V, PT-100 or mV-differential signals

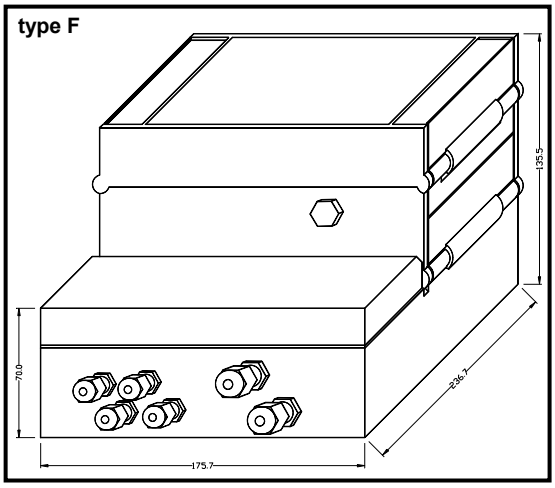
with sensor feeding and 4 limit values

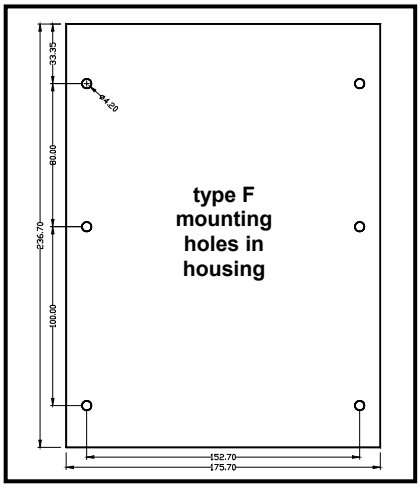
dimension / connetion verifiying

type M



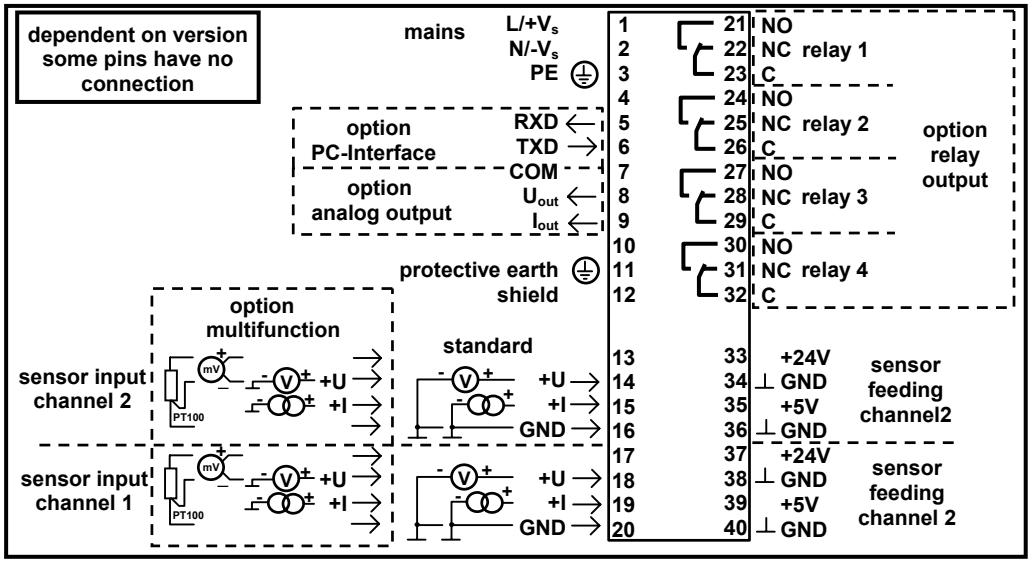
type F





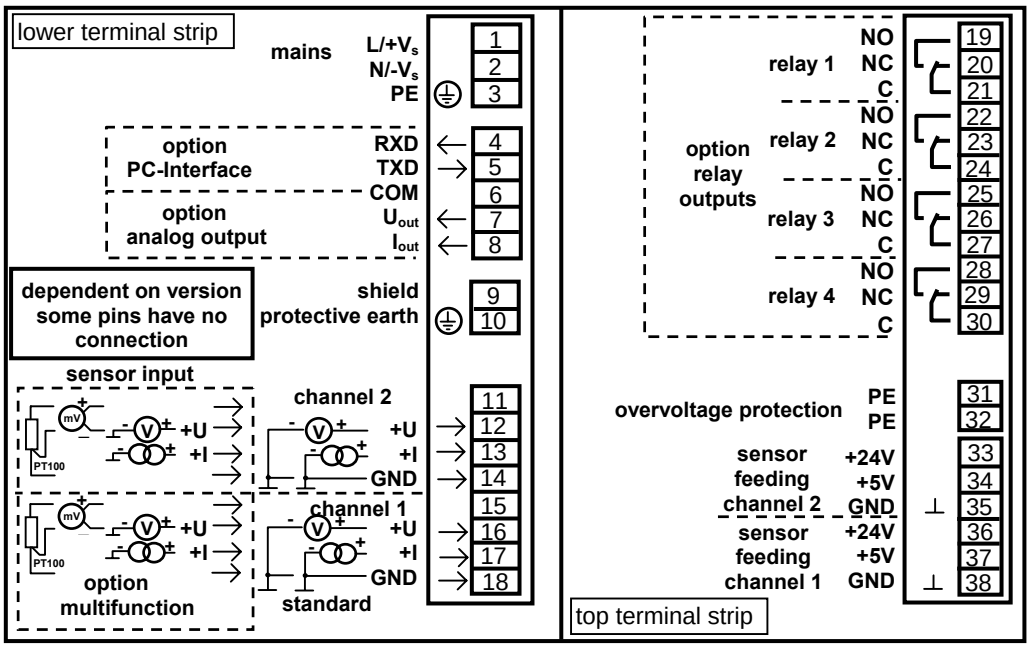
DDM – 400
DDM – 420
DXM – 400

The illustration shows a device of the type DXM – 400



DDF – 400
DDF – 420
DXF – 400

The illustration shows a device of the type DXF – 400



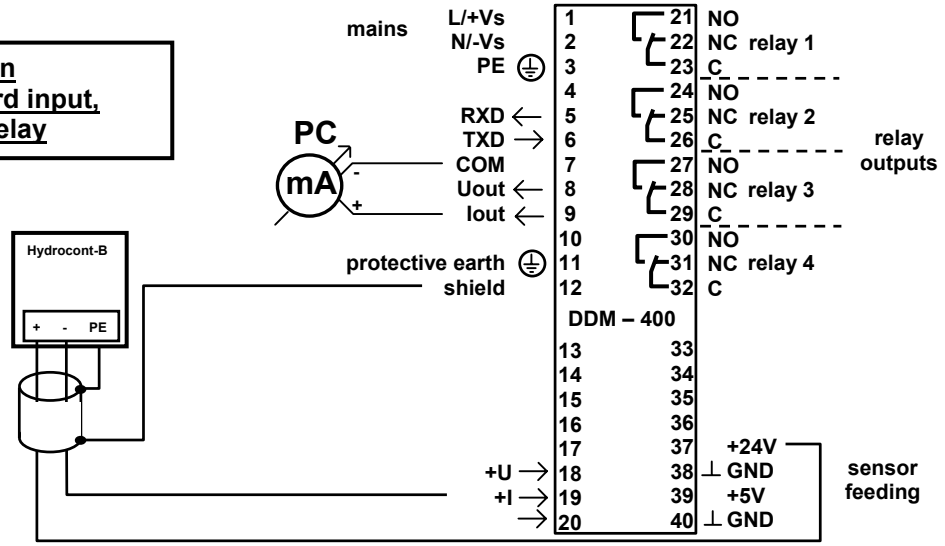
Assembly, electrical installation and inauguration, maintenance:

Assembly, electrical installation, inauguration, operation and maintenance of the device must be carried out by an qualified employee.
The electrical installation of the device must be carried out according to the respective country specific standards.
