

## Electronic Polarity-Reversing Control Unit

SAV 876.10

With integrated microprocessor and holding force control

### Use:

State-of-the-art control unit with up-to-date technology and electronics for magnetizing, demagnetizing and holding force regulation of electromagnetic and electro-permanent magnetic chucks and systems. Suitable for integration in existing machine control cabinet.

### Application:

Electronic polarity-reversing control units supply continuous DC-current to electro-magnetic chucks.

For electro-permanent magnetic chucks this control unit is supplying the current impulse for switching the chuck on and off.

The integrated, microprocessor controlled, pole reversing function demagnetizes the magnetic system and also eliminates the remanence magnetism in the workpiece. Due to this the workpieces can easily be released from the chuck, any chips are easy to remove, and, even more important, separate demagnetization of the workpiece is no longer required.

Additional pole reversing programs are available for workpieces which are extremely difficult to (de)magnetize.

When control unit and magnetic chuck are ordered as a set, it will be programmed with the most optimum settings in time and function.

The control unit continuously monitors the main supply voltage/current, its outputs, all connecting cables and magnet coils. Status indications are presented on the LCD-display.

### Functional description:

The control units comply with the following standards/guidelines:

- Accident prevention law  
VBG 7 n6 – 11.08 § 11/01.01.59
- Machine guideline  
93/68/EWG ABI. No. L220
- Low voltage guideline  
93/68/EWG ABI. No. L220126220
- EMC guideline  
92/31/EWG ABI.Nr. L126

A safety contact in the control unit can be used to prevent accidental machining of a workpiece when the magnetic chuck is not magnetized.

Manual operation through illuminated push-buttons (control unit SAV 876.02).

Optional connection to CNC-controls through 24 Vdc signalling voltage.

An 8-step holding force regulation function is standard built-in and operated through a coded switch.

### Note:

When using the lowest holding force settings, the safety according VBG 7 n6 can no longer be guaranteed.



Build-in version E

### Technical data:

Maximum ambient temperature:	45 °C
Input voltage:	230 / 400 Vac
Frequency:	50 / 60 Hz
Duty cycle for electro magnets: (electromagnetic chucks)	100 %
Cycle time for electro-permanent magnets:	> 3 min.

Smaller cycles on request.

### Features:

- small and compact
- fully closed (IP 54 with Box version S) and shock-proof
- operator-friendly LCD display, indicating operation status and fault messages in text
- foil covered keys for simple and easy setting of parameters
- universal use for all magnet types and voltages
- safe and reliable

For use on pallet changers or circular magnets, a heavy industrial quick connector in combination with a parking station is possible. This is to prevent movement of the magnetic chuck and damaging of the supply cable during loading and unloading of the machine.



WORKHOLDING AND AUTOMATION

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Magnet terminals

Control signal  
Terminals  
(plugable)

Mains terminals



**LCD-Display:**

Indicates operation status and fault messages in text

**Foil covered keys:**

For simple setting of parameters

- Magnet type and voltage
- Demagnetizing cycle (coarse)
- Demagnetizing cycle (fine)
- Holding force characteristic (1-16 steps)
- Number of voltage impulses
- Impulse length
- Holding force value for machine clearance

### Inverse BCD-coding

For holding force control on terminals 15 to 18 (see terminal plan).

In 8 step control terminal 18 remains unused.

Terminal closed or on 24V-signal: 1,  
Terminal open: 0.

Please refer to BCD-coding table!

Only apply proper control unit  
SAV 876.02 – SE2-1.

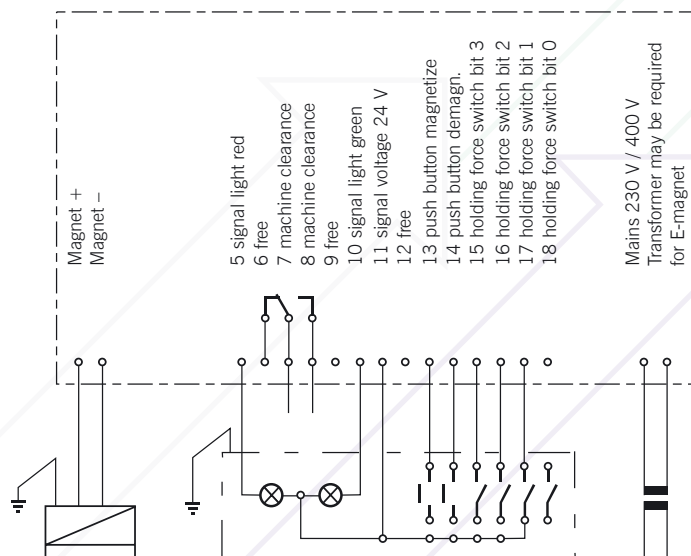
Special programs on request.

