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.

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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.

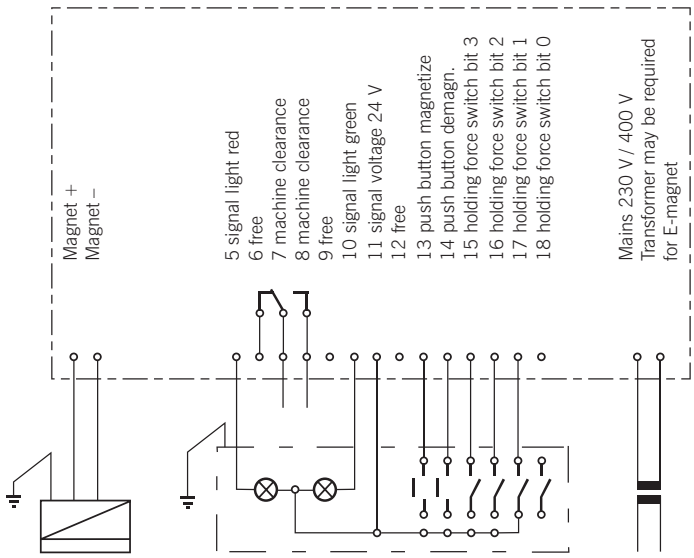
Please refer to BCD-coding table!
Only apply proper control unit SAV 876.02 – SE2-1.
Special programs on request.

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

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 trans-former required
876.10 - _-0-210/30/230	210	30	230	6.3	16	no (O)
876.10 - _-0-210/30/400	210	30	400	6.3	16	no (O)
876.10 - _-0-360/30/400	360	30	400	10.8	16	no (O)
876.10 - _-0-360/30x2/400	360	30x2	400	10.8 x 2	16	no (O)
876.10 - _-0-360/30x3/400	360	30x3	400	10.8 x 3	16	no (O)
876.10 - _-0-360/30x4/400	360	30x4	400	10.8 x 4	16	no (O)
876.10 - _-0-360/60/400	360	60	400	21.6	32	no (O)
876.10 - _-0-360/60x2/400	360	60x2	400	21.6 x 2	32	no (O)
876.10 - _-0-360/60x3/400	360	60x3	400	21.6 x 3	32	no (O)
876.10 - -0-360/60x4/400	360	60x4	400	21.6 x 4	32	no (O)

For Electro Magnetic Chucks

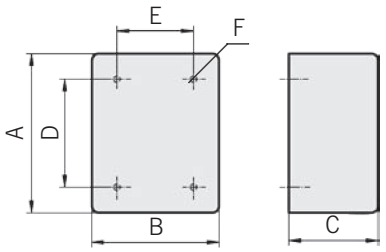
Ordering no.	Magnet voltage DC in V	Magnet current max. in A	Mains voltage AC in V	Max. magnet rating DC in W	Fuse in A	Mains trans-former required
876.10 - _- T-24 / 7 /230	24	7	230	168	4	yes (T)
876.10 - _- T-24 /15/ 230	24	15	230	360	6.3	yes (T)
876.10 - - T-24 /25 /230	24	25	230	600	6.3	yes (T)
876.10 - _- 0-110/ 6 /230	110	6	230	660	4	no (O)
876.10 - _- 0-110/16/230	110	16	230	1760	16	no (O)
876.10 - _-0-110/30/230	110	30	230	3300	25	no (O)
876.10 - _- T-110/ 6 /400	110	6	400	660	4	yes (T)
876.10 - _- T-110/16/400	110	16	400	1760	16	yes (T)
876.10 - - T-110/30/400	110	30	400	3300	25	yes (T)

DIMENSIONS

for Electro Magnetic Chucks

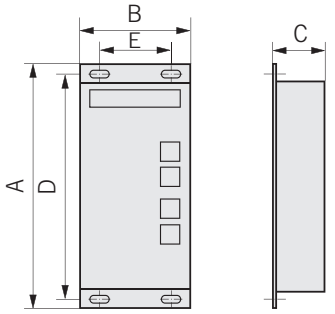
Box version (S) with protection IP54

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-S-T-24 / 15 / 230	250	500	150	205	455	ø10	20.0
876.10-S-T-24 / 25 / 230	500	400	250	455	355	ø10	32.0
876.10-S-O-110 / 6 / 230	300	250	155	260	210	ø 8	10.0
876.10-S-O-110 / 16 / 230	250	400	150	205	355	ø10	14.0
876.10-S-O-110 / 30 / 230	250	400	150	205	355	ø10	16.0
876.10-S-T-110 / 6 / 400	500	400	250	455	355	ø10	28.0
876.10-S-T-110 / 16 / 400	500	400	250	455	355	ø10	38.0
876.10-S-T-110 / 30 / 400	600	400	250	555	355	ø10	54.0



Build-in version (E) with protection IP00

Ordering no.	A	B	C	D	E	F	Weight in kg
876.10-E-T-24 / 7 / 230	220	120	95	210	85	ø 5	2.0
876.10-E-T-24 / 15 / 230	260	120	95	250	85	ø 5	3.0
876.10-E-T-24 / 25 / 230	320	120	95	310	85	ø 5	6.0
876.10-E-O-110 / 6 / 230	220	120	95	210	85	ø 5	2.0
876.10-E-O-110 / 16 / 230	260	120	95	250	85	ø 5	3.0
876.10-E-O-110 / 30 / 230	350	250	100	325	225	ø 8	8.0
876.10-E-T-110 / 6 / 400	220	120	95	210	85	ø 5	2.0
876.10-E-T-110 / 16 / 400	260	120	95	250	85	ø 5	3.0
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

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-S-O-210 / 30 / 400	300	250	155	260	210	ø 8	10.0
876.10-S-O-360 / 30 / 400	300	250	155	260	210	ø 8	10.0
876.10-S-O-360 / 30 x 2 / 400	300	300	150	255	255	ø 8	10.0
876.10-S-O-360 / 30 x 3 / 400	250	400	150	205	355	ø10	11.0
876.10-S-O-360 / 30 x 4 / 400	250	400	150	205	355	ø10	12.0
876.10-S-O-360 / 60 / 400	300	300	150	255	255	ø 8	10.0
876.10-S-O-360 / 60 x 2 / 400	250	400	150	205	355	ø10	14.0
876.10-S-O-360 / 60 x 3 / 400	250	500	150	205	455	ø10	16.0
876.10-S-O-360 / 60 x 4 / 400	300	600	150	245	555	ø10	19.0

Build-in version (E) with protection IP00

Ordering no.	A	B	C	D	E	F	Weight in kg
876.10-E-O-210 / 30 / 230	220	120	95	210	85	ø 5	2.0
876.10-E-O-210 / 30 / 400	220	120	95	210	85	ø 5	2.0
876.10-E-O-360 / 30 / 400	220	120	95	210	85	ø 5	2.0
876.10-E-O-360 / 30 x 2 / 400	260	120	95	250	85	ø 5	3.0
876.10-E-O-360 / 30 x 3 / 400	320	120	95	310	85	ø 5	3.0
876.10-E-O-360 / 30 x 4 / 400	320	120	95	310	85	ø 5	4.0
876.10-E-O-360 / 60 / 400	260	120	95	250	85	ø 5	3.0
876.10-E-O-360 / 60 x 2 / 400	320	120	95	310	85	ø 5	4.0
876.10-E-O-360 / 60 x 3 / 400	400	120	95	350	85	ø 5	5.0
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