An incorrect assembly or adjustment could cause applicationally conditioned risks. The device is maintenance free.

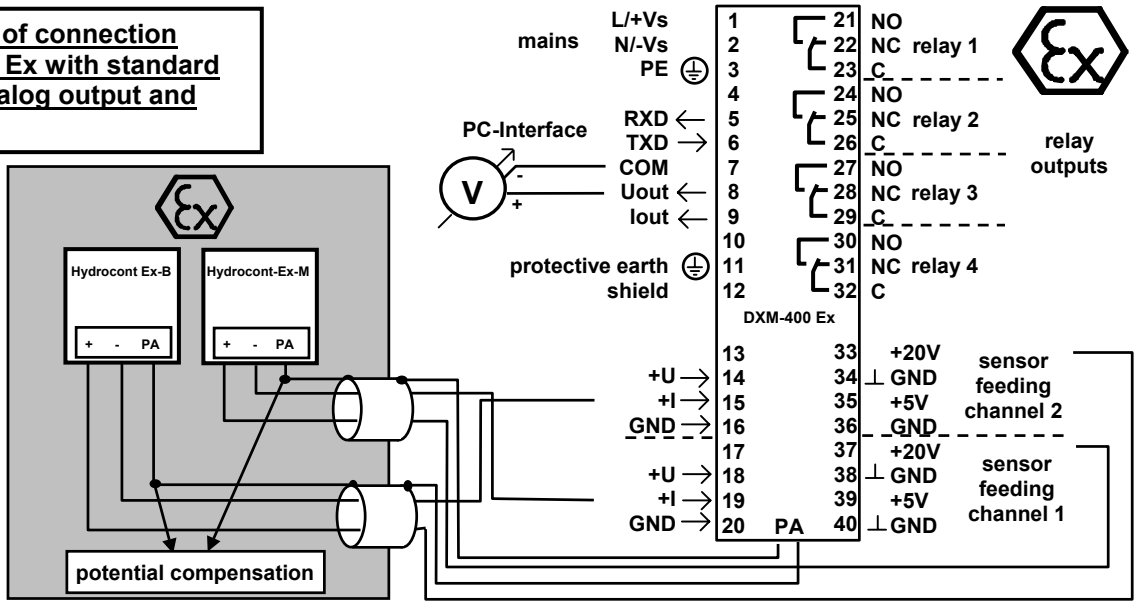
Use only shielded, single side earthed, signal and measurement wires and install these wires separated from power leading wires (mains and relay connection wires). The protective earth at clamp 11 (type D_M) or 10 (type D_F) should be positioned separately from the protective earth connection of mains and leaded as short as possible to protection earth. Do so also with the PE clamps 31 / 32 of the overvoltage protection (only type D_F). If inductive loads, e.g. contractors are connected to the relay output, an RC protection circuit must be used to avoid high voltage peaks, because they could influence the properly function of the device.