8 steps	-	1	-	2	-	3	-	4	-	5	-	6	-	7	-	8
Terminal 15	-	1	-	1	-	1	-	1	-	0	-	0	-	0	-	0
Terminal 16	-	1	-	1	-	0	-	0	-	1	-	1	-	0	-	0
Terminal 17	-	1	-	0	-	1	-	0	-	1	-	0	-	1	-	0
Terminal 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16 steps	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Terminal 15	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Terminal 16	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0
Terminal 17	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0
Terminal 18	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

### Terminal plan

\* = NC connection for ground terminal 12.  
Machine interlocking possible over terminals 6, 7 and 8 (normally use jumper between terminals 7 and 8).

For magnets with a required current of 60 A x 2 a double control unit is available with double terminal set. In case the unit is connected to a control unit SAV 876.02-SE1, Terminal 9 remains unused.



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ELECTRICAL DETAILS

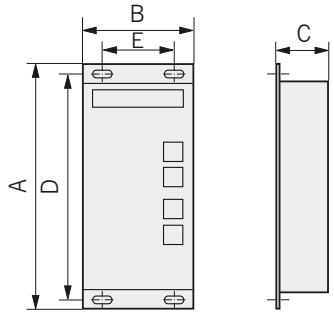
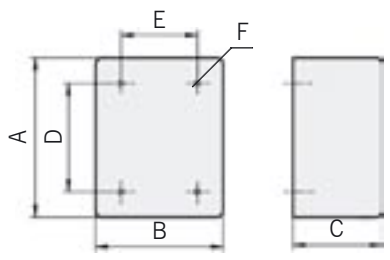
For Electro-Permanent Magnetic Chucks							For Electro Magnetic Chucks						
Ordering no.	Magnet voltage DC in V	Magnet current max. in A	Mains voltage AC in V	Max. magnet rating DC in kW	Fuse in A	Mains transformer required	Ordering no.	Magnet voltage DC in V	Magnet current max. in A	Mains voltage AC in V	Max. magnet rating DC in kW	Fuse in A	Mains transformer required
876.10 - -0-210/30/230	210	30	230	6.3	16	no (O)	876.10 - - T-24 / 7 / 230	24	7	230	168	4	yes (T)
876.10 - -0-210/30/400	210	30	400	6.3	16	no (O)	876.10 - - T-24 / 15 / 230	24	15	230	360	6.3	yes (T)
876.10 - -0-360/30/400	360	30	400	10.8	16	no (O)	876.10 - - T-24 / 25 / 230	24	25	230	600	6.3	yes (T)
876.10 - -0-360/30x2/400	360	30x2	400	10.8x2	16	no (O)	876.10 - - 0-110 / 6 / 230	110	6	230	660	4	no (O)
876.10 - -0-360/30x3/400	360	30x3	400	10.8x3	16	no (O)	876.10 - - 0-110/16/230	110	16	230	1760	16	no (O)
876.10 - -0-360/30x4/400	360	30x4	400	10.8x4	16	no (O)	876.10 - - 0-110/30/230	110	30	230	3300	25	no (O)
876.10 - -0-360/60/400	360	60	400	21.6	32	no (O)	876.10 - - T-110 / 6 / 400	110	6	400	660	4	yes (T)
876.10 - -0-360/60x2/400	360	60x2	400	21.6x2	32	no (O)	876.10 - - T-110/16/400	110	16	400	1760	16	yes (T)
876.10 - -0-360/60x3/400	360	60x3	400	21.6x3	32	no (O)	876.10 - - T-110/30/400	110	30	400	3300	25	yes (T)
876.10 - -0-360/60x4/400	360	60x4	400	21.6x4	32	no (O)							

