To control ventilation and air conditioning systems to changing requirements and conditions is a must for comfortable, energy efficient ventilation.

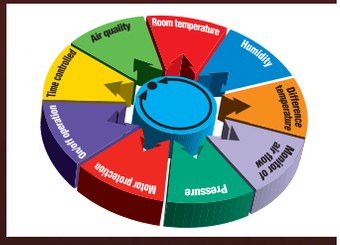
Variations in number of people per room, different number of pollutants, changing temperatures, day and night operation etc. Helios will be pleased to advise on any application.

Everything from one supplier. That gives the installer and user the best possible safety and control with a full guarantee from Helios.

Moreover a lot of time and money is saved during design, installation and operation when the control equipment is fully compatible with the fan in its wiring layout and function. Problems are solved before they occur.

The extensive control, measure and monitor range from Helios offers the matching solutions for every task and fulfills all requirements with regards to energy saving and noise reduction.

Convenient and energy saving control.



Task	Helios controller solution			Page
 **Manual control of air flow volume**	■ **Manual speed controller**			
	– Without motor protection			
	– 230 V, 1 ph.	– Electronic, flush / surface mounted	**ES.., BSX**	403
	– 230 V, 1 ph.	– Transformer, surface mounted	**TSW, TSSW**	404
	– 400 V, 3 ph.	– Transformer, surface mounted	**TSD, TSSD**	405
	– 230 V, 1 ph.	– Transformer, electronic, surface mounted	**ETW**	406
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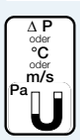
	– With built-in motor full protection for connection to thermal contacts			
	– 230 V, 1 ph.	– Transformer, surface mounted	**MWS**	404
	– 400 V, 3 ph.	– Transformer, surface mounted	**RDS**	405
	– 400 V, 3 ph.	– Electronic, surface mounted	**ESD**	406
	■ **Operation switch for fans with 2 speeds**			
	– Pole switch for Dahlander windings, flush / surface mounted		**PDA / PDU**	401
	– Pole switch for separated windings, flush / surface mounted		**PGWA / PGWU**	401
 **Radio electronic**	■ **Radio switching system**	Portable on / off switch for alternating current fans. Operates without battery and wiring.	**FSS** Transmitter **FSE 1** Receiver	400 400
 **Overrun timer**	■ **Overrun switch**	Thermal electric, electronic, mechanic with adjustable and fixed overrun time	**ZT, ZNE, ZNI, ZV**	399
 **Air quality**	■ **Air quality sensor**	with on / off function depending on room air quality	**ACL**	411
Air flow velocity	■ **Air flow monitor**	for monitoring the minimum air flow velocity in ducts and pipes	**SWE, SWT**	411
 **Room temperature dependant**	■ **Ventilation thermostat**	– one step with on / off function	**TME 1**	410
		– four step, mechanical	**TME 4**	409
		– stepless, electronic	**EST**	409
	■ **Temperature controllers with integrated power unit, surface mounted**			
	– 230 V, 1 ph.	– electronic	**EUR 6 C**	408
		– transformer	**KTRW**	409
	– 400 V, 3 ph.	– transformer	**KTRD**	409
 **Temperature difference dependant**	■ **Differential temperature controller** electronic, stepless,			
	– 230 V, 1 ph.	with power unitfor surface mounting	**EDTW**	411
 **Humidity dependant control**	■ **Humidistat**	with on / off function, surface mounted	**HY 3**	410
	■ **Fans for sanitary area**	with integrated humidity conrol	**M1/.. F, ELS-VF**	22, 53
 **Temperature, pressure, speed Pressure dependant control**	■ **Universal controller**	with power unit 230 V, 1 ph.	**EUR 6 C**	408
	■ **Differential pressure switch** for monitoring the air filters,	system pressure and fan operation	**DDS**	410
 **Motor protection against overload**	■ **Motor full protection switch** to connect the thermal contacts for	monitoring the windings temperature	**MD, MW M 2, M 3, M 4**	402
	■ **Motor protection tripping unit** for PTC - temperature sensor in windings		**MSA**	402
 **Operation switch**	■ **Reverse switch**	to change air flow direction of axial fans	**WS**	400
	■ **Pole / reverse switch**,	as before, but for 2 speed axial fans	**PWGW, PWDA**	401
	■ **Isolating switch**	to disconnect all phases for service works	**RHS**	401
 **Timer**	■ **Weekly autotimer**	for automatic operation control	**WSUP**	399

ZT Ref. No. 1277

Thermal electric overrun timer with adjustable run on time,
depending on duty cycle.
Optional delayed start via different wiring options.
In parallel wiring with light switch the fan can be temporarily switched off via a series switch.

Variable run on time, depending on duty cycle.
Min. approx. 2 min.; max. approx. 12 min.
Optional delayed start (approx. 45 sec.)

Voltage	230 V, 1 ph., 50/60 Hz
Current	4 A (ind.)
Protection to	IP 20
Dimensions mm	W 32 x H 40 x D 14
Installation	UP box behind switch
Wiring diagram-No.	SS-174
– when two rooms/switches are to be controlled	SS-174.3

■ Flush mounted overrun timer for installation in gang boxes behind a switch

Specially designed overrun timer for bathroom and toilet. The compact design allows installation behind a switch within a single gang box. Operation via on / off switch or ideally to be combined with a light switch in rooms without a window. Can be individually adjusted through different timer variations.

ZNE Ref. No. 0342

Electronic overrun timer with stepless adjustable run on time
Operation via on / off switch, e. g. in combination with light switch.
Compact design allows easy installation.

Stepless adjustable run on time	0 – 21 min.
Optional delayed start	45 sec
Voltage	230 V, 1 ph., 50/60 Hz
Current	min. 0.05 A max. 0.8 A (ind.)
Protection to	IP 40
Dimensions mm	W 17 x H 37 x D 13
Installation	in gang box behind switch
Wiring diagram-No.	SS-477.1
– when two rooms/switches are to be controlled	SS-174.3

Interference immunity and emission
ZT is designed with a thermal electric circuit, is immune against tolerable peak voltages and radio suppressed. The interference immunity and emission of ZNE/ZNI comply with the latest EN guidelines. ZV is tested as follows: Interference emission to DIN EN 55014 / VDE 0875-14-1; DIN EN 50370 / VDE 0875-1; DIN EN 61000-3-3 / VDE 0838-3.
Installed with an additional suppressor

EG 0.1 Ref. No. 0273

In order to screen inadmissible peak voltages according to DIN EN 61000-6 the radio interference grade N is achieved. The interference immunity to DIN EN 61000-6-2 / VDE 0839-6-2 up to max. 2 kV. If those figures are exceeded additional measures will be required.

ZNI Ref. No. 0343

Electronic interval switch with adjustable interval and run on time
Starts operation automatically at adjustable time intervals, if no manual switching has taken place. If switched manually, e. g. light switch, the preset overrun time applies.

Adjustable interval time	0, 4, 8, 12, 24 hr.
Run on time if manually switched, stepless adjustable	0 – 21 min.
Optional delayed start	45 sec.
Voltage	230 V, 1 ph., 50/60 Hz
Current	min. 0.05 A max. 0.8 A (ind.)
Protection to	IP 40
Dimensions mm	W 17 x H 37 x D 13
Installation	in gang box behind switch
Wiring diagram-No.	SS-477.1
– when two rooms/switches are to be controlled	SS-174.3

■ Overrun timer for mounting in terminal box

ZV Ref. No. 1279

Electronic overrun timer with stepless adjustable run on time
and operation switch with run on time/continuous operation options. Parallel wiring to a light switch and fan is possible via an on / off switch or push button.