The device meets the legal requirements of the EC-guidelines. CE 0032

Example of connection DDM-400 with standard input, analog output and 4 relay



Example of connection DXM-400 Ex with standard input, analog output and 4 relay



Safety notes:

If a device is installed and operated in a hazardous area, the general Ex construction standards (EN60079-14, VDE0165), this safety notes and the enclosed EC conformity certificate must be observed. The assembly of an Ex system must be carried out principally by specialist staff. Keep the relevant safety instructions for the explosion protection.

The devices meets **II (2) G D [EEx ib] IIC or IIB Ta ≤ +65°C**

If the intrinsically save circuit is leaded to a dust explosion dangerous area zone 21, insure that the devices that are connected to this circuit fulfils the instructions for category 2D and are already certified.

The two clamps PA at the bottom of the device at type D_M or the two clamps 31 / 32 at the type D_F must be connected to the potential compensation of the Ex-area.

All intrinsically save clamps at type D_M (13-16 / 17-20 / 33-36 / 37-40) must be covered with the enclosed clamp housings. These clamps may only be plugged by their clamp numbers (placed already on the back of the housing). Because of wrong plugging of the clamps (intrinsically save and not intrinsically save clamps) there is the danger of removing intrinsically safety

meaning of display parts and keys / different views of the display

limit values:
The limit values are shown as strokes in the allocated bar graph.

bar graph:
When the display is configured without state field, the bar graph (incl. limit values) is shown with 160 segments, when using the state field only 100 segments.
Dependent on the configuration one, two or three bar graphs.

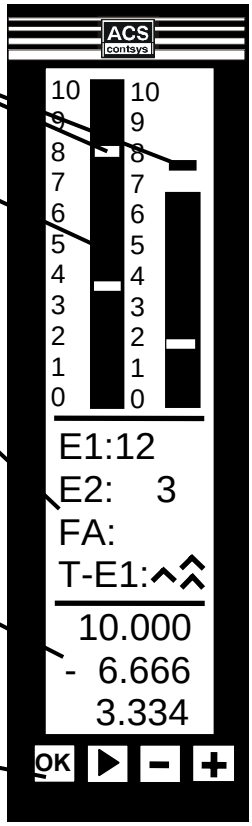
state field (if activated):
In the upper three rows the activated relays of the allocated channel are shown.

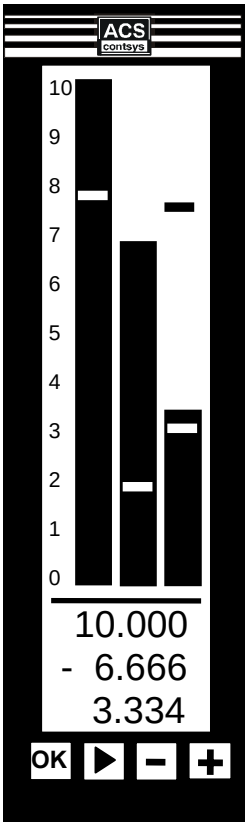
In the next row the tendency with the allocated channel is displayed.
arrows up ➔ rising tendency / arrows down ➔ decreasing tendency
one arrow: tendency value exeeded / double arrow: double tendency value exeeded.
If no channel or if a stroke is displayed, the tendency evaluation is deactivated.

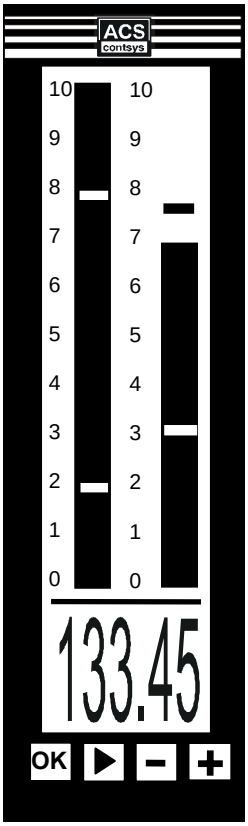
digital value
displayed in the choosen scale. Dependent on configuration one, two or three values.
upper value ➔ input 1 / middle value ➔ input 2 / lower value ➔ function output