DIMENSIONS

for Electro Magnetic Chucks	Box version (S) with protection IP54								Build-in version (E) with protection IP00								for Electro Magnetic Chucks
	Ordering no.	A	B	C	D	E	F	Weight in kg	Ordering no.	A	B	C	D	E	F	Weight in kg	
	876.10-S-T-24 / 7 / 230	250	400	150	205	355	ø10	14.0	876.10-E-T-24 / 7 / 230	220	120	95	210	85	ø 5	2.0	
876.10-S-T-24 / 15 / 230	250	500	150	205	455	ø10	20.0	876.10-E-T-24 / 15 / 230	260	120	95	250	85	ø 5	3.0		
876.10-S-T-24 / 25 / 230	500	400	250	455	355	ø10	32.0	876.10-E-T-24 / 25 / 230	320	120	95	310	85	ø 5	6.0		
876.10-S-O-110 / 6 / 230	300	250	155	260	210	ø 8	10.0	876.10-E-O-110 / 6 / 230	220	120	95	210	85	ø 5	2.0		
876.10-S-O-110 / 16 / 230	250	400	150	205	355	ø10	14.0	876.10-E-O-110 / 16 / 230	260	120	95	250	85	ø 5	3.0		
876.10-S-O-110 / 30 / 230	250	400	150	205	355	ø10	16.0	876.10-E-O-110 / 30 / 230	350	250	100	325	225	ø 8	8.0		
876.10-S-T-110 / 6 / 400	500	400	250	455	355	ø10	28.0	876.10-E-T-110 / 6 / 400	220	120	95	210	85	ø 5	2.0		
876.10-S-T-110 / 16 / 400	500	400	250	455	355	ø10	38.0	876.10-E-T-110 / 16 / 400	260	120	95	250	85	ø 5	3.0		
876.10-S-T-110 / 30 / 400	600	400	250	555	355	ø10	54.0	876.10-E-T-110 / 30 / 400	350	120	100	325	225	ø 8	6.0		

for Electro-Permanent Magnetic Chucks	Box version (S) with protection IP54								Build-in version (E) with protection IP00								for Electro-Permanent Magnetic Chucks
	Ordering no.	A	B	C	D	E	F	Weight in kg	Ordering no.	A	B	C	D	E	F	Weight in kg	
	876.10-S-O-210 / 30 / 230	300	250	155	260	210	ø 8	10.0	876.10-E-O-210 / 30 / 230	220	120	95	210	85	ø 5	2.0	
876.10-S-O-210 / 30 / 400	300	250	155	260	210	ø 8	10.0	876.10-E-O-210 / 30 / 400	220	120	95	210	85	ø 5	2.0		
876.10-S-O-360 / 30 / 400	300	250	155	260	210	ø 8	10.0	876.10-E-O-360 / 30 / 400	220	120	95	210	85	ø 5	2.0		
876.10-S-O-360 / 30 x 2 / 400	300	300	150	255	255	ø 8	10.0	876.10-E-O-360 / 30 x 2 / 400	260	120	95	250	85	ø 5	3.0		
876.10-S-O-360 / 30 x 3 / 400	250	400	150	205	355	ø10	11.0	876.10-E-O-360 / 30 x 3 / 400	320	120	95	310	85	ø 5	3.0		
876.10-S-O-360 / 30 x 4 / 400	250	400	150	205	355	ø10	12.0	876.10-E-O-360 / 30 x 4 / 400	320	120	95	310	85	ø 5	4.0		
876.10-S-O-360 / 60 / 400	300	300	150	255	255	ø 8	10.0	876.10-E-O-360 / 60 / 400	260	120	95	250	85	ø 5	3.0		
876.10-S-O-360 / 60 x 2 / 400	250	400	150	205	355	ø10	14.0	876.10-E-O-360 / 60 x 2 / 400	320	120	95	310	85	ø 5	4.0		
876.10-S-O-360 / 60 x 3 / 400	250	500	150	205	455	ø10	16.0	876.10-E-O-360 / 60 x 3 / 400	400	120	95	350	85	ø 5	5.0		
876.10-S-O-360 / 60 x 4 / 400	300	600	150	245	555	ø10	19.0	876.10-E-O-360 / 60 x 4 / 400	540	120	95	530	85	ø 5	6.0		



Ordering example: Electronic Polarity-Reversing Control Unit SAV 876.10 - E - O - 360 / 60 x 4 / 400  
 Ordering key: Name SAV No. - Version - Transformer - Magn. nom. voltage / Max. current / Mains voltage