Stepless adjustable run on time	4 – 15 Min.
Voltage	230 V, 1 ph., 50/60 Hz
Current	2.1 A (ind.)
Protection to	IP 20
Dimensions mm	W 18 x H 93 x D 67
Installation	terminal box, 35 mm sectional rail
Wiring diagram-No.	SS-236.1

■ Weekly autotimer

WSUP Ref. No. 9990

Weekly autotimer
Digital autotimer with LCD display to control any unit with a nominal current of up to 8 A automatically. Suitable for switching the least electronic current from 1 mA/20 mV through a standard, gilded µ-contact. Autotimer with 42 switching times is programmable for each week day.

Voltage	230 V, 1 ph., 50 Hz
Current	min. 1 mA / 20 mV DC max. 8 A / 250 V AC $\cos\varphi \approx 1$
Switching contact	potential-free changeover
Protection to	IP 2 W
Dimensions mm	W 85 x H 85 x D 52
Installation	AP casing, UP box
Wiring diagram-No.	SS-862

Reversing switch

For surface and flush mounting

WS Ref. No. 1271

To change air flow direction of 1 ph. and 3 ph. axial high performance fans. Installation: Surface or flush mounted (switch box is included as standard). With screw fixing (M 3, 60 mm). Similar to product pages the units are specified in the model chart

Current	AC 3 / 5.5 kW / 12 A (ind.)
Voltage	230 V, 1 ph., 50/60 Hz 400 V, 3 ph., 50/60 Hz
Protection to	IP 54 (when flush mounted IP 30)
Wiring diagram-No.	SS-752
Weight approx.	0.4 kg
Dimensions mm	W 91 x H 121 x D 109
– when flush mounted	W 72 x H 72 x D 35
Casing	polymer, light grey

Reversing, speed and on / off switch

Installation in UP switch box

DSEL 2 Ref. No. 1306

1. **Speed changeover switch** and on / off switch of fans with two speed steps such as ELS-V.. 60/35, -VN 100/60.
2. **Reverse switch** for changing the air flow direction of reversible fans (for supply and extract air) and on / off switch. Similar to product pages the units are specified in the model chart. Two toggle switches with symbols are included as standard for speed change or reverse operation.
Colour pure white.

Current	3 A (ind.)
Voltage	230 V, 1 ph., 50/60 Hz
Protection to	IP 30
Installation	in standard UP box
Wiring diagram-No. – two speed	SS-827
– Reverse operation	SS-828
Dimensions mm	W 80 x H 80 x D 15
Weight approx.	0.1 kg

Three speed and operation switch with 0 position

Installation in UP switch box

Convenient flush mounted speed switch for fans with three speed steps. Cannot be parallel wired with the light switch.

Voltage	230 V, 1 ph., 50/60 Hz
Weight approx.	0.1 kg

DSEL 3 Ref. No. 1611

Can be used with the fan models ELS-V.. 100/60/35 and ZEB 380.

DSZ Ref. No. 1598

Can be used with the central extract air box ZEB EC.

DSEL 3

Current	3 A (ind.)
Protection to	IP 30
Installation	in standard UP box
Wiring diagram-No.	see fan model
Dimensions mm	W 80 x H 80 x D 23

DSZ

Current	AC 3 / 2.2 kW, AC 15 / 6 A
Protection to	IP 20
Installation	in UP box with 55 mm depth
Wiring diagram-No.	SS-735
Dimensions mm	W 80 x H 80 x D 23

Speed, operation and reversing switch

For surface and flush mounting

FR 22/30 Ref. No. 0998

Suitable for fan models GX 225 or 300.
For surface and flush mounted installation in dry rooms. Three sliding switches with following functions: Two pole operation switch on/off with operating display, high or low speed and reverse switch (supply/extract air).

Current approx.	0.8 A (ind.)
Voltage	230 V, 1 ph., 50/60 Hz
Protection to	IP 20
Wiring diagram-No.	SS-497
Dimensions mm	W 210 x H 85 x D 55
Weight approx.	1.2 kg
Casing	polymer, white

Radio switching system

Portable on/off switch for alternating current fans. Operates without battery and wiring.

This superior radio electronic switch opens up new dimensions inventilation control.
It operates without battery and facilitates a wireless connection from the switch point to the load. The system consists of a transmitter (radio switch, model FSS) and a receiver (model FSE 1). The flat radio switch is suited to mobile use, can also be screwed or fixed. The receiver can be mounted in the flush mounted switch box and in the terminal box.

■ Most important advantages

– Maintenance free and reliable function on the noise free frequency of 868 MHz.
– Wireless control.
– Mobile, through a simple location change of the transmitter.
– No cable installation and electrical work. Additional installations do not require any painting and paperhanging.

Transmitter

FSS Ref. No. 1956

Radio switch with piezo converter. Rocker switch with symbols on/off.

Transmission range	300 m in free field, in dwellings, through walls approx. 30 m
Colour	pure white
Dimensions mm	W 86 x H 80 x D 25
Weight approx.	0.08 kg

Receiver

FSE 1 Ref. No. 1957

Can be accessed from up to 30 transmitters (model FSS).

Current	4 A (ind.)
Voltage	230 V, 1 ph., 50/60 Hz neutral wire necessary
Wiring diagram-No.	SS-839
Dimensions mm	W 51 x H 51 x D 34
Weight approx.	0.05 kg

Pole switches
– for separate windings PGWA
– for Dahlander windings PDA

For surface mounting

Surface mounted operation switch for pole changing fans.

Type	Ref. No.	Current		SS No.
For separate windings				
PGWA 12	5083	AC 3/5.5 kW	12 A	345
PGWA 25	5061	AC 3/11 kW	25 A	345
For Dahlander windings				
PDA 12	5081	AC 3/5.5 kW	12 A	733[1)]
PDA 25	5060	AC 3/11 kW	25 A	733[1)]

[1)] For motors without TK: SS-732

Technical data for all models

Voltage	400 V, 3 ph., 50/60 Hz
Protection to	IP 65

Type	Dimensions mm W	H	D	Weight kg
P.. 12	82	82	130	0.4
P.. 25	92	92	140	0.5

Pole switches
– for separate windings PGWU
– for Dahlander windings PDU

For flush mounting

Pole switch PGWU / PDU
Flush mounted operation switch for pole changing fans.

Type	Ref. No.	Current		SS No.
For separate windings				
PGWU 12	5084	AC 3/5.5 kW	12 A	345
For Dahlander windings				
PDU 12	5082	AC 3/5.5 kW	12 A	733[1)]

[1)] For motors with thermal contacts; without TK: Connection to wiring diagram-No. SS-732

Technical data for both models

Voltage	400 V, 3 ph., 50/60 Hz
Protection to	IP 30
Dim. mm Installation depth	87
Excess length	40
Cover plate	80 x 80
Delivery	incl. flush mounting box
Weight	approx. 0.2 kg

Reverse and pole switch
– for separate windings PWGW
– for Dahlander windings PWDA

For surface mounting

PWGW Ref. No. 1281
For separate windings

PWDA Ref. No. 1282
For Dahlander windings

To switch speed and air flow direction of pole changing fans. Grey polymer casing.

Technical data for both models

Voltage	400 V, 3 ph., 50/60 Hz
Current	AC 3 / 7.5 kW
Protection to	IP 55
Dimensions mm	W 96 x H 105 x D 147
Weight approx.	0.5 kg
Wiring diagram-No. for PWGW	SS-13
Wiring diagram-No. for PWDA	SS-11

Speed reversing switches DS 2..

– for two speed three phase Y/Δ fans

DS 2 Ref. No. 1351
On/off and speed reversing switch for two speed three phase Y/Δ fans. Grey polymer casing for surface mounting.

