

Bälz-electrodyn - BUSPILOTRONIC

baelz 6200

INTELLIGENT INSTRUMENTATION FOR CLOSED LOOP CONTROL

by Baelz microprocessors BUSPILOTRONIC as stand - alone,
 modem or bus - connected units for
 Heating - Ventilating - Air Conditioning (HVAC)
 Energy Generation + Heat Transfer Stations
 Process Industry - especially Textile + Food Industry



1. General information on Serie baelz 6200 BUSPILOTRONIC for closed loop control + basic applications



Fig. 1: Front view

00002021.bmp

Modular design with internal bus; easy - to - expand; just plug - in another card
 with 2 serial interfaces RS 232 / RS 485; 230 - 115 - 24V 50/60 Hz

Available housings:

Front panel mounting

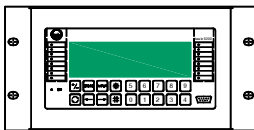
Fig. 2: For 4 cards - baelz 6200 - 192 - 4



00002021.wmf

192 x 96 x 180 mm

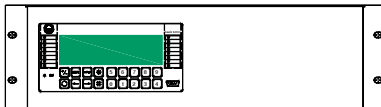
Fig. 3: For 5 cards - baelz 6200 - 9,5 - 5



00002031.wmf

270 x 133 x 210 mm

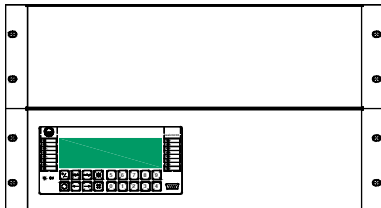
Fig. 4: For 10 cards - baelz 6200 - 19 - 10



00002026.wmf

483 x 133 x 210 mm

Fig. 5: For 13 cards - baelz 6200 - 19 - 13



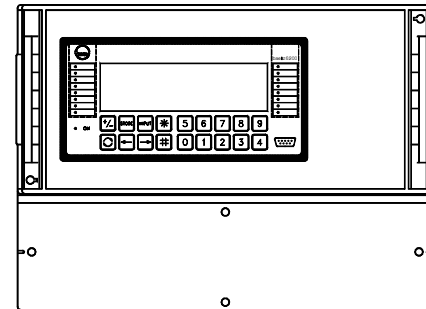
00002999.wmf

483 x 266 x 210 mm

Rights reserved to make technical changes

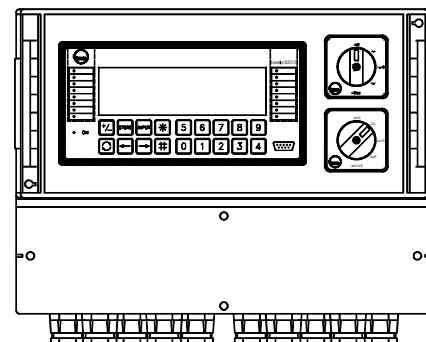
wall mounting

Fig. 6: For 4 cards - baelz 6200 - W4



323 x 237 x 262 mm

00002254.wmf

 Fig. 7: For 4 cards - baelz 6200 - W4
 and handswitch + corr. pot.


323 x 237 x 262 mm

00003087.wmf

BAE LZ CORE ACTIVITY and the 5 main product groups

① **BAELZ $\hat{=}$ SES***
 *Steam Engineering Specialist
 realizing the closed steam
 condensate circuit with
 condensate outlet control and
 controllable nozzle ejectors

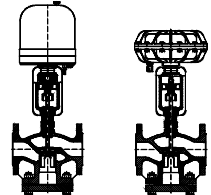
② Closed loop control and
 automation



00002458.wmf

Bälz-electrodyn

③ Control valves

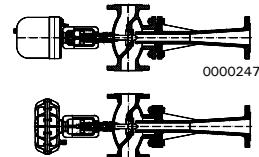


00002477.wmf

00002478.wmf

Bälz-electrodyn

④ Controllable nozzle ejectors

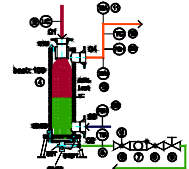


00002472.wmf

00002473.wmf

 Bälz-hydrodynamic
 Bälz-vapordynamic

⑤ Heat-exchangers,
 also skid mounted



00002761.wmf

Bälz-thermodynamic

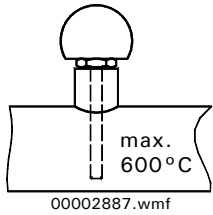
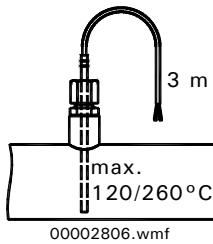
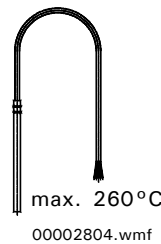
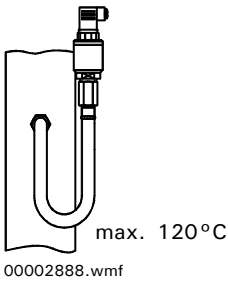
⑥ Process operation and
 visualisation

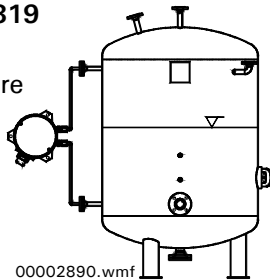
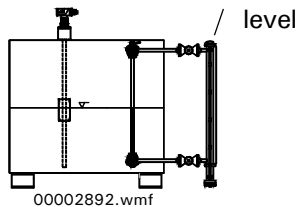


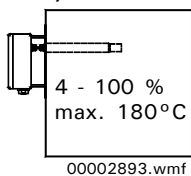
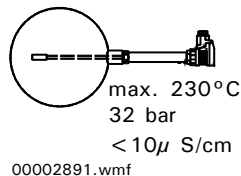
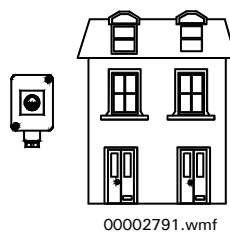
baelz-inbas.wmf