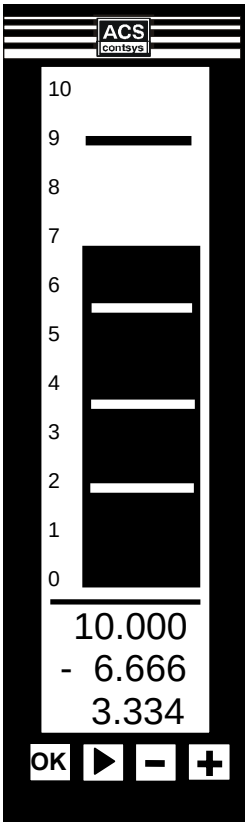
If the value that should be displayed is lower than –29999 or higher than 29999, e.g. if the choosen scale is unfavourable (independent of the decimal places), than the device shows
"....EEE...."
instead of the allocated value.

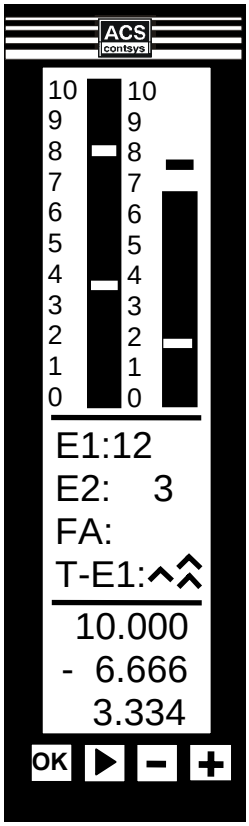
keyboard:
key "OK": jump into menues / leaving the change mode
key "▶": start change mode / step from number to number in change mode for values
key "-": cursor up / decreasing value in change mode
key "+": cursor down / increasing value in change mode