Technical data for both models

Voltage	400 V, 3 ph., 50/60 Hz
Current	AC 3 / 5.5 kW / 12 A
Dimensions mm	W 82 x H 82 x D 130
Weight	approx. 0.4 kg
Protection to, DS 2	IP 65
Wiring diagram-No. for DS 2	SS-87

– for two speed alternating current fans (SlimVent, RR)

DS 2/2 Ref. No. 1267
On/off and speed reversing switch for two speed 1 ph. fans, RR and SlimVent SVR, SVS.

Protection to, DS 2/2	IP 54
Wiring diagram-No. for DS 2/2	SS-934

Isolator switches RHS

RHS 3 + 1 Ref. No. 1594
Position “0” is lockable via padlock. Conforms to DIN EN 60204 T.1 / VDE 0113-1. Polymer casing for surface mounting. 3-pole isolator with additional terminals, for single speed and speed controlled fans.

Technical data

Voltage	400 V, 3 ph., 50 Hz
Current	
– Main contact	AC 3 / 5.5 kW 12 A ind.
– Auxiliary contact	AC 3 / 2.2 kW 4 A ind.
Protection to	IP 54
Dimensions mm	W 101 x H 126 x D 104
Weight approx.	0.35 kg
Wiring diagram-No.	SS-505.2

RHS 6 + 2 Ref. No. 1595
Position “0” is lockable via padlock. Conforms to DIN EN 60204 T.1 / VDE 0113-1. Polymer casing for surface mounting. 6-pole isolator with 2 additional terminals, for all pole changing fans.

Technical data

Voltage	400 V, 3 ph., 50/60 Hz
Current	AC 3 / 5.5 kW
Protection to	IP 65
Dimensions mm	W 82 x H 82 x D 125
Weight approx.	0.3 kg
Wiring diagram-No.	SS-505.3

Motor protection
Regulations and standards

The harmonised European standards and national installation directives require thermal overload protection for electric motors. This can be achieved in various ways and depends on the motor specification.

☐ Optimal protection is provided by thermal contacts (“TK” consecutively), which monitor the motor winding temperature. These contacts protect also the speed controlled motors.

☐ For low motor powers,the thermal contacts are wired in series with the motor windings, in other words, they are internally wired. This ensures an automatic function (resetting after cooling), without the operator reacting necessarily on the interference.

☐ For motors/fans with higher performances the leads of the thermal contacts or PTC thermistor-temperature sensor are wired to the terminal block and must be connected to the adjacent motor full protection/ tripping units. Only under this condition is the warranty claim valid.

☐ Motors/fans without thermal monitoring elements in the windings (e. g. IEC norm motors) must be secured on all poles by a suitable motor protection switch.

☐ Information	Page
Technical information	17 on
Transformer controllers with motor full protection unit	
– for 1 ph. motors MWS	404
– for 3 ph. motors RDS	405

For 1 ph. fans with thermal contact leads wired to the terminal block

Motor full protection switch MW
Operation and full protection unit in polymer casing for surface mounting or installation in fuse board (clamping assembly for support rail).

MW Ref. No. 1579
On/off operation via push-button switch. Manual reset function interference.
Volt free auxiliary contact for connection of failure indication alarm.
230 V, 1 ph., 50/60 Hz, applicable from 80 V
Nominal current 0.4 to 10 A
Protection to IP 55 Weight approx. 0.5 kg
Dimensions mm W 80 x H 140 x D 95
Wiring diagram-No. SS-517

For 3 ph. fans with thermal contacts

Motor full protection switch MD
Operation and full protection unit in polymer casing for surface mounting or installation in fuse board (clamping assembly for support rail).

MD Ref. No. 5849
On/off operation via push-button switch. Manual reset function interference.
Volt free auxiliary contact for connection of failure indication alarm.
400 V, 3 ph., 50/60 Hz, applicable from 80 V
Nominal current 0.1 to 25 A
Protection to IP 55 Weight approx. 0.5 kg
Dimensions mm W 80 x H 140 x D 95
Wiring diagram-No. SS-518

For pole changing 3 ph. fans with separate windings and thermal contacts

Motor full protection switch M 2
Switching and full protection unit in light grey polymer casing with control lamp for surface mounting.

M 2 Ref. No. 1292
If the thermal contact opens the motor disconnects from the supply. Restarting after interference via “0“ position on the switch.

Voltage 400 V, 50/60 Hz
Power AC 3 / 5.5 kW
Nominal current approx. 12 A
Protection to IP 55 Weight approx. 1.0 kg
Dimensions mm W 170 x H 135 x D 115
Wiring diagram-No. SS-142

For pole changing 3 ph. fans with Dahlander windings and thermal contacts
Motor full protection switch M 3
Design and functions as M 2
For two speed 3 ph. fans with Y/Δ switching and thermal contacts
Motor full protection switch M 4
Design and function as M 3

M 3 Ref. No. 1293
As M 2, but suitable for pole changing 3 ph. fans with Dahlander windings and built-in thermal contacts.
Dimensions mm W 170 x H 135 x D 135
Wiring diagram-No. SS-143

M 4 Ref. No. 1571
As M 3, but suitable for two speed 3 ph. fans with Y/Δ switching and built-in thermal contacts.
Wiring diagram-No. SS-144

For 3 ph. fans with built-in positive temperature coefficient thermistors (PTC temperature sensors) for thermal motor protection. Specified for use in speed controlled, explosion proof fans.

Motor full protection switch MSA
Tripping unit with manual reset for 1 to 6, PTC thermistors wired in series.

MSA Ref. No. 1289
For thermal protection of electric motors to DIN 44081 and 44082 (by guideline 94/9/EG (ATEX)). If the nominal response temperature in PTC thermistors reaches a set limit the built-in relay disconnects the motor. The fault is indicated by a light emitting diode. Restarting via pressing the “Reset” button or an external switch. Casing made of polymer, suitable for fuse board installation on support rail according to DIN EN 60715.
Voltage 230 V ± 15 %, 50/60 Hz
3 phase operation via contactor
Current at 230 V 3 A AC 15
Connection options 1 to 6 PTCs in series
Tested by Physikalisch-Technische Bundesanstalt, according to DIN EN 60079-14/ VDE 0165, DIN EN 60079-0/VDE 0170-1 or DIN EN 60079-10/VDE 0165 T. 101
Protection to IP 20 Weight approx. 0.2 kg
Dimensions mm W 35 x H 90 x D 58
Wiring diagram-No. SS-325.1

■ **Electronic speed controller for stepless speed control of single phase fans**

- ☐ A number of different fans can be controlled with one controller within 90% of the controller's maximum load.
- ☐ The minimum speed can be adjusted using the potentiometer.
- ☐ Overload protection via built-in fuse.
- ☐ Additional terminal (always carrying the full Voltage if controller is switched on) for connection of lamps or shutters.
- ☐ Conforms to EMV directives. VDE 0875/12.88 Pt. 1 and 3, EN 61000, EN 55104, EN 60669 and IEC 669-2-1,CE.

■ **Surface mounted models**

– Attractive, totally closed casing of polymer.
– ESA 1 and 3 with illuminated control knob.

■ **Important note**

☐ Only motors which are suitable for speed control via electronic control should be used.

■ **Electronic speed controllers,** may cause motor humming at lower Voltages. For noise critical applications we recommend the use of low noise transformer controllers.

For surface mounting 230 V / 1 ph.

ESA 1 Ref. No. 0238
Max. load 1 A (T 40 E)
White polymer casing.
Operation display via illuminated ring in control knob.

Minimum current	0.15 A
Protection to	IP 40
Wiring diagram No.	SS-556.1
Dimensions mm	W 80 x H 80 x D 65

ESU 1 Ref. No. 0236
flush mounting in mm ø 57; D 34

ESA 3 Ref. No. 0239
Max. load 2.5 A (T 40 E)
White polymer casing.
Operation display via illuminated ring in control knob.

