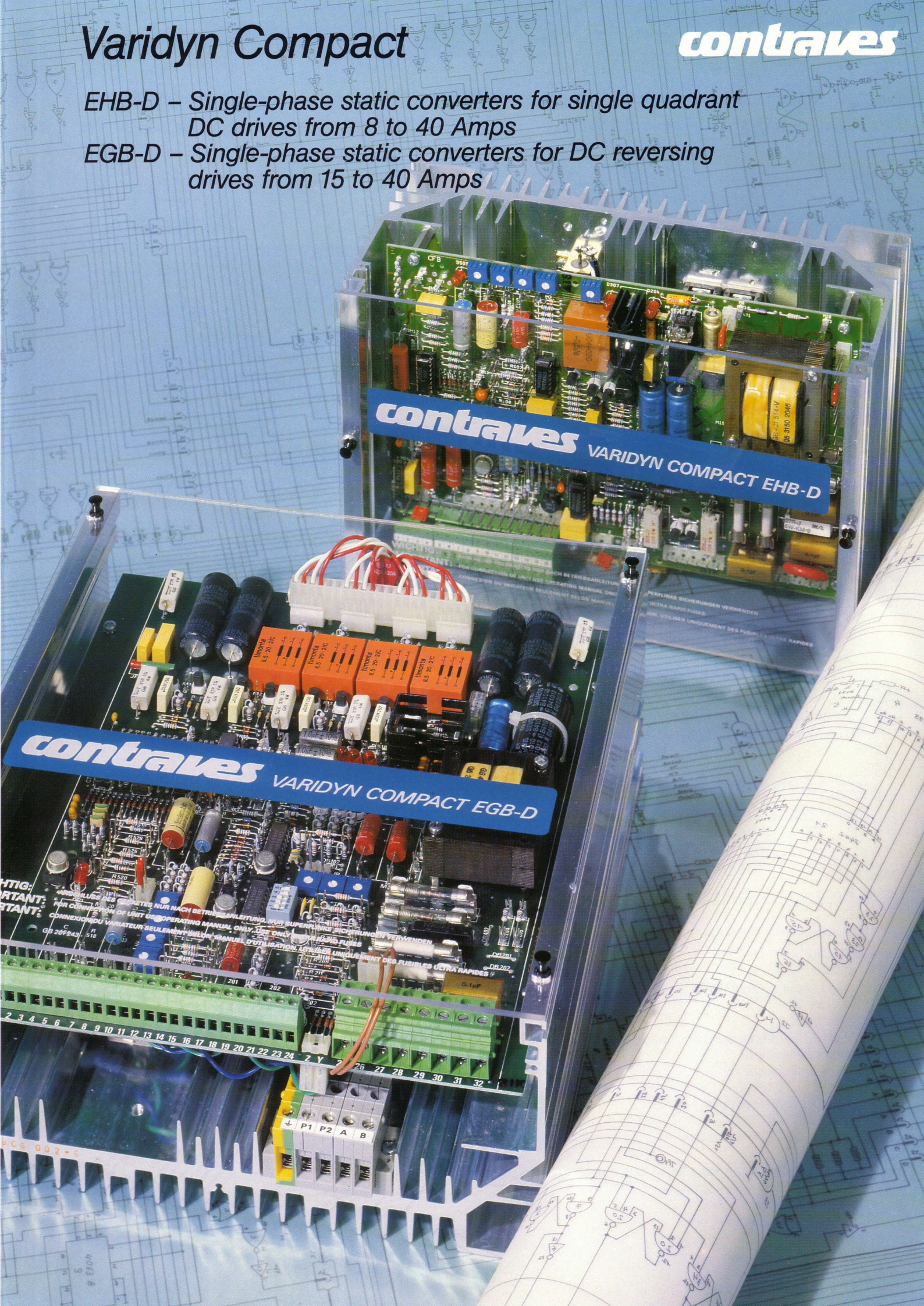
Varidyn Compact

contraves

EHB-D – Single-phase static converters for single quadrant DC drives from 8 to 40 Amps

EGB-D – Single-phase static converters for DC reversing drives from 15 to 40 Amps



Varidyn Compact EHB-D

Single-phase static converters for single quadrant DC drives from 8 to 40 Amps

Brief description

The speed regulators of the EHB-D type series, for power ratings about 1 to 12 kW, are equipped with electrically insulated thyristor output stage and are operated with tacho or armature voltage feedback.
With only one physical size, these units are of compact design. Moreover, various possible interconnections and adaptations allow versatile application.