Bälz-Videopilot

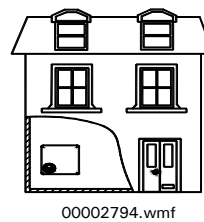
TA-JS 2'-1

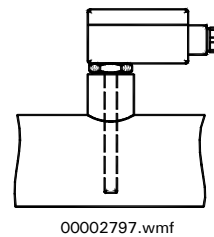
Bälz-electrodyn - BUSPILOTRONIC
baelz 6200
Baelz sensors + transmitters for industry:
baelz 61/PT100

baelz 25/PT100

baelz 25/PT100

baelz 828N
pressure

baelz 77
infrared

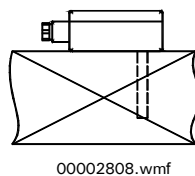
baelz 819
diff.
pressure

baelz 784

baelz 1771
level

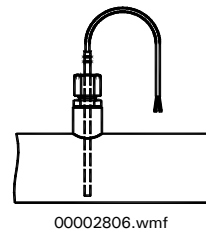
baelz 1085
humidity

conductivity

Baelz sensors for HVAC:
baelz 23 - PT


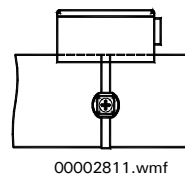
outdoor sensor

baelz 22 - PT

 room sensor
with or without
correction potent.

baelz 24 - PT

 pipe immersion sensor
G 1/2
100, 150 or 200 mm
max. 120°C

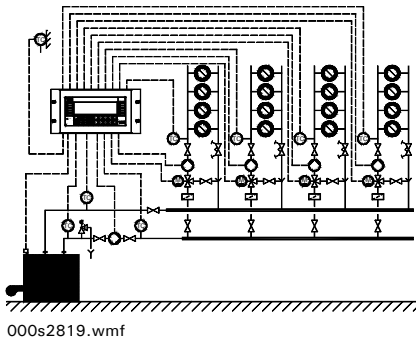
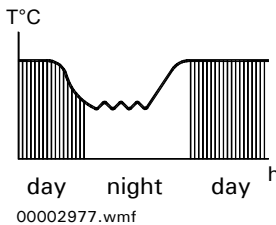
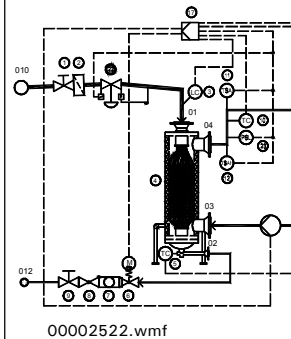
baelz 26 - PT

 air duct sensor
200 mm
max. 120°C

baelz 25 - PT

 cable pipe immersion sensor
G 1/2
200 mm; 3 m cable
max. 120°C

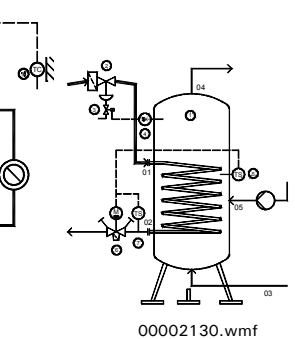
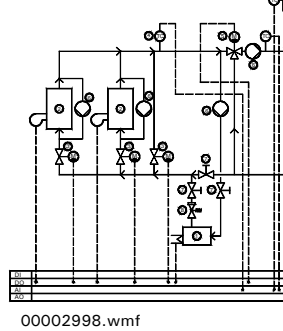
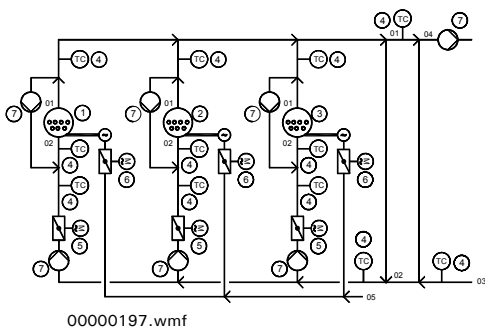
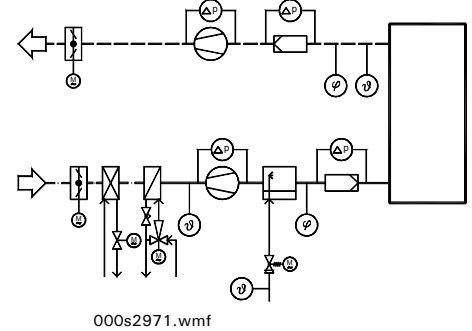
baelz 27 - PT

 strap - on sensor
max. 100°C

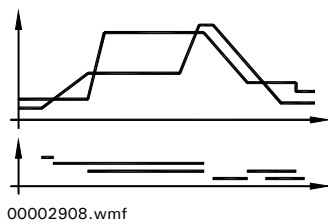
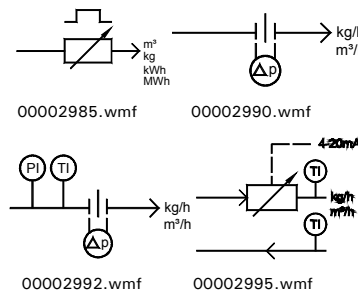
Bälz-electrodyn - BUSPILOTRONIC
baelz 6200
Heating applications:

with 8, 12 or 16 loops:

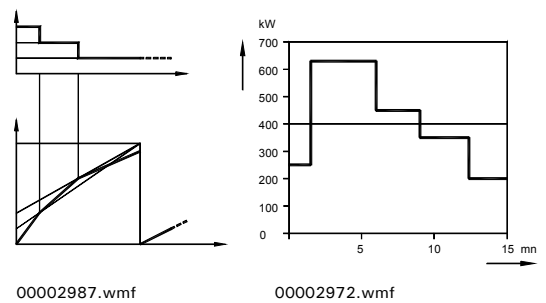
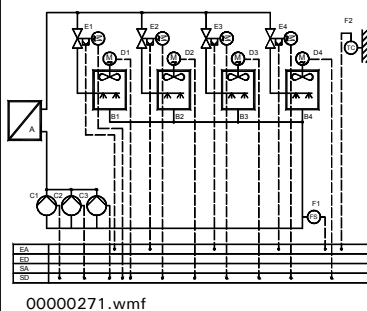
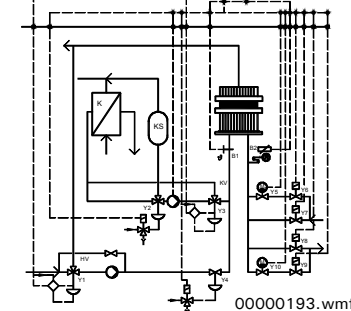
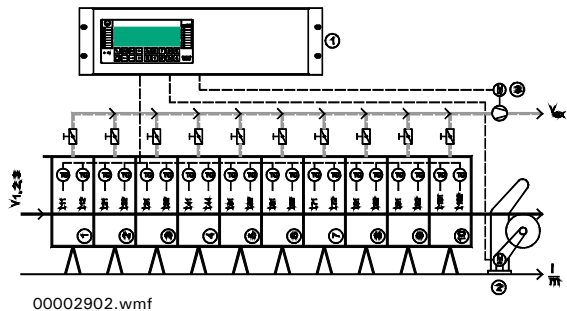

 with or without
optimized
start - stop loops;
8 reset, 48 room
controls

 heat exchanger
control for heating


or domestic hot water


Boiler control and boiler sequencing:

Ventilating (air conditioning):

Controls for Industry:

 program control for
dyeing + food
pasteurization

 energy metering
+ totalizing


peak load limitation depending on tariff rates:


cooling tower sequencing

controls around presses

**controls around dryers, stentors,
pasteurizing units**


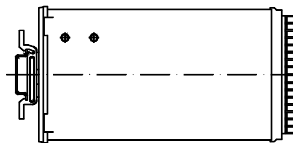
Rights reserved to make technical changes

Bälz-electrodyn - BUSPILOTRONIC**baelz 6200****2. Details about existing housings****2.1 The Serie baelz 6200 BUSPILOTRONIC for closed loop control**

- is of modular design
- with an internal bus, i. e. easy to expand
- in its basic version either with 2 serial interfaces RS 232 (front side) + RS 485 at the rear terminals or 2 x RS 232
- the following housings / enclosures exist

- **baelz 6200 - 96 - 1 - i - RS 485**

without key board, without LCD,
for mounting within a panel
94 x 94 x 195 mm
with 1 or 2 cards

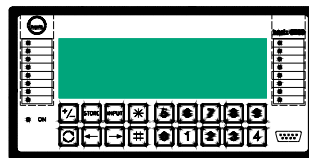


00002260.wmf

The standard types

- **baelz 6200 - 192 - 4**

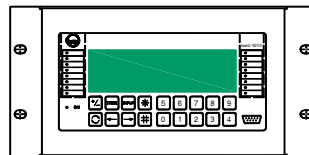
with key board and LCD,
for front side panel mounting
192 x 96 x 180 mm
for 1, 2, 3 or 4 cards



00002021.wmf

- **baelz 6200 - 9,5 - 5**

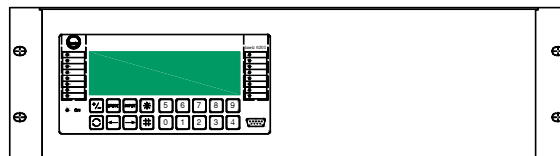
as above, but in half an 19" rack
270 x 133 x 210 mm
for 1, 2, 3, 4 or 5 cards



00002031.wmf

- **baelz 6200 - 19 - 10**

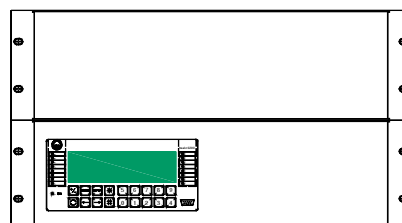
as above in an 19" rack
483 x 133 x 210 mm
for 1 - 10 cards



00002026.wmf

- **baelz 6200 - 19 - 13**

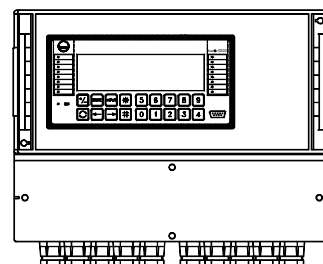
as above but in a double 19" rack
483 x 266 x 210 mm
for 1 - 13 cards



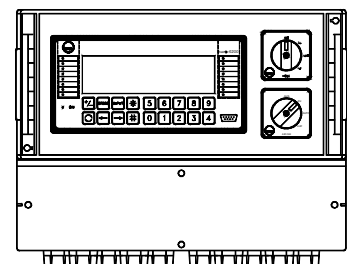
00002999.wmf

- **baelz 6200 - W4**

as above baelz 6200 - 192 - 4
but in a wall mounting enclosure
with or without
additional correction potentiometer
and handswitch



00002254.wmf



00003087.wmf

Fig. 8: Available types of the 6200 family

Bälz-electrodyn - BUSPILOTRONIC

baelz 6200

2.2 General information for the mostly used housing baelz 6200 - 192 - 4

The series BUSPILOTRONIC is a compact microprocessor for front side panel mounting; its dimensions are H x W x D: 96 x 192 x 180 mm; cabling by screw terminals; frontside with LCD (8 lines, 40 characters) for clear language texts; on the front side there is a 9 pole RS 232 C connector to connect a Lap-Top for easier parameter introduction and saving of data on floppy disk; functional keyboard for microprocessor configuration; with 16 LEDs to indicate relay states 1 - 16; with battery back-up for data and clock; with either second RS 232 or RS 485 interface on screw terminals; for ambient temperatur of 0 - 50°C.