Minimum current	0.15 A
Protection to	IP 40
Wiring diagram No.	SS-556.1
Dimensions mm	W 80 x H 80 x D 65

ESU 3 Ref. No. 0237
flush mounting in mm ø 57; D 34

ESA 5 Ref. No. 1299
Max. load 5 A (T 40 E)
Light-grey polymer casing, facia plate anodied aluminium

Minimum current	0.2 A
Protection to	IP 54
Wiring diagram No.	SS-165
Dimensions mm	W 85 x H 155 x D 72

ESU 5 Ref. No. 1296
flush mounting in mm W 69 x H 152 x D 42

For surface mounting, with reversing switch 230 V / 1 ph.

Suitable for fan models: HVR 150/2 RE, REW 150 and 200, range HV. H..200/4 and 250/4 and window fans GX..

BSX Ref. No. 0240
Max. load 1 A (T 40 E)
Surface mounted speed controller with reversing switch for reversible fans (intake/extract) in a white polymer casing. Only suitable for fans, that are reversible via reversing switch.

Minimum current	0.15 A
Protection to	IP 40
Wiring diagram No.	SS-480.2
Dimensions mm	W 80 x H 80 x D 65

For fuse board installation 230 V / 1 ph.

ESE 2.5 Ref. No. 1302
Max. load 2.5 A (T 40 E)
For installation in fuse boards (35 mm standard buzzbar profile and for 68 mm built-in range).

Minimum current	0.1 A
Protection to	IP 20
Wiring diagram No.	SS-376
Dimensions mm	W 50 x H 85 x D 60 (there from 10 mm protruding)

For surface mounting 220/240 V / 1 ph.

AVAILABLE IN THE UK ONLY!

Electronic speed controller

Frequency	50/60 Hz
Protection to	IP 65
Wiring diagram No.	SS-710

ESA 3 IND Ref. No. 7806
Maximum current 3 A
Dimensions mm W 111 x H 99 x D 54

ESA 6 IND Ref. No. 7807
Maximum current 6 A
Dimensions mm W 145 x H 97 x D 64

ESA 10 IND Ref. No. 7808
Maximum current 10 A
Dimensions mm W 104 x H 146 x D 83

■ Five step transformer speed controller for speed controlling of 1 ph. alternating current fans

☐ Suitable for power control of all speed controllable 1 ph. alternating current fans.

☐ Four secondary voltages stepped in 80 / 100 / 130 / 170 and 230 V (full mains voltage) allow to control 5 fan speeds.

☐ A number of different fans can be connected to one controller up to its nominal load.

■ Advantages

- Good cost effectiveness.
- Reliable.
- Low loss and low noise fan operation.
- MWS-, TSW- (from the model TSW 1,5) and STSSW models with full power output for connection with the signal lamp or shutter.

■ Design for surface mounting units

- Robust ISO casing, light grey, made of impact resistant polymer. Protection to IP 54.
- Built-in operating switch for five speed steps and on/off function.
- Operation display via control lamp.
- Fully impregnated transformers T 40 E.
- Conforms to DIN VDE 0550.
- Max. permitted ambient temperature +40 °C.
- Delivered ready for installation, simple connection to terminal block.

■ Design for built-in transformers

- Built-up terminal block for five voltage outputs.
- Attached fixing brackets for simple fixture.
- Fully impregnated transformers T 40 E.

☐ Accessories

Six step cam switch, model STSSW for switch board installation, with front mounting plate.

For surface mounting
Max. load 0,35 A
1 ph. alternating current, 230 V

Mini speed controller TSW 0.3

Compact five step speed controller with on/off switch for surface mounting in dry rooms. Polymer casing, white.

TSW 0.3	Ref. No. 3608
max. load 0.35 A	
Protection to	IP 20
Dimensions mm	W 160 x H 85 x D 60
Wiring diagram-No.	SS-496.1

For surface mounting
1 ph. alternating current, 230 V

Transformer speed contr. TSW

For one or more alternating current fans.

Type	Ref. No.	I max. A	Dim. in mm W	H	D
TSW 1.5[1]	1495	1.5	154	200	79
TSW 3.0[1]	1496	3.0	154	200	148
TSW 5.0[2]	1497	5.0	200	254	167
TSW 7.5[2]	1596	7.5	200	254	167
TSW 10[2]	1498	10.0	200	254	167

[1] SS-960 [2] SS-437.1

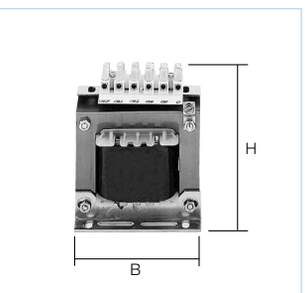
For switchboard installation
1 ph. alternating current, 230 V

Speed control transformer TSSW

Built-in transformer with rail and terminals for 5 output voltages.

Type	Ref. No.	I max. A	Dim. in mm W	H	D
TSSW 1.5	6520	1.5	78	90	78
TSSW 3	6521	3.0	84	94	92
TSSW 5	6522	5.0	105	111	87
TSSW 10	6523	10.0	120	122	112

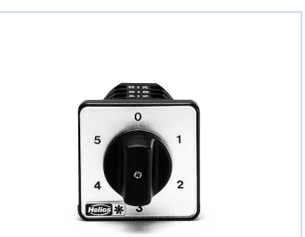
Wiring diagram-No. SS-268



Five step operating switch STSSW

Accessory for control transformer TSSW for 230 V, 1 ph. fans. For switchboard installation with front fixing and front panel. Connections are deepened.

STSSW	Ref. No. 0234
Voltage	AC 3, 230 V
max. load	2.2 kW
Installation depth	70 mm, □ 46 mm
Wiring diagram-No.	SS-548



With motor full protection facility
1 ph. alternating current, 230 V
For surface mounting

Transformer speed contr. MWS with motor full protection facility

Five step speed controller with integrated tripping unit for 230 V, 1 ph. fans. To connect thermal contacts wired to the terminal box. A number of fans can be controlled up to the nominal load. If a thermal contact trips all fans will be disconnected. Step switch and control lamp included. Restarting via “0” position after interference or power cut off.

Type	Ref. No.	I max. A	Casing IP 54 made of	Dimensions in mm W	H	D	Weight approx. kg
MWS 1.5	1947	1.5	Polymer	200	254	98	3.0
MWS 3	1948	3.0	Polymer	200	254	98	4.0
MWS 5	1949	5.0	Polymer	200	254	167	5.3
MWS 7.5	1950	7.5	Polymer	236	316	188	10.0
MWS 10	1946	10.0	Polymer	236	316	188	13.5

Connection according to wiring diagram No. SS-440.4

■ Five step transformer speed controller for speed controlling of 3 ph. alternating current fans

☐ Suitable for speed control of all speed controllable 3 ph. alternating current fans, for Y/Δ reversible switching models in higher steps.

☐ Four secondary voltages stepped in 80 / (115)* / 140 / 200 / 280 and 400 V (full mains voltage) allow to control 5 fan speeds.
* On TSD internally adjustable for voltage controllable, explosion proof in-duct and roof fans.

☐ A number of different fans can be connected to one controller up to its nominal load.

■ Advantages

- Good cost effectiveness.
- Reliable.
- Low loss and low noise fan operation.
- RDS-, TSD- and STSSD models with full power output for connection with the signal lamp or shutter.

■ Design for surface mounting units

- Robust ISO casing, light grey, made of impact resistant polymer. Protection to IP 54. Models from RDS 7 and TSD 5.5 made of steel, double painted, protection to IP 65.
- Built-in operating switch for five speed steps and on/off function.
- Operation display via control lamp.
- Fully impregnated transformers T 40 E, protection class II.
- Conforms to DIN VDE 0550.
- Max. permitted ambient temperature +40 °C.
- Delivered ready for installation, simple connection to terminal block.