Special features

- Any switch-on/off sequence for supply and triggering
- Isolated control electronics and electrically insulated heat sink (voltageless)
- Self-adaptation to supply frequency (45 to 65 Hz)
- Instantaneous blocking if a field fuse blows
- Various interconnection possibilities via PCB switches and additional inputs and outputs
- LED display for: power on, current limit, controller and trigger enabling
- Inputs for DC and AC tacho (built-in rectifier)

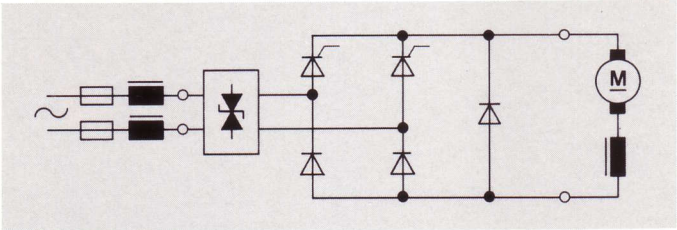
Technical data

Mains supply		Type current (Amps) 8	15	25	40	Output DC voltage *(DIN 40030) $V_{armature}$	V_{field}
Nominal power (kW)	V_{mains} 220 V	1.36	2.55	4.25	6.80	170 V=*	180 V=*
	V_{mains} 240 V	1.44	2.70	4.50	7.20	180 V=	200 V=
	V_{mains} 380 V	2.40	4.50	7.50	12	300 V=*	310 V=*
	V_{mains} 415 V	2.56	4.80	8.00	12.8	320 V=	340 V=
Max. input current (A~)		11.2	21	35	56		

Other voltages	on request
Mains voltage tolerance	+10%/–5%
for reduced output voltage up to	–15%
Mains frequency	45 to 65 Hz
Max. field current	1.6 A
Range of ambient temperature (for operation)	0 to +45 °C
Speed reference voltage	+15 V
Reference potentiometer	4.7 kOhm
Control range – DC tacho	>1:100
Control range – EMF feedback	≥1:40
Control accuracy – DC tacho	<1% $n_{max.}$
Control accuracy – EMF feedback	≥5% $n_{max.}$

The above data refers to an installation at a maximum altitude of 1000 m above sea level.

Power stage



Terminal functions – electronics

1	Additional input to speed controller (no ramp function)
2	Logic zero reference
3	Logic input for enabling
4	Actual current signal: 0 to 10 V ≙ I_0 to $I_{max.}$
5	Current reference input (torque control)
6	Actual value for EMF feedback
7	–15 V (electronics power supply)
8	For screen of speed reference cable
9	Speed reference input (ramp stage)
10	+15 V for speed reference potentiometer
11	Zero for speed reference potentiometer
12	For screen of tacho-connecting cable
13	Zero reference for feedback (DC tacho)
14	DC signal feedback input (DC tacho, EMF signal)
15, 16	AC tacho input

Varidyn Compact EGB-D

Single-phase static converters for DC reversing drives without circulating current, from 15 to 40 Amps

Brief description

The speed controllers of the EGB-D type series are designed for the power range from about 1 to 10 kW, and are operated normally with tacho feedback (armature voltage feed-back is also possible).
By using electrically insulated modules for the thyristor output stage a compact, space-saving layout is achieved.
These units feature wide control range, high control accuracy and high sensitivity. Moreover, various possible interconnections and adaptations allow versatile application.

Special features

- Any switch-on sequence for supply and triggering
- Isolated control electronics and electrically insulated heat sink
- 50/60 Hz preselection by PCB switch
- Protection against overvoltage peaks
- Instantaneous blocking if a field fuse blows
- Various interconnection possibilities via PCB switches and additional inputs and outputs
- LED displays for: current limitation, controller and trigger enabling, selected current direction, zero speed signal

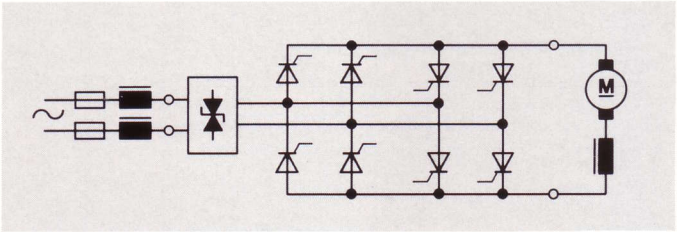
Technical data

Mains supply		Type current (Amps) 8	15	25	40	Output DC voltage *(DIN 40030) $V_{armature}$	V_{field}
Nominal power (kW)	V_{mains} 220 V	1.2	2.2	3.8	6.0	150 V=*	180 V=*
	V_{mains} 240 V	1.3	2.5	4.1	6.6	165 V=	200 V=
	V_{mains} 380 V	2.1	3.9	6.5	10.4	260 V=*	310 V=*
	V_{mains} 415 V	2.3	4.2	7.0	11.2	280 V=	340 V=
Max. input current (A~)		12	21	35	56		