Front side with indication + keyboard

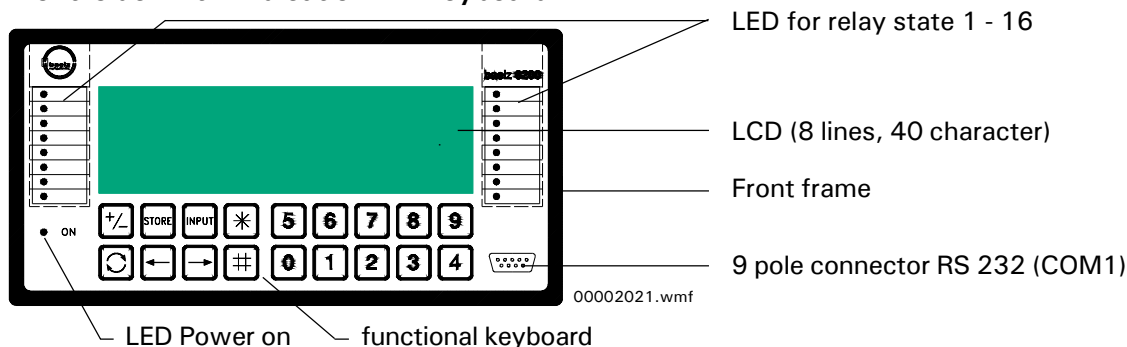


Fig. 9: Front view of baelz 6200 - 192 - 4

key on 6200	equivalent key on PC / Lap-Top	function
Star*	ESC	back to previous page
loop #	Q	loop selection
INPUT	F1 or /	start of data introduction
STORE	↵	end of data introduction
Cursor to the right →	→	in input - mode: cursor goes to the right in indication - mode: moves the whole window downwards
Cursor to the left ←	←	in input - mode: cursor goes to the left in indication - mode: moves the whole window upwards
Plus Minus Key + / -	+	+ / - sign; change of screens
scroll key ()	page ↑	go to next loop
number key 0 ... 9	0 ... 9	introduction of nummers

Table for correspondence baelz 6200 Keys / PC Keys

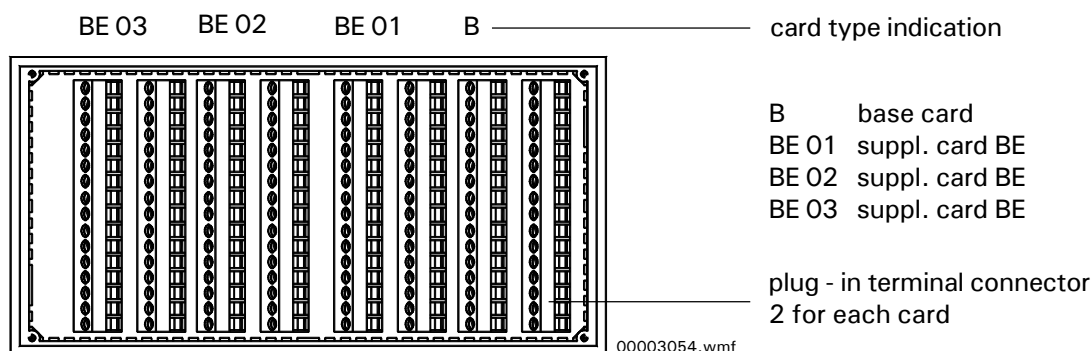


Fig. 10: Rear view of baelz 6200 - 192 - 4

Rights reserved to make technical changes

Bälz-electrodyn - BUSPILOTRONIC**baelz 6200****3. For this baelz 6200 BUSPILOTRONIC the following cards exist****3.1 Mother boards type B****6200 - B** with frontside RS 232 only for Lap-Top connection, RS 485 on terminals.**6200 - B - B** with frontside RS 232 for frontside modem connection, RS 485 on terminals.**6200 - B - G** with frontside RS 232 for Lap-Top connection and RS 232 on terminals for modem connection.**6200 - B - I** with frontside RS 232 for Lap-Top connection and RS 232 on terminals for INBAS - PC point - to - point connection.

All these motherboards have **4 DI, 4 AI** and **4 relays (DO)**
an a power supply unit for either 230, 115 or 24V, 50/60 Hz.

3.2 Mother boards type BAA

There exist the same versions, i. e.

6200 - BAA - B**6200 - BAA - G****6200 - BAA - I**

as explained above.

This card **BAA** has: **4 DI, 4 AI, 2 AO** 0/2 - 10V or 0/4 - 20 mA and **3 relays (DO)**

3.3 The following expansion cards exist:

baelz 6200	DI *1)	AI *2)	AO *3)	DO relays	power supply
BE	4	4	-	4	no
BENT	4	4	-	4	yes
BEAA	4	4	2	3	no
BEAANT	4	4	2	3	yes
DE	24	-	-	-	no
DENT	24	-	-	-	yes
DA	8	-	-	8	no
DANT	8	-	-	8	yes

DI = digital - in AI = analog - in AO = analog - out DO = digital - out

Specifications

*1) Intern or extern power supply for digital inputs.

Each digital input can be used as counter input; max. 10 Hz.