■ Design for built-in transformers

- Two transformers in V switching ensure the functions as described above.
- Built-up terminal block for five voltage outputs.
- Attached fixing brackets for simple fixture.
- Fully impregnated transformers T 40 E.
- Contactors and external wiring to be supplied onsite.

☐ Accessories

Five step switch STSSD for fuse board installation, with front board.

For surface mounting
3 ph. alternating current, 400 V

Speed control transformer TSD

As TSW, but for 3 phase fans.

Type	Ref. No.	I max. A	Dim. in mm W	H	D
TSD 0.8	1500	0.8	200	254	167
TSD 1.5	1501	1.5	200	254	167
TSD 3.0	1502	3.0	200	254	167
TSD 5.5	1503	5.5	300	300	150
TSD 7.0	1504	7.0	300	300	150
TSD 11.0	1513	11.0	300	400	200

Wiring diagram-No. SS-436.2

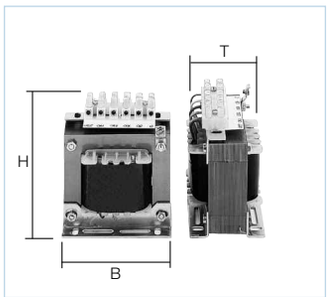
For switchboard installation
3 ph. alternating current, 400 V

Speed control transformer TSSD

As TSSW, but two transformers without casing, in V switching.

Type	Ref. No.	I max. A	Dim. in mm W	H	D
TSSD 1	6516	1.0	84	95	80
TSSD 2	6517	2.0	96	104	92
TSSD 4	6518	4.0	105	112	98
TSSD 7	6519	7.0	120	122	134
TSSD 11	6515	11.0	150	146	158

Wiring diagram-No. SS-267.1



5 step operating switch STSSD

Suitable for control of transformer TSSD for 400 V, 3 ph. fans. For switchboard installation with front fixing and front panel. Connections are deepened.

STSSD	Ref. No. 0235
Voltage	AC 3, 400 V
max. load	5.5 kW
Installation depth	110 mm, □ 46 mm
Wiring diagram-No.	SS-549.1

With motor full protection facility
3 ph. alternating current, 400 V
For surface mounting

Transformer speed controller RDS with motor full protection facility

Five step speed controller with integrated thermal contact tripping unit for 400 V, 3 ph. alternating current fans. To connect thermal contacts wired to the terminal box. A number of fans can be controlled up to the nominal load. If a thermal contact trips all fans will be disconnected. Step switch and control lamp included. Restarting via “0” position after interference or power cut off.

Type	Ref. No.	I max. A	Casing IP 54 made of	Dimensions in mm W	H	D	Weight approx. kg
RDS 1	1314	1.0	Polymer	236	316	128	6.0
RDS 2	1315	2.0	Polymer	236	316	128	9.7
RDS 4	1316	4.0	Polymer	236	316	128	10.5
RDS 7	1578	7.0	Steel	300	300	150	21.0
RDS 11	1332	11.0	Steel	300	400	200	26.0

Designed to comply with VDE 0550, fully impregnated transformers in V switching.
Max. permitted ambient temperature + 40 °C. Wiring diagram-No. SS-139.

Electronic speed controller for 3 ph. fans 400 V, 50/60 Hz
Electronic transformer controller for 1 ph. fans 230 V, 50/60 Hz

ESD

ETW

The Helios range of speed controllers offer a simple solution between fans and building management systems!

Common features

- ☐ Control via analogue 0–10 V input signal on the building site, electronic control system EUR 6 C or other control units.
- ☐ A number of different fans can be controlled by one controller up to its maximum load.
- ☐ Several controllers can be controlled in parallel by a building management system that allows the ventilation to be divided in several fans or fan units and therefore in several circuits.

Accessories for both ranges

An universal control unit with 10 V can be used if the fans are not controlled by a building management system.

EUR 6 C Ref. No. 1321
For specification see the page of electronic control system.

Specification ESD

Convenient, stepless, electronic speed controller for 3 ph. fans, which can be controlled via phase control through voltage lowering (except KVD.. Ex models).
The most modern technology by use of micro controllers.

Adjusting possibilities/Display

- ☐ On/off and stepless speed selection via rotary potentiometer.
- ☐ 0-10 V input. Thereby can be remote controlled by an external rotary potentiometer (22 kOhm).
- ☐ 3 ph. phase monitoring, Protection against phase failure.
- ☐ Smooth start-up function.
- ☐ Automatic minimum initial voltage 80 V.
- ☐ Fulfills EMV requirements class B, no need for shrouded wiring between unit and motor.
- ☐ LEDs as status and fault display.
- ☐ Integrated protection for electronics against overload.
- ☐ Motor full protection through monitoring the thermal contacts of motors.

Casing

- ☐ Polymer casing, light grey with wide cooling element.
- ☐ Can be used directly even in dirty areas (e.g. kitchen) through the protection to IP 65.

Specification ETW

Seven step electronic transformer control unit for speed control of 1 ph. fans.
Robust and low loss power units for ventilation systems controlled by building management systems.

Adjusting possibilities/Display

- ☐ Built-in operating switch allows on, off and direct supply.
- ☐ Power step rotary switch allows manual operation of steps (1–7) or automatic operation.
  In “auto” mode the automatic control of the transformer control unit is carried out by the onsite ventilation control.
- ☐ The operating step is displayed by a LED.
- ☐ The built-in minimum air volume switch can be totally switched off from the ventilation controller via an analogue input.

Overload protection

ETW models are protected by a built-in temperature switch against permanent overload. When the overload protection trips the unit switches automatically to direct supply. After cooling down the unit switches back to normal operation. The interference can or should be signalised via the output to an external alarm.

Casing

- ☐ Polymer casing, light grey.

Dimensions

Type	Dim. in mm			Weight kg
	H	W	D	
ETW 5	315	240	210	8
ETW 10	315	240	210	10

Model range

Type	Ref. No.	Output current	Power input	Connection to wiring diagram	Dimensions H	W	D	Cooling element Width	Weight	Protection to
		A	kW	No.	mm	mm	mm	mm	kg	IP
For alternating current fans, 3 ph., 400 V, 50/60 Hz										
ESD 5	0501	5.0	2.2	831	160	115	165	23	1.5	65
ESD 11.5	0502	11.5	5.5	831	160	160	165	68	1.7	65

Model range

Type	Ref. No.	Output current	Output voltages Step ❶	❷	❸	❹	❺	❻	❼	Connection to wiring diagram	Protection to
		A	V							No.	IP
For alternating current fans, 1 ph., 230 V, 50/60 Hz											
ETW 5	1263	5.0	80	95	115	135	165	195	230	683	54
ETW 10	1264	10.0	80	95	115	135	165	195	230	683	54

FU..

Advantages

- ☐ Specifically for the HLK usage of optimised inverter.
- ☐ Immediate start-up via plug + drive concept.
- ☐ Considerable energy savings through on demand fan speed.
- ☐ Specifically designed for fans, resulting in minimum energy consumption and minimum noise production in partial load zone.
- ☐ Suitable for maintenance free three phase asynchronous motors of all sizes and performance levels.
- ☐ No power limitation if standard motors are used.
- ☐ Precisely, on demand power adjustment.
- ☐ Fault indication via voltage free contacts.
- ☐ Programmable acceleration and deceleration times to reduce starting noise.
- ☐ Simple to add on to existing systems.
- ☐ Integrated radio suppression filter to adherence of limits according to EN 55011 class A, group 1 (for panel mounting units FUS..) or class B, group 1 (for models FUG.. in surface mounted casing).
- ☐ Internal power supply: 10 V DC/10 mA for potentiometer 1–10 kOhm and 24 V DC/200 mA for control of digital inputs.