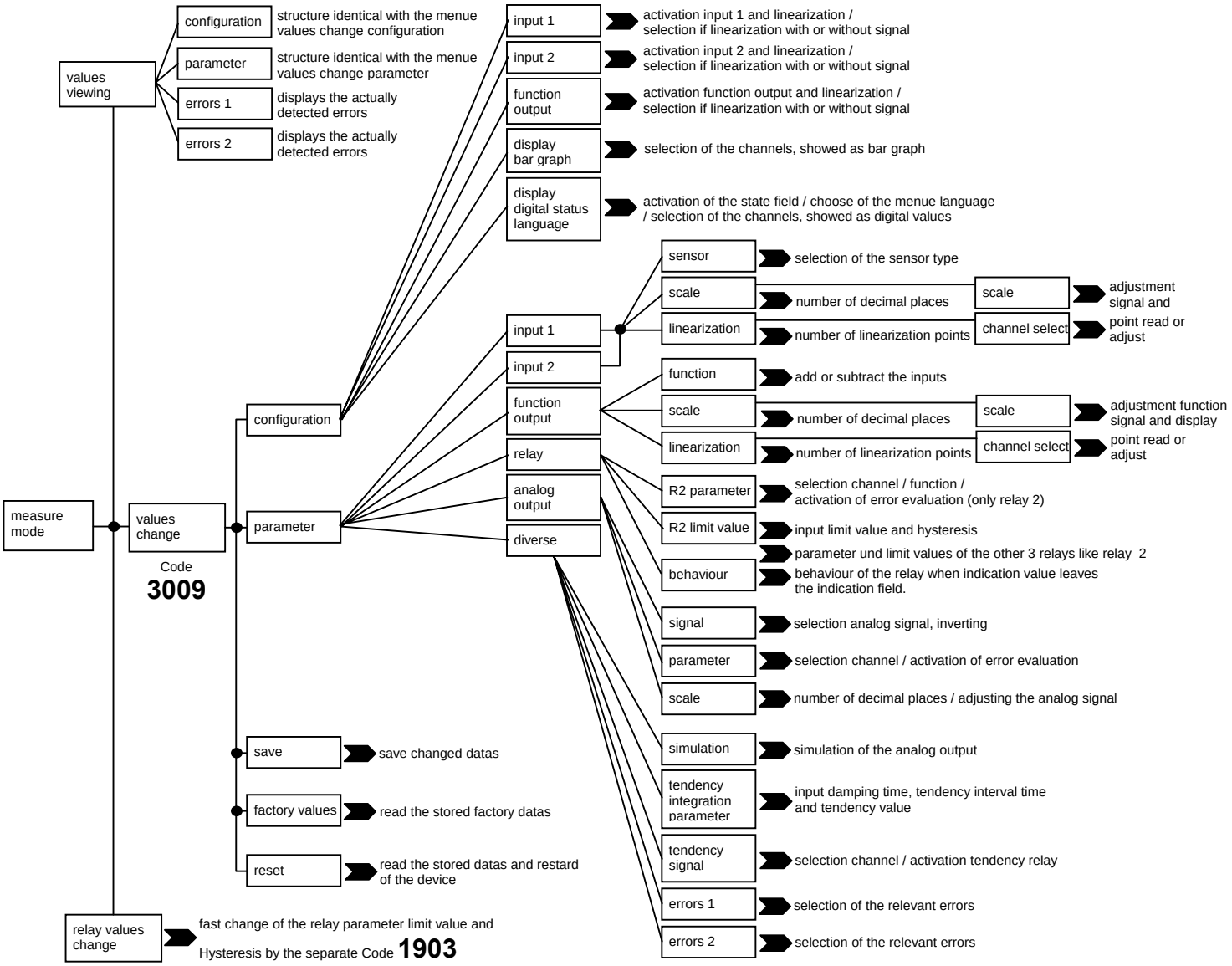






menue short structure / using manue

Dependent on version and options, some of the following described functions are not chooseable.



Use the key **„OK“** to enter the **main menue**. From here **each menue** can be selected, using the keys **„+“** or **„-“** and entered, using the key **„OK“**. Changings can only be made in the menue structure „values change“, but the relay datas also, using the menue „relay values change“.
In each menue you can find the button . Activating this button, using the key **„OK“** switches to the menue **before**.
Configuration and **parametration** are executed by two ways. Either activation or deactivation of an option by a square or the adjustment of a changeable value.
To activate an option, select at first this option with the keys **„+“** or **„-“** and **activate** the **change mode**, using the key **„>“**. Now by using the keys **„+“** bzw. **„-“,** the option can be activated or deactivated or the value can be increased or decreased number by number. In the case of a **multiple option selection** it is necessary to deactivate at first the actual option before activating an option positioned under the actual option.
When adjusting an value, you can step from **number to number**, using the key **„>“**. If you want to change the **polarity sign**, step to the place left of the value by **multiple** using the key **„>“**. Now the polarity sign can be changed, using the keys **„+“** or **„-“.**
By using the key **„OK“** you can **leave** now the **change mode**.
All changes are **taken over** by the device **at once** but they are **not** jet stored.
Only by activating the menue „**save**“ in the menue „values change“ the changed datas will be saved **durable**.

adjusting inputs (input 2 not chooseable for DDM-400 / DDF-400)

activation: values change ➔ configuration ➔ input 1 (or input 2)

Activate here the allocated input. Input 1 is always active and can't switched off.

select sensor: values change ➔ parameter ➔ input 1 (or input 2) ➔ sensor

Select here the desired sensor (0..10 V / 0..20 mA / mV_{diff} / PT100). Only one sensor can be activated.

decimal places: values change ➔ parameter ➔ input 1 (or input 2) ➔ scale

Select here in the field **display** the number of decimal places (max.3) that should be indicated at the display

tip: The number of decimal places in the field **signal** belongs to the sensor signal and shows the accuracy of the measurement value in the following scaling menue.
Dependent on the choosen sensor, this value changes automatically. You can't change this value.

adjustment: values change ➔ parameter ➔ input 1 (or input 2) ➔ scale ➔ scale

Input here the desired sensor signal field and the allocated indication value field.

Input the sensor signal in the fields **signal 0% and 100%** in correct physical unit (mA, V, mV oder °C), e.g. for a desired sensor signal from 6..15 mA in the field signal 0% 06.000 and in the field signal 100% 15.000.
Input the indication values in the fields **display 0% and 100%** that should be displayed at the selected sensor signals 0% and 100%.
If you want to adjust the input with a connected sensor, than input at first the desired indicator values in the fields **display 0% and 100%**. Than set the sensor zero signal at the connected sensor and adjust the value in the field **signal 0%** as long as the allocated value below the menues displayes the same value as in the field **display 0%**.
Than set the sensor end signal at the connected sensor and adjust the value in the field **signal 100%** as long as the allocated value below the menues displayes the same value as in the field **display 100%**.

adjusting function output (only chooseable for DXM-400 / DXF-400)

function: values change ➔ configuration ➔ function output ➔ function

Choose here, if nput 2 should be **subtracted (difference)** from input 1➔ **E1-E2** or if the two inputs should be **added** ➔**E1+E2**. Choose only one function.

decimal places: values change ➔ parameter ➔ function output ➔ scale

Input here in the field **signal** the number of decimal places (max. 3) with which the calculation result is produced and processed.

Input here in the field display the number of decimal places (max. 3) which should be shown at the display.

adjustment: values change ➔ parameter ➔ function output ➔ scale ➔ scale

Input here the calculating result field and the concerning indicator value field.