*2) Selects the measuring range with jumper blocks. Following ranges are possible:

NTC 3.11 (-40°C ... +60°C), 3.12 (0°C ... +60°C), 3.13 (0°C ... +140°C)

PT 100 2.21 (-40°C ... +60°C), 2.4 (0°C ... +300°C)

potentiometer 4.1 (200 Ω), 4.2 (5 kΩ), 5.4 (with baelz 1073 and 1074)

*3) voltage 0/2 ... +10V

current 0/4 ... 20 mA

Bälz-electrodyn - BUSPILOTRONIC**baelz 6200****4. Ordering text****BUSPILOTRONIC baelz 6200 - 192 - 4**

for max. 4 cards; for front - panel mounting;
dimension: H x W x D; 96 x 192 x 180 mm;
wiring by plug - on screw in terminal;
frontplate with LCD 8 x 40 characters, 9 pole connector RS 232,
keyboard for configuration, handling for setting - up;
16 LED to indicate relay states 1 - 16;
battery back - up for data and clock;
interface RS 485 for BAS or Modbus - RTU;
power supply: 230 / 120 VAC, 50/60 Hz

with software baelz 4611-
contains the following cards:

slot	card*	AO**	Measuring module			
1						
2						
3						
4						

BUSPILOTRONIC baelz 6200 - 9,5 - 5

for max. 5 cards; for front - panel mounting;
dimension: H x W x D; 133 x 270 x 210 mm;
wiring by plug - on screw in terminal;
frontplate with LCD 8 x 40 characters, 9 pole connector RS 232,
keyboard for configuration, handling for setting - up;
16 LED to indicate relay states 1 - 16;
battery back - up for data and clock;
interface RS 485 for BAS or Modbus - RTU;
power supply: 230 / 120 VAC, 50/60 Hz

with software baelz 4611 -
contains the following cards:

slot	card*	AO**	Measuring module			
1						
2						
3						
4						
5						

*) card for slot 2 - 4, 6 - 8, 10: BE / BEAA / DE
card for slot 5, 9: BENT / BEAANT / DENT

**) current (I) or voltage (U) on card with analog output ... AA optional

Bälz-electrodyn - BUSPILOTRONIC**baelz 6200****BUSPILOTRONIC baelz 6200 - W4**

for max. 4 cards; for wall mounting; not wiring;
 with transparent cover with screwed unions PG ;
 dimension : H x W x D; 237 x 323 x 262 mm;
 wiring by plug - on screw in terminal;
 frontplate with LCD 8x40 characters, 9 pole connector RS 232,
 keyboard for configuration, handling for setting - up;
 16 LED to indicate relay states 1 - 16;
 battery back - up for data and clock;
 interface RS 485 for BAS or Modbus - RTU;
 power supply: 230 / 120 VAC, 50/60 Hz

with software baelz 4611-
 contains the following cards :

slot	card*	AO**	Measuring module			
1						
2						
3						
4						

BUSPILOTRONIC baelz 6200 - 19 - 10

for max. 10 cards; for front - panel mounting;
 dimension: H x W x D; 133 x 483 x 210 mm;
 wiring by plug - on screw in terminal;
 frontplate with LCD 8 x 40 characters, 9 pole connector RS 232,
 keyboard for configuration, handling for setting - up;
 16 LED to indicate relay states 1 - 16;
 battery back - up for data and clock;
 interface RS 485 for BAS or Modbus - RTU;
 power supply: 230 / 120 VAC, 50/60 Hz

with software baelz 4611 -
 contains the following cards:

slot	card*	AO**	Measuring module			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

*) card for slot 2 - 4, 6 - 8, 10: BE / BEAA / DE
 card for slot 5, 9: BENT / BEAANT / DENT

**) current (I) or voltage (U) on card with analog output ... AA optional

Rights reserved to make technical changes

Bälz-electrodyn - BUSPILOTRONIC
baelz 6200
BUSPILOTRONIC baelz 6200 - 96 - 1 - i

for max. 1 card; for snap - on rail mounting;
 dimension: H x W x D; 94 x 94 x 195 mm;
 wiring by plug - on screw in terminal;
 battery back - up for data and clock;
 interface RS 485 for BAS or Modbus - RTU;
 power supply: 230 / 120 VAC, 50/60 Hz

with software baelz 4611-.....
 contains the following cards:

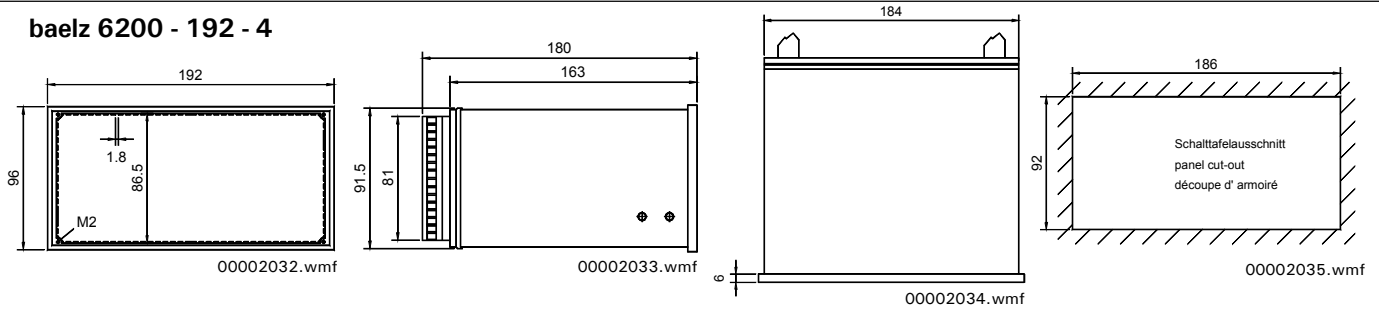
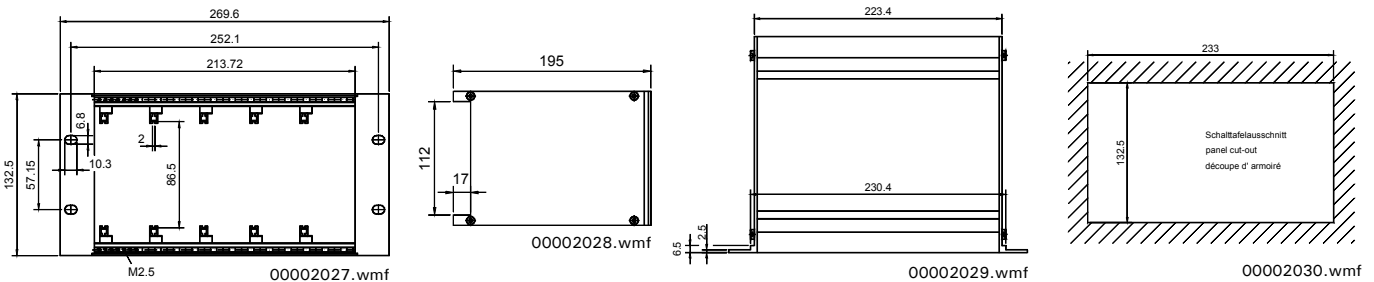
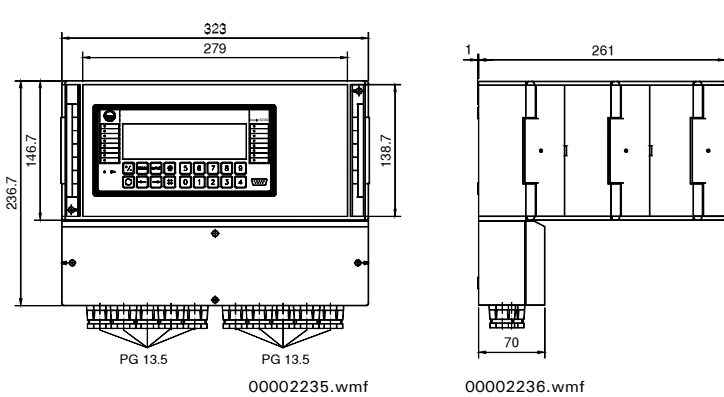
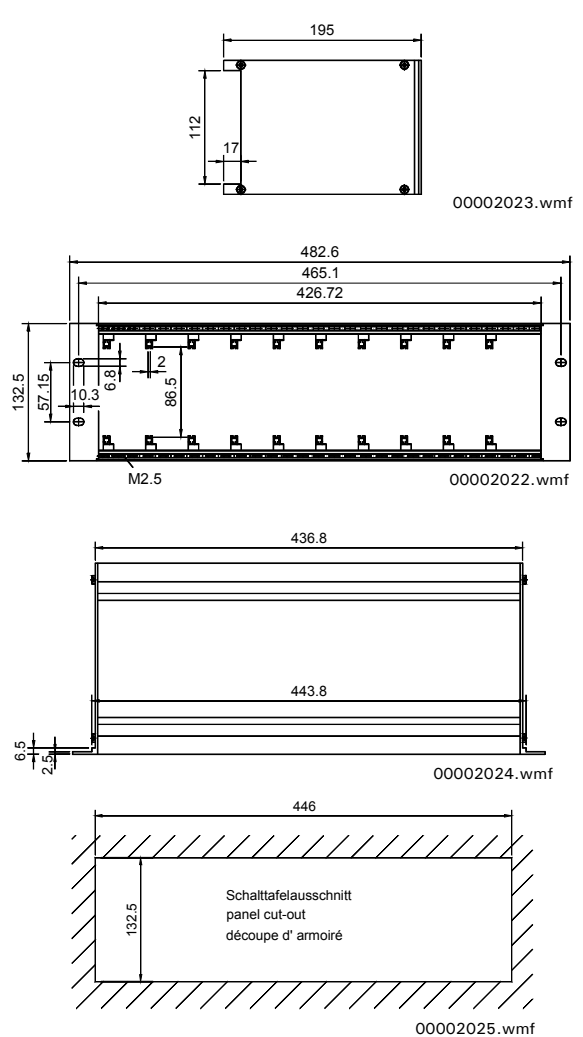
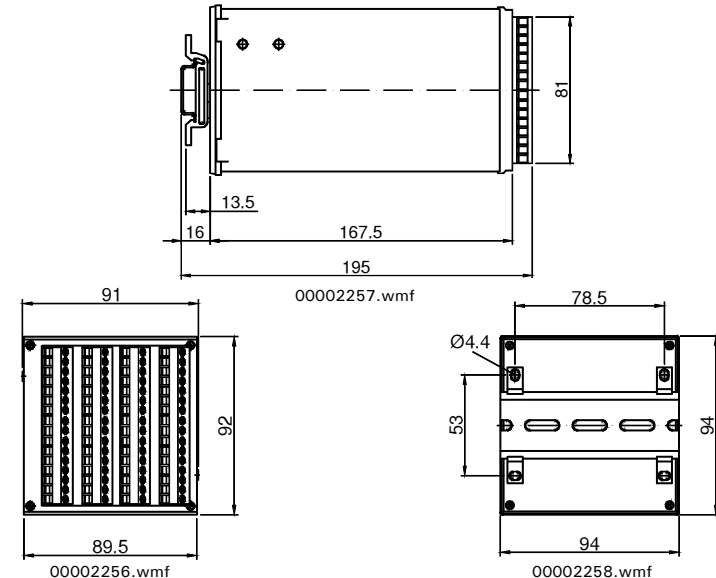
slot	card*	AO**	Measuring module
1			

*) card for slot 2 - 4, 6 - 8, 10: BE / BEAA / DE
 card for slot 5, 9: BENT / BEAANT / DENT