Special features

- ☐ Simple adjustment and control of values via display.
- ☐ Extensive diagnostic display in case of failure.
- ☐ Compact design.
- ☐ Analogue inputs for speed selection (0-10 V, 0 -20 mA, 4 -20 mA).
- ☐ Speed selection
  - – via analogue inputs
  - – via potentiometer
  - – directly on unit via display.
- ☐ Protection against earth leakage and short circuit.
- ☐ Built-in electronic motor protection via thermal contacts or PTC.
- ☐ Control circuit galvanically separated.
- ☐ Integrated mains filter to reduce circuit feedback.
- ☐ Protection against peak voltage.
- ☐ Serial port RS 485.

Technical information

When selecting a suitable frequency inverter, the max. motor current must be considered. If a number of fans are controlled the sum of all the individual currents must be taken. In order to avoid faults and breakdowns, a reserve of 10 % must be kept. The maximum frequency of 50 Hz must not be exceeded with standard fans, as the motor will overloaded and thus fail. An operation with higher frequency is available on request. If operated for longer times at very low speed (< 20 % of nominal speed) or if the speed changes frequently the motor temperature must be monitored through thermal contacts or PTC. For design details see installation and operation instructions.

Note

Different motors are only suitable for operation with the frequency inverter, if a sinus filter on all poles is installed between inverter and motor to protect the phases against each other. When ord ring the fan, it must be stated that a frequency inverter is to be used.

Design – model range

Helios VarioVent cover the range from 1.5 to 22 kW (43.5 A). Units for higher outputs are available on request.

There are two models:

- – Basic version FUS.. , IP 20, switchboard mounting, EMV filter class A.
- – Casing version FUG.. for surface mounting, IP 54, EMV filter class B.

The designs differ with regards to protection, dimensions, radio interference suppression as well as the maximum cable length. They can be operated directly via integrated display or via remote control.

Type	Ref-No.	maximum power Output current	Motor	Cable cross sectional area from supply and to motor (shielded cable)	Connection to wiring diagram	Dimensions Height	Width	Depth	Nominal weight approx.	Suitable sinus filter*	
		A	kW	mm^2	No.	mm	mm	mm	kg	Type	Ref. No.
Units for panel mounting, protection to IP 20											
FUS 3.7	6093	3.7	1.5	4 x 1.5[1)]	896	192	105	150	2.0	FU-SF 11	6116
FUS 5.1	6094	5.1	2.2	4 x 1.5[1)]	896	192	105	150	2.0	FU-SF 11	6116
FUS 7.2	6095	7.2	3.0	4 x 1.5[1)]	896	232	140	150	3.4	FU-SF 11	6116
FUS 12	6097	12.0	5.5	4 x 2.5[1)]	896	232	140	150	3.4	FU-SF 16	6117
FUS 16	6098	16.0	7.5	4 x 4.0[1)]	896	307	180	170	6.5	FU-SF 33	6118
FUS 22.5	6099	22.5	11.0	4 x 6.0[1)]	896	405	245	190	6.5	FU-SF 33	6118
FUS 30.5	6100	30.5	15.0	4 x 10[1)]	896	405	245	190	11.7	FU-SF 33	6118
FUS 37	6101	37.0	18.5	4 x 16[1)]	896	405	245	190	11.7	FU-SF 66	6119
FUS 43.5	6102	43.5	22.0	4 x 16[2)]	896	537	240	210	26.4	FU-SF 66	6119
Units for surface mounting, protection to IP 54											
FUG 3.7	6105	3.7	1.5	4 x 1.5[3)]	896	297	215	192	7.5	FU-SF 11	6116
FUG 5.1	6106	5.1	2.2	4 x 1.5[3)]	896	340	230	208	7.5	FU-SF 11	6116
FUG 7.2	6107	7.2	3.0	4 x 1.5[3)]	896	340	230	208	10.6	FU-SF 11	6116
FUG 12	6109	12.0	5.5	4 x 2.5[3)]	896	340	230	208	10.6	FU-SF 16	6117
FUG 16	6110	16.0	7.5	4 x 4.0[3)]	896	340	230	208	11.9	FU-SF 33	6118
FUG 22.5	6111	22.5	11.0	4 x 6.0[3)]	896	560	290	315	36.5	FU-SF 33	6118
FUG 30.5	6112	30.5	15.0	4 x 10[3)]	896	560	290	315	36.5	FU-SF 33	6118
FUG 37	6113	37.0	18.5	4 x 16[3)]	896	665	310	315	45.0	FU-SF 66	6119
FUG 43.5	6114	43.5	22.0	4 x 16[3)]	896	720	284	315	58.5	FU-SF 66	6119

maximum cable length: [1)] 5 m [2)] 50 m [3)] 20 m * For switchboard mounting, IP 20

General technical data

Supply voltage	3 ph., 380 – 480 V
Frequency	50/60 Hz
Output voltage	0 – supply voltage
Output frequency	0 – 200 Hz
Control inputs and outputs:	
2 analogue inputs	0 – 10 V DC 0 – 20 mA DC
3 logic inputs	max. 30 V
1 analogue output	0 – 10 V DC 0 – 20 mA
2 relay outputs	min. 3 mA, 24 V DC max. 2 A, 250 V (ind)
Internal Voltage source	10.5 V DC, 10 mA 24.0 V DC, 200 mA
Ambient temperature	–10 to +40 °C

Accessories

Electronically automatic control for connection to FU.. models.

EUR 6 C Ref. No. 1321

For specification see the product page of electronic control system.

Electronic control system EUR 6 C
1 ph., 230 V, control variables: Temperature, pressure, air velocity

■ Universal controller EUR 6 C Electronic control automatic with power supply unit operating on the phase control principle.

□ Operation
For control of central ventilation systems or for stepless control of one or several speed controllable 1 ph. fans.
In domestic, commercial, industrial and agricultural applications.

□ Control functions
Simple and quick start-up of parameters via integrated “start-up wizard”. Depending on the connected sensor a control can be carried out according to following control variables:
- **Manual speed control**, e.g. adjustable via keyboard
- **Temperature standard** (required accessory, temperature sensor LTR 40 or LTK 40)
- **Temperature with additional functions** hard-wired, (required accessory, temperature sensor LTR 40 or LTK 40)
- **Differential temperature control** (required accessory, temperature sensor LTR 40 or LTK 40)
- **Differential pressure standard** (required accessory, differential air pressure sensor LDF 500)
- **Differential pressure with outside temperature compensation** (required accessory, diffferential air pressure and temperature sensor LDF 500 and LTR 40 or LTK 40). Ideally used in central extract ventilation systems according to DIN 18017 in domestic applications.
- **Air velocity** (required accessory, air velocity sensor LGF 10)

The required sensor is to be ordered as accessory separately. The control ranges are freely adjustable within the sensor’s range.

The aligned output voltage according to nominal value and current value is between 0 % (35 V) to 100 % (correspond to approx. 80 V – 230 V).

The selection of minimum and maximum values are possible.

- Main switch with positions:
  “0” = Controller off
  “I” = Automatic operation
  “230 V” = uncontrolled direct supply.

Inputs and outputs:
Outputs:
- 1 x motor connection based on phase control principle.
- 1 x analogue output 0–10 V control of e.g. a frequency inverter, shutter, EC-motor.

- 2 x voltage free relays, programmable, alarm, heating or status signals.

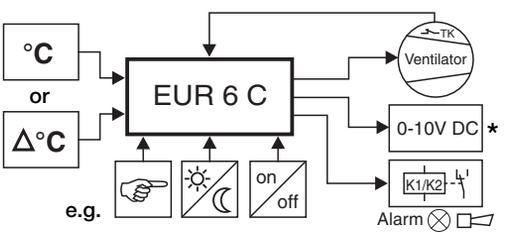
Inputs:
- 2 x sensor inputs, programmable on the particularly needed sensor type.
- Connection of thermal contacts for motor protection.