Input in the fields **function signal 0% and 100%** this values, between which the **calculated result** (E1-E2 or E1+E2) can lie. This values can be discovered by computing or because of experience.
The device calculates the indicator values (incl. decimal places) of the inputs.
Input the indication values in the fields **display 0% and 100%** that should be displayed at the selected funcition signals 0% and 100%.
If you want to adjust the function output with connected sensors, than input at first the desired indicator values in the fields **display 0% and 100%**. Than set this signal at the connected sensor those difference or sum is equal to the desired zero difference or zero sum and adjust the value in the field **function signal 0%** as long as the callocated value below the menues displayes the same value as in the field **display 0%**.
Than set this signal at the connected sensor those difference or sum is equal to the desired end difference or end sum and adjust the value in the field **function signal 100%** as long as the allocated value below the menues displayes the same value as in the field **display 100%**.

linearization

activation: values change ➔ configuration ➔ input 1 (or input 2, function output)

Switch here the linearization calculation of the allocated channel active

Choose here, if you want to execute the linearization with or without a connected sensor
If you want to display an existing linearization point switch on **without signal**.

number of points: values change ➔ parameter ➔ input 1 (or input 2, function output) ➔ linearization rising (of decreasing)

Input here the number of linearization points for each channel. You can share 25 points among the three channels

select channel: values change ➔ parameter ➔ input 1 (or input 2, function output) ➔ linearization rising (of decreasing) ➔ channel select (next)

Choose here the channel, to which the next linearization point belongs to.

adjustment: values change ➔ parameter ➔ input 1 (or input 2, function output) ➔ linearization rising (of decreasing) ➔ channel select (next) ➔ input 1 (or input 2, function output)

You can here either visualize existing linarization points by activating the field **read** or you can adjust and save any one of the points.

If the linearization is executed rising, the first point shown in the field **point number** is 01, the next 02, etc. till the last allocated point. If the linearization is executed decreasing the last point is shown here first and will be automatically decreased by one till 01.
You can already input any point here for a separate adjustment.

On linearization **with signal**, the **actual sensor signal value** is shown in the field **signal**.
On linearization of the function output **with signal**, the **actual calculation value** is shown in the field **signal**.
You can **not** change these values.
On linearization **without signal**, input the **desired sensor signal value**, **not** the indicator value in the field **signal**.
On linearization of the function output **without signal**, input the desired calculation value of the two inputs in the field **signal**.

Input the desired value of the allocated channel that should be shown in the digital indicator area at this linearization point in the field **display values**.

The linearization points should lay within but can also lay besides the sensor signal field of the allocated channel.
Don't choose a linearization point that is equal to the 0% and 100% value of the sensor signal

Save at least the data of the linearization points by activating the field **save**.

damping

adjustment: values change ➔ parameter ➔ diverse ➔ tendency integration parameter

In many applications it's necessary to damp the input signals, e.g. strongly wave movements caused by a stirring engine.

By increasing the value in the field **signal integration** (to maximal 99) the signal gets more and more artificially damped. After the selected time in seconds, a step of the input signal is also carried out to the indication value

relay

selection: values change ➔ parameter ➔ relay

➔ R1parameter (or R2parameter, R3parameter, R4parameter

Choose here to which channel the relay referes. Choose only one channel.

Choose here, if the allocated relay should work in quiescent or working current principle.
working current principle = relay switches on when the refered signal exceeds the limit value.
quiescent current principle = relay switches off when the refered signal exceeds the limit value. (INVERSE-function)
Before deactivating a relay (no channel choosen), switch off the refered INVERSE-funktion, because if not, the actual state of the relay is keept.

Choose here, only for relay 2, if it should work as fauld detection relais. This means that it will be activated if any one of the selected errors in the error evaluation occures.
If you choose relay 2 for the error evaluation, it will no more longer work in limit value function.

adjustment: values change ➔ parameter ➔ relay

➔ R1parameter (or R2parameter, R3parameter, R4parameter

Input here in the field **limit value** the **indication value of the allocated channel**, where the relay should be activated

Input here in the field **hysteresis** the value, by which the indication value of the allocated channel must be decreased to switch off the relay

behaviour: values change ➔ parameter ➔ relay ➔ behaviour

Choose here the reaction of each relay, if the indication value leaves the selected indication field of the allocated channel.
If for one relay nothing is choose, the relay keeps it's status.
If **ON** is choosen, the relay switches on, if **OFF** is choosen, the relay switches off.
Do not choose **ON** and **OFF** together.

display

bar graph: values change ➔ configuration ➔ display graphic bar

Choose here, which channel should be indicated as bar graph.
The length of the bar graph is automatically adjusted on the indication field of the related channel. The order of the bar graphs is from left to right: input 1, input 2 and function outout.

Choose here the direction of the indicated scale besides the bar graph. If deactivated, the 0-marking of the scale will be placed at the top and the 10-marking at the bottom of the display. Only the scale, not the bar graph is inverted.

digital value: values change ➔ configuration ➔ display digital status language

Choose here, which channel should be indicated as digital value at the bottom of the display. The order of the digital values from top to bottom is: input 1, input 2 and function output
If only one channel is choosen, it's indication value is shown as big digital value (look page 5).

state field: values change ➔ configuration ➔ display digital status language

Choose here, if the additional state field should be displayed.
A description of the state field is shown within the description of the display elements at the page 5.

menue language: values change ➔ configuration ➔ display digital status language

Choose here the language of the menue. You can choose between german and english

analog output

(not chooseable for DDM-420 / DDF-420)

signal selection: values change ➔ parameter ➔ analog output ➔ signal

Choose here the requested analog signal.
Possible is 0..20 mA, 4..20 mA, 20..0 mA, 20..4 mA, 0..10V, 10..0 V. Choose only one signal.

selection: values change ➔ parameter ➔ analog output ➔ parameter

Choose here, to which channel the analog output allocates. Choose only one signal.