**) current (I) or voltage (U) od card with analog output ... AA optional

5. Technical Data

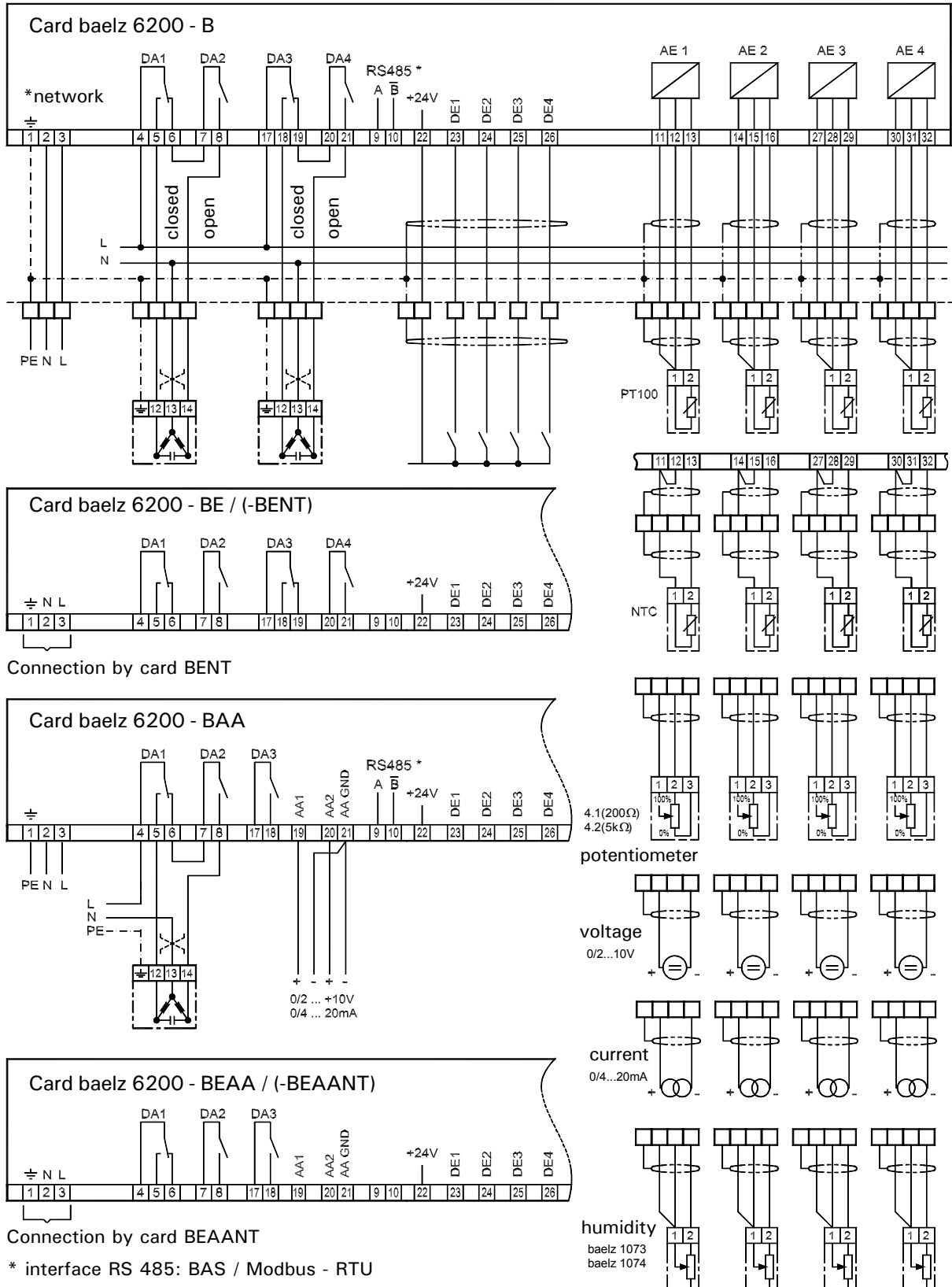
• power supply	230 / 120 VAC - 15 % / + 10 %, 50/60 Hz extern 0,63 A	• accuracy	0,3 % of measuring range
• fuse		• analog inputs	NTC: 3.11 (-40°C to + 60°C) 3.12 (0°C to + 60°C) 3.13 (0°C to + 140°C) PT100: 2.21 (-40°C to + 60°C) 2.4 (0°C to + 300°C) humidity: 5.4 (0 to 100 % r.H.) current: 0 / 4 to 20 mA, Ri = 5,9 Ω voltage: 0 / 2 to 10V, Ri = 160 kΩ potentiometer: 100 Ω - 5 kΩ
• power consumption		• frontplate	LCD with 2 x 40 character, connector RS 232
- 6200 - 192 - 4	ca. 12 VA	• LED	for relay state 1 - 16
- 6200 - W4	ca. 12 VA	• keyboard	18 keys
- 6200 - 9,5 - 5	ca. 24 VA	• relay	contact potential - free Switching capacity 250 VAC / 3 A Spark quenching capacity 10 nF + 100 Ω
- 6200 - 19 - 10	ca. 36 VA	• serial interface	RS 232 (for modem or Lap - Top) RS 485 Modbus - RTU or BAS M - Bus (option)
- 6200 - 96 - 2	ca. 12 VA	• data storage	Lithium-Battery 3,6 V
• permissible ambient temperature	0 to 50°C		
- operation	- 20° to + 60°C		
- transport and storage			
• permissible relative humidity	5 to 90% r.H.		
• design for	W x H x D:		
- 6200 - 192 - 4	192 x 96 x 180 mm		
- 6200 - 9,5 - 5	270 x 133 x 210 mm		
- 6200 - 19 - 10	483 x 133 x 210 mm		
- 6200 - 96	94 x 94 x 195 mm		
- 6200 - W4	323 x 237 x 262 mm		
• installation position	arbitrary		
• DI - feed voltage	24 VDC		
• digital inputs	Ri = 4 kΩ (low = 0 VDC; high = 15 ... 24 VDC)		
• analog outputs	0 / 4 to 20 mA, max. load 500 Ω 0 / 2 to 10V, Imax = 10 mA		