The whole system stops when a thermal contact trips. It must be restarted manually after the motor has cooled down.
- 2 x digital inputs, programmable to enable, external interference, limit on/off, switching night time mode, internal/external, automatic/manual, reset, max. speed on/off.

Settings
- Stepless selection of nominal values and control range
- Min./max. power (speed) limitation
- On/off switching of minimum air flow volume
- Setting for a switched output e.g. for a heater via programmable relay
- Stepless selection for alarm indication at over and under temperature, Output on display or additionally on relay
- Min. and max. shutter opening
- Reverse control functions
- Continuous control of ventilation dampers
- The setting is carried out through a dirt resistant membrane keyboard

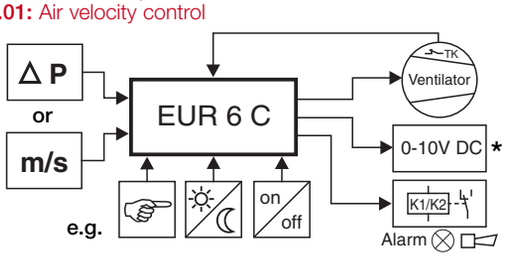
□ Display
- Multi functions LC-display
- Numerical nominal and actual value display with scale
- Symbols (alarm, heater, selection)
- Bar graph/level indicator
- Text display for menu, status and fault indications

Mode 2.03: Temperature control with additional function
Mode 2.05: Differential temperature control



* e.g. for EC-Motor, shutter, frequency inverter

Mode 4.01: Differential pressure control
Mode 6.01: Air velocity control



* e.g. for EC-Motor, shutter, frequency inverter

□ Casing
Polymer, light grey, for surface mounting.
Protection to IP 54
Dim. mm W 223 x H 200 x D 131

■ Required accesories

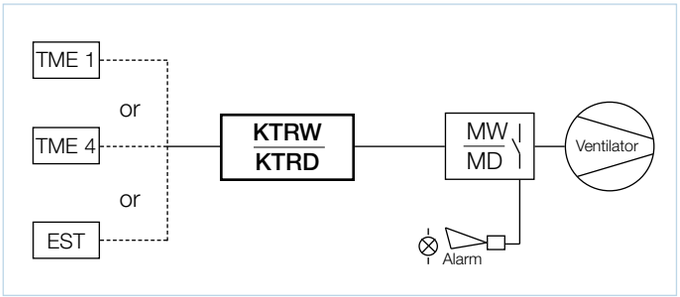
LDF 500	Ref. No. 1322
Differential air pressure sensor	
Range 0 – 500 Pa	
LGF 10	Ref. No. 1325
Air velocity sensor	
Range 0 – 10 m/s	
LTA 40	Ref. No. 1336
Temperature sensor for outside	
Range –20 to +60 °C	
LTK 40	Ref. No. 1324
Temperature sensor for in-duct installation	
Range 0 to +40 °C	
LTR 40	Ref. No. 1323
Room temperature sensor	
Range 0.5 to +40 °C	

EUR 6 C	Ref. No. 1321
Voltage	230 V, 1 ph., 50/60 Hz
max. current	6 A
Required minimum current	0.2 A
Controlled output voltage	0 – 100 %
Control range temperature	0 – 40 °C
Control range pressure	0 – 500 Pa
Control range velocity	0 – 10 m/s
Permitted ambient temperature	0 to +40 °C
Weight	approx. 1.4 kg
Wiring diagram-No.	SS-911

□ Note
Electronic speed controllers may produce motor humming. For noise critical applications transformer controllers to be used.

■ Five step auto transformer controller KTRW and KTRD

☐ Delicate, low loss transformer controller for temperature dependent fan control.
☐ Recommended for noise critical applications.
☐ Control via an electronic thermostat TME 4 or EST to be ordered separately as accessory.



For alternating current fans 1 ph., 230 V, 50/60 Hz

Auto transformer KTRW 230 V
For automatic control of one or several 1 ph. alternating current fans in relation to the room temperature.
Five step automatic operation, whereby each step can be switched manually as well.
Suitable for agricultural applications.
Light grey, polymer casing.

Type	Ref. No.	I max. A	Dim. in mm W	H	D
KTRW 3	1662	3	236	316	128

Voltage	230 V, 1 ph., 50/60 Hz
Protection to	IP 54
Max. ambient temperature	+40 °C
Wiring diagram-No.	SS-674

For alternating current fans 3 ph., 400 V, 50/60 Hz

Auto transformer KTRD 400 V
For automatic control of five step 3 ph. alternating current fans in relation to the room temperature.
The built-in operating switch allows five step manual and automatic control.
Robust casing made of steel, double painted in light grey.

Type	Ref. No.	I max. A	Dim. in mm B	H	T
KTRD 3	1650	3	300	500	200
KTRD 5,5	1651	5.5	300	500	200
KTRD 10	1652	10	400	500	200
KTRD 15	1653	15	400	500	200

Voltage	400 V, 3 ph., 50/60 Hz
Protection to	IP 54
Max. ambient temperature	+40 °C
Wiring diagram-No.	SS-676.1

■ Accessories for KTRW and KTRD

Four step electronic thermostat
For temperature dependent control of a KTR transformer controller or for on/off operation of up to four single phase fans (supply voltage 230 V required).

Electronic four step thermostat with a switching sequence of 1 K for adjusted nominal value.
Enables a five step, temperature controlled fan operation in combination with the auto transformer KTR according to the relation between the nominal and actual temperatures.
Robust casing made of impact resistant, light grey polymer.
Cable entry at the bottom of the casing in PG 11.

TME 4	Ref. No. 1335
Voltage	230 V, 1 ph., 50/60 Hz
Max. continuous current (AC 3)	6 A
Temperature range	0 to +50 °C
Switching precision	+/- 0.8 K at 20 °C
Switching distance	1 K
Protection class	II
Protection to	IP 54
Dimensions mm	W 120 x H 80 x D 75
Weight approx.	0.4 kg
Wiring diagram-No.	SS-702

Electronic control thermostat EST with versatile control variables to control an auto transformer KTR..

Control functions
– Temperature dependent, five step fan control via KTR.. units. Limiting of control range through selecting a minimum and maximum air rate (voltage). Minimum air rate can be switched on and off.
– Ventilation damper control (analogue 0...10 V)
– Control of a frequency inverter (analogue 0...10 V)
– Heating thermostat
– Temperature display (too low and to high temperature with outside air temperature compensation).
– The setting is carried out through a dirt resistant membrane keyboard.

☐ **Displays**
– Displays for operation mode, room temperature, outside temperature and adjusted nominal temperature.
– Signal-LED for lowering automatism.
– Alarm signal-LED for over/under temperature and system failures.
– Scaled LED display (0–100 %) for fan speed and opening of shutter

☐ **Temperature sensor**
An outside and an inside temperature sensors are included as standard. Casing with protection to IP 55. Installation up to 100m distance from controller. To connect via 3 x 1.5 mm² cable.

☐ **Settings**
– Stepless selection of nominal temperature and control range.
– Min. / max. power (speed) limit.
– On/off switching of minimum air flow volume.

EST	Ref. No. 1355
Voltage	230 V, 1 ph., 50/60 Hz
Protection to	IP 54
Transformer connect.	230 V AC/max. 10 A
Temperature range (adjustable)	0 – 40 °C
Control range (adjustable)	2 – 12 K
Alarm low temp. (adjustable)	-20 – 0 K
Alarm high temp. (adjustable)	0 – 25 K
Heating (adjustable)	-15 – +5 K
Outside temp. compensation	0 – 20 K
Min. air rate approx.	0 – 40 %
Max. air rate approx.	60 – 100 %
Disable of minimum air speed	-25 – 0 K
Dimensions mm	W 260 x H 215 x D 120
Weight approx.	2.0 kg
Wiring diagram-No.	SS-357.3

– Lowering automatism on/ off
– Stepless temperature selection for heater control
– Stepless selection of alarm indication at too low and too high temperatures
– Min. and max. shutter opening

■ Casing

Polymer, light grey with transparent hinged lid, for surface mounting.