Mains voltage tolerance	+10%/–10%
for reduced output voltage up to	–15%
Mains frequency	50/60 Hz
Max. field current	1.6 A
Range of ambient temperature (for operation)	0 to +45 °C
Speed reference voltage	±15 V
Reference potentiometer	4.7 kOhm
Control range – DC tacho	>1:200
Control range – EMF feedback	≤1:20
Control accuracy – DC tacho	<1% $n_{max.}$
Control accuracy – EMF feedback	≥5% $n_{max.}$

The above data refers to an installation at a maximum altitude of 1000 m above sea level.

Power stage



Terminal functions – electronics

1	+24 V, maximum loading 50 mA
2	Logic zero reference
3	Logic input for enabling
4	Logic input for automatic braking on controller blocking
5	Standstill signal; maximum loading 30 V, 50 mA
6	For change-over of the speed controller from PI to P characteristic
7	Speed reference ramp signal (0 to ±10 V)
8	Feedback input (tacho)
9	Zero reference of speed control (reference and feedback signals)
10	Access to speed loop gain; e.g. gain = f (speed)
11	
12	Access to current reference signal; e.g. I = f (speed)
13	Additional input to speed controller (no ramp function)
14	Actual current signal: 0 to ±350 mV ≙ 0 to ± $I_{max.}$
15	Actual speed signal: 0 to ±8.5 V ≙ 0 to ± max. speed
16	––
17	–15 V, maximum loading 25 mA
18	–15 V, for speed reference potentiometer
19	Speed reference input (ramp stage)
20	+15 V, for speed reference potentiometer
21	+15 V, maximum loading 50 mA
22	Analogue zero reference
23	Common or zero volts reference (15 V power supply)
24	Terminal for screens
25	Mains voltage input for field rectifier
26	(for special field voltage)
27	Mains voltage input for electronics power supply
28	(special voltage of power stage)
29	Field voltage output (positive)
30	Field voltage output (negative)
31	Differential input to matching amplifier for
32	armature voltage feedback

Accessories and dimensional drawings

Mains supply fuses

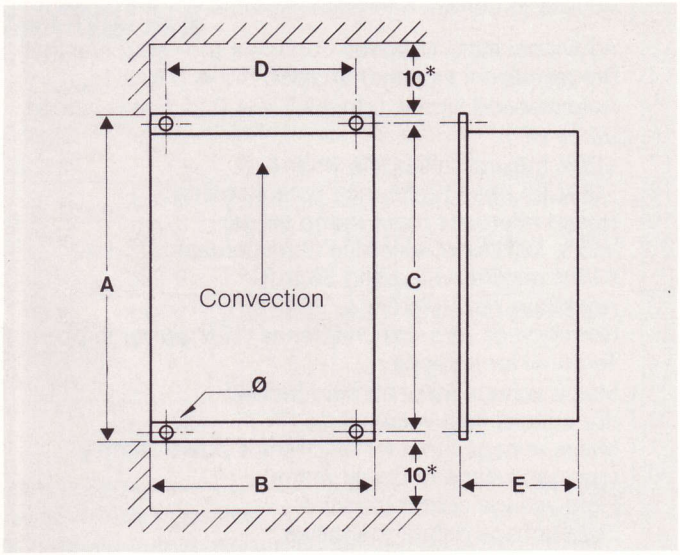
Make \ Type		EHB-D 8	15	25	40	EGB-D 8	15	25	40
Current ratings in Amps	Ferraz URGB 660 V	16	25	40		16	25	32	
	Ferraz URGA 660 V		25	40	63		25	32	63
	Siemens Silized 500 V	16	25	35	63	16	25	35	50

Additional armature fuse for EGB, same type as mains fuse

Commutation chokes

Mains supply \ Type		EHB-D 8	15	25	40	EGB-D 8	15	25	40
Inductance in mH	V_{mains} 220 V / 240 V	2.6	1.4	0.8	0.5	2.6	1.4	0.8	0.5
	V_{mains} 380 V / 415 V	4.4	2.4	1.4	0.9	4.4	2.4	1.4	0.9
	I_{mains} in Amps	11	21	35	56	11	21	35	56

With form factor $FF_{max.} = 1.4$



Measurements in mm

Type	A	B	C	D	E	Ø
EHB-D	210	254	195	214	130	5.3
EGB-D	315	254	300	214	130	5.3

* Safety clearance

Bulletin ME 149 e - 9012 CAR *Subject to change*

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