Choose her, if the analog output should work as fault indicator output. In that case, the voltage output signals 11 V oder the current output signals 22 mA if one of the choosen errors in the error evaluation occures.

adjustment: values change ➔ parameter ➔ analog output ➔ scale

Input here the area of the indication field of the choosen channel that should be signaled by the analog output.

Input here in the field **decimal** the number of decimal places with which the values below should be indicated.

Input here in the field **0%** the indication value of the allocated channel that forces the analog output to signal 0 V, 0 mA o 4 mA . This value has to be lower than the value in the field **100%**.

Input here in the field **100%** the indication value of the allocated channel that forces the analog output to signal 10 V or 20 mA.

simulation: values change ➔ parameter ➔ diverse ➔ simulation 0..10 V (or simulation 0..20 mA)

You can force the analog output so signal the selected value independent from the runnig measurement.
Dependent on the menue used to enter the simulation, the desired value is constantly provided in volt or milliampere.

tendency evaluation

selection: values change ➔ parameter ➔ diverse ➔ tendency signal

Choose here, which channel should be supervised by the tendency evaluation. Choose only one channel.

Choose here, if relay 3 should be activated if an upward tendency, or if relay 4 should be activated if a downward tendency is detected.
Relay 3 and 4 can also work in INVERSE-funktion.
If you choose relay 3 or 4 for the tendency evaluation, they will no more longer work in limit value function.

adjustment: values change ➔ parameter ➔ diverse ➔ tendency integration parameter

Input here in the field **tendency time** the time interval in seconds (5 to 29999s), in which the indication value of the supervised channel have to change by a choosen value to achieve a reaction of one of the tendency relays.

Input here in the field **tendency change** the value, by which the indication value of the supervised channel have to change whithin a choosen time to achieve a reaction of one of the tendency relays.

error evaluation

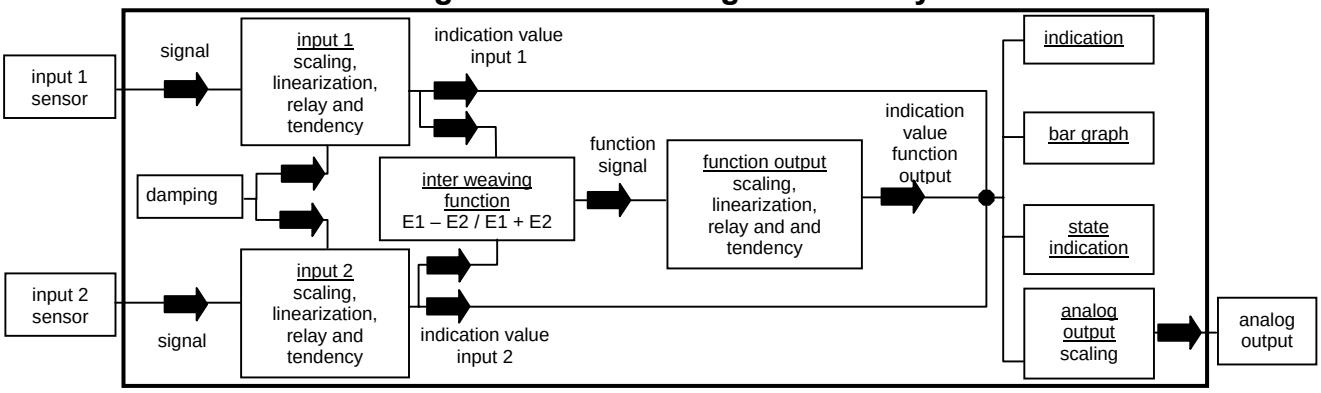
Error selection: values change ➔ parameter ➔ diverse ➔ errors 1 (or errors 2)

Choose here, which errors should result in a message on the display, relay 2 or on the analog output.

The sensor signal can be supervised on exceeding by more than 3% or fall below 18% (equivalent to 3,6 mA when using 4..20 mA – sensors) of the nominal measure range (0..10 V, 0..20 mA, ±30 mV, -100 °C..+500 °C) and the current analog output on wire breake down. In addition to this, the indication fields of the inputs, the function signal field of the function output and the choosed field for the analog output can be supervised on exceeding or falling down.
The actually detected errors are visualized in the following menue:

values viewing ➔ DXM state errors 1 (or errors 2)

internal signal schematic diagram / factory data



The device, depending on version and options, is provided with special factory datas.