Bälz-electrodyn - BUSPILOTRONIC
baelz 6200
6. Dimensions
baelz 6200 - 192 - 4

baelz 6200 - 9,5 - 5

baelz 6200 - W 4

baelz 6200 - 19 - 10

baelz 6200 - 96


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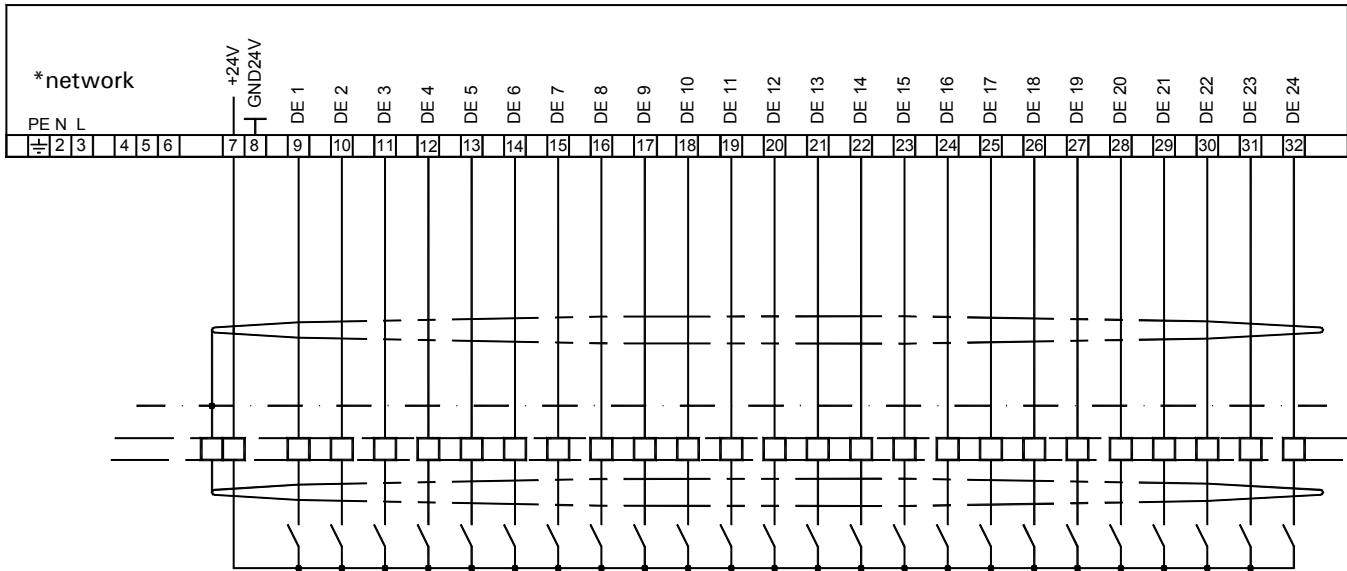
Bälz-electrodyn - BUSPILOTRONIC
baelz 6200
7. Electrical connections


The general electrical connections are shown here.
The real wiring depends on the chosen device type.



Bälz-electrodyn - BUSPILOTRONIC
baelz 6200

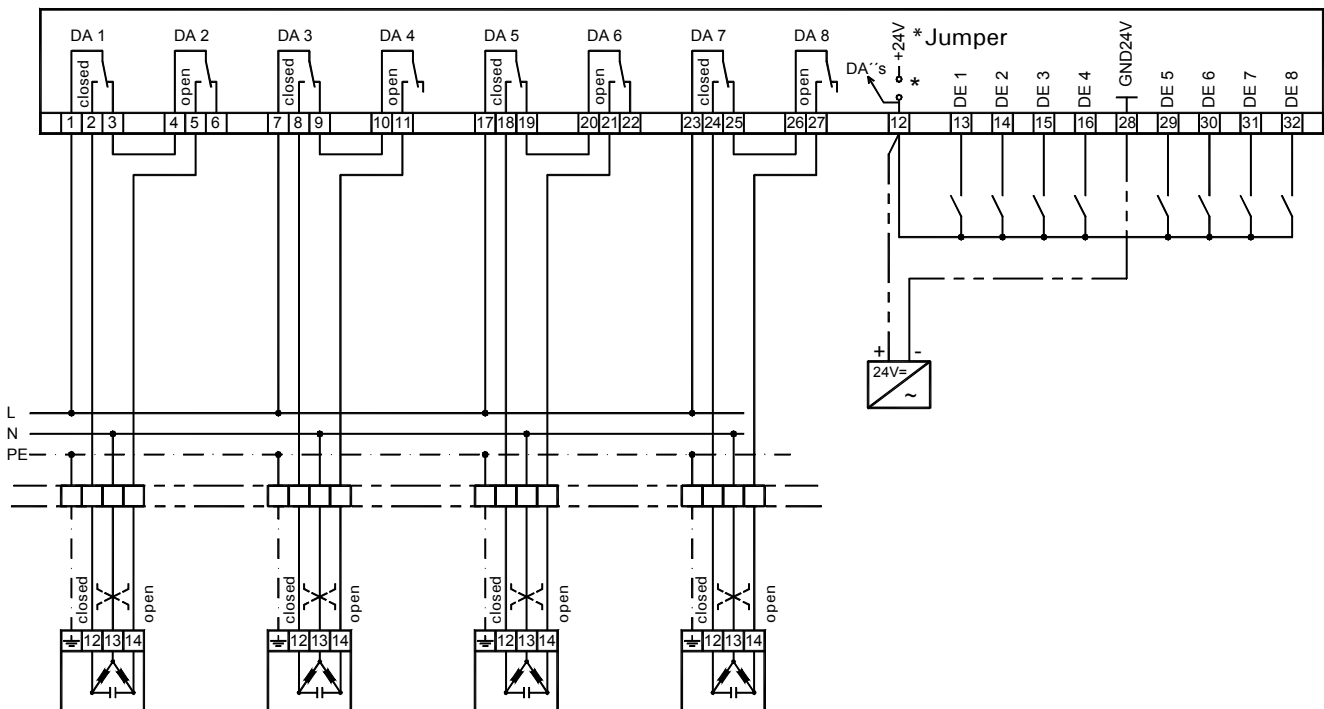
Card baelz 6200 - DE / (-DENT)



00003058.wmf

 * network connection
only by card DENT

Card baelz 6200 - DA / (-DANT)



00003056.wmf

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