Input 1: active, sensor 0...20 mA, signal 04.000 = indication 000.00 and signal 20.000 = indication 100.00 linearization not active, linearization with or without signal not active

Input 2: active, sensor 0...20 mA, signal 04.000 = indication 000.00 and signal 20.000 = indication 100.00 linearization not active, linearization with or without signal not active

Function output: active, funktion E1-E2, function signal from 000.00 to 100.00, scaled from 000.00 to 100.00, linearization not active, linearization with or without signal not active

Analog output: active, input 1, signal 4...20 mA from 000.00 to 100.00, error evaluation not active

Relay: all active on input 1 for limit value function with working current principe, limit values relay 1 = 020.00, relay 2 = 040.00, relay 3 = 060.00, relay 4 = 080.00, hysteresis: all relays 005.00, behaviour at measuring range exceeding: state will not be changed

Tendency evaluation: not active, tendency interval time 00005 seconds, signal changing value 0100

Damping: 01 seconds

Indication: indication of all available channels als bar graph and digital value , 0% scale below

State field: deactivated

Language: german

Error evaluation: fault indicator relay R2 not active, fault indicator output signal not active, all errors deactivated

order code DDM-400 / DDF-400

double channel indication and evaluation device with LCD-display and sensor feeding 5V and 24V

certificate
- **-** without certificate
- Ex certified according to ATEX100a: II (2) G D [EEx ib] IIC suited for zone 1***

type (for DDF-400 direction of the display)
- V vertical 144 x 48 x 137 mm
- H horizontal 48 x 144 x 137 mm *

power supply
- 0 230V AC
- 1 24V DC

function input
- 1 standard input ➔ voltage (0-10 V), current (0-20 mA)
- 4 standard input & +/-30 mV, PT-100 (-100° C to 500° C)
- 5 standard input & frequency *

function output
- 0 standard indicator
- 1 4 relay outputs
- 2 voltage / current output
- 3 4 relay outputs + voltage / current output
- 5 standard indicator with programming interface
- 6 4 relay outputs and programming interface
- 7 4 relay outputs + voltage / current output with programming interface
- 8 voltage / current output with programming interface

- S standard version
- Y special version

overvoltage protection
- 0 without overvoltage protection
- 1 with overvoltage protection

DDM-400	___	___	___	___	___	___	
DDF-400	___	___	___	___	___	___	___

* on inquiry
*** for DDF-400 on inquiry

accessories: programming tool type GM-400 programming software with programming interface cable

order code DDM-420 / DDF-420

double channel indication and evaluation device with LCD-display and sensor feeding 5V and 24V

certificate
- - without certificate
- Ex - certified according to ATEX100a: II (2) G D [EEx ib] IIC suited for zone 1***

type (for DDF-420 direction of the display)
- V - vertical 144 x 48 x 137 mm
- H - horizontal 48 x 144 x 137 mm *

power supply
- 0 - 230V AC
- 1 - 24V DC

function input
- 2 - 2 x standard input ➔ voltage (0-10 V), current (0-20 mA)
- 4 - 2 x standard input & +/-30 mV, PT-100 (-100° C to 500° C)
- 5 - 2 x standard input & frequency *

function output
- 0 - standard indicator
- 4 - 4 relay outputs
- 5 - standard indicator with programming interface
- 6 - 4 relay outputs and programming interface

- S - standard version
- Y - special version

overvoltage protection
- 0 - without overvoltage protection
- 1 - with overvoltage protection

DDM-420	___	___	___	___	___	___	
DDF-420	___	___	___	___	___	___	___

* on inquiry
*** for DDF-420 on inquiry

accessories: programming tool type GM-400 programming software with programming interface cable

order code DXM-400 / DXF-400

triple channel indication and evaluation device with mathematical function with LCD-display and sensor feeding 5V and 24V

certificate
- - without certificate
- Ex - certified according to ATEX100a: II (2) G D [EEx ib] IIC suited for zone 1***

type (for DXF-400 direction of the display)
- V - vertical 144 x 48 x 137 mm
- H - horizontal 48 x 144 x 137 mm *

power supply
- 0 - 230V AC
- 1 - 24V DC

function input
- 2 - 2 x standard input ➔ voltage (0-10 V), current (0-20 mA)
- 4 - 2 x standard input & +/-30 mV, PT-100 (-100° C to 500° C)
- 5 - 2 x standard input & frequency *

function output
- 0 - standard indicator
- 1 - 4 relay outputs
- 2 - voltage / current output
- 3 - 4 relay outputs + voltage / current output
- 5 - standard indicator with programming interface
- 6 - 4 relay outputs and programming interface
- 7 - 4 relay outputs + voltage / current output with programming interface
- 8 - voltage / current output with programming interface

- S - standard version
- Y - special version

overvoltage protection
- 0 - without overvoltage protection
- 1 - with overvoltage protection

DXM-400	___	___	___	___	___	___	
DXF-400	___	___	___	___	___	___	___

* on inquiry
*** for DXF-400 on inquiry

accessories: programming tool type GM-400 programming software with programming interface cable

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