Differential pressure switch DDS

DDS Ref. No. 0445

Operation

- ☐ Complete kit to monitor air filter, system pressure and fan operation.
- ☐ Suitable for BMS applications (24 V DC/0,1 A) thanks to the gold-plated connection contacts. Once the unit has been connected conventionally (230 V AC/1,5 A) a BMS application is no longer possible.
- ☐ Suitable for applications according to VDI 6022.

Technical data

Adjustable pressure range	50 – 500 Pa
Switching difference Δp	20 Pa
max. system over pressure	5 kPa
Current	230 V AC 1.5 (0.4) A 24 V DC 0.1 A
Ambient temp.	-20 to +85 °C
Air flow temp.	-20 to +85 °C
Humidity	0...50% r.F., non-condensing
Protection to	IP 54
Dimensions mm	ø 104, D 58
Weight approx.	0.23 kg
Wiring diagram-No.	SS-490

Function

Adjustable opener/closer to monitor the pressure drops and thus the amount of dust in air filters, the pressure increase of fans and the pressure level within the ventilation system.

Product contents

Complete kit including:

- – Differential pressure switch DDS
- – 4 fastening screws
- – 2 pipe connections
- – Connection pipe ø 6 mm x 1.5 mm x 2000 mm
- – Drilling template for connecting points
- – Retain plate + 3 fastening screws
- – 3 screw terminals

One step thermostat TME 1

TME 1 Ref. No. 1334

Operational applications

- ☐ Robust, electronic thermostat for temperature dependent on/off operation of fans or heaters. Suitable for installation in humid and dusty rooms. Surface mounting in any position.

Technical data

Voltage	230 V, 1 ph., 50/60 Hz
Current	16 A
Max. current (AC 3)	6 A
Temperature range	0 to +50 °C
Switching sensitivity	+/- 0.8 K at 20 °C
Protection class	II
Protection to	IP 54
Ambient temp.	0 bis +60 °C
Dimensions mm	W 82 x H 80 x D 75
Weight approx.	0.2 kg
Wiring diagram-No.	SS-701
Connection cable	NYM-O 4 x 1.5 mm²

Function

- ☐ Single step control thermostat for direct switching of one or a number of fans.
- ☐ Also suitable for heater control through optional connection.
- ☐ Voltage free switch-over contact.

Specification

- ☐ Enclosed casing made of impact resistant, light grey polymer. Cable entry on the bottom of casing via self-sealing grommet PG 11.
- ☐ Connection via terminal block, after removing the casing cover.

Ventilation humidistat

HY 3 Ref. No. 1359

Ventilation humidistat

HY 3 SI Ref. No. 1360

Inner scale.

Operation

- ☐ Electromechanical humidity controller for on/off operation of fans (in 3 ph. models control via contactor) to reduce the relative humidity in a room through air exchange.

Technical data

Relative humidity level	30 to 90 %
Switching sensitivity approx.	± 6 %
Voltage max.	230 V, 1 ph., 50/60 Hz
Current	3 A (ind.)
Ambient temperature	0 – 40 °C
Protection to	IP 20
Dimensions mm	W 76 x H 76 x D 34
Weight approx.	0.25 kg
Wiring diagram-No.	SS-168.1

HY 3

HY 3 SI NEW!

Specification

- ☐ Universal hygrostat housed in an attractive polymer casing for surface mounting. Colour white.
- ☐ Set value adjustment via external rotary knob. In HY 3 SI via the inner scale.
- ☐ Not suitable for dusty or aggressive air.
- ☐ Sensor element made of polyamid fibres.
- ☐ Also suitable for humidification through optional connection.

Air quality controller
ACL Ref. No.0492

■ **Operation**
☐ Electronic air quality sensor to control:
– 1 ph. alternating current fans to max. 1 A.
– 3 ph. alternating current fans via contactor.
■ For ventilation systems in conference rooms, restaurants, shops, manufacturing plants, domestic rooms etc.

■ **Function**
☐ On and off operation of one or a number of fans in relation to the room's air quality.
☐ The unit has an integrated sensor which reacts on oxidable gases and pollutants such as carbon monoxide, alcohol, formaldehydes, benzene, solvent, methane, tobacco etc.

■ **Adjustment possibilities**
☐ The unit switches the fan on if the set value is exceeded or if the concentration rises quickly.
☐ Adjustable (from outside) overrun timer after the sensor has switched off.
☐ Indicator lamp for operation type (automatic/manual) and fan operation and overrun time.
☐ Functional and operational switch on the front casing.

■ **Technical data**

Voltage	230 V, 1 ph., 50/60 Hz
Overrun time, adjustable	1 – 10 Min.
Power-up delay	approx. 5 sec.
Current	2 A (ind.)
Protection to	IP 30
Dimensions mm	W 125 x H 75 x D 30
Weight approx.	0.2 kg
Wiring diagram-No.	SS-485.1

■ **Casing**
Compact casing with air change slots, made of light grey polymer, for surface mounting.

Electronic air flow monitors
SWE Ref. No. 0065

■ **Operation**
To monitor air flow in ducting. Open or closed circuit principles are available as options.
■ **Function**
The air flow sensor (connected to controller) registers the air flow and compares it with the preset value. That can be set on the front side of the control unit (in the range of 1 – 20 m/s).
The relay contacts if the set value is reached or exceeded. Two LED's show U_N and the position of the output relay. It is possible to connect an external failure display via a relay output (1 change-over, voltage free, max. current 5 A / AC 250 V).
■ **Installation**
Control unit suitable to be mounted in switchboard for fixing on a 35 mm support rail. Air flow sensor with mounting rosette for in-duct installation with cable (length 2.5 m; up to max. 10 m extensible), that is to be connected to the control unit.

■ **Technical data**

Voltage	230 V, 1 ph., 50/60 Hz
Current	5 A (ind.) cos φ 0,4
Set value adjustment range	1-20 m/s
Air flow temperature	max. 60 °C
Ambient temperature	max. 60 °C
Protection to	IP 20
Dimensions mm	W 35 x H 90 x D 66
Weight	approx. 0.4 kg
Wiring diagram-No.	SS-689.1

Mechanical air flow monitor
SWT Ref. No. 0080

■ **Operation**
☐ Mechanical air flow monitor with adjustable trigger power to monitor the minimum air flow velocity in ducting minimum 315 dia.
■ **Design**
Robust design with a paddle made of high-grade steel. Supplied with mounting plate to fix the unit outside of the ducting.

■ **Function**
☐ **Can be used as** a switch to make or break circuit connections.
☐ The unit can be set to respond if a minimum or maximum air flow velocity is achieved.
☐ Adjustable minimum air flow velocity:
– Lower than approx. 1.5 m/sec.
– Higher than approx. 3 m/sec.
■ **Installation**
The unit must be installed in a way that the weight of the paddle does not affect the spring mechanism inside the unit.

■ **Technical data**

Voltage	24-230 V AC, 50/60 Hz
Current	15 (8) A (ind.)
Air flow temperature	-40...+ 85 °C
Protection to	IP 65
Dimensions mm	
– Paddle	W 55, L 175, D 0.15
– Casing	W 107 x H 69 x D 70
Weight	approx. 0.4 kg
Wiring diagram-No.	SS-557.1

Differential temp. controller
EDTW Ref. No. 1613

■ **Operation and advantages**
☐ Electronic, stepless differential temperature controller for connection of electronically controlled
– Ceiling fans and
– All 1 ph. alternating current fans.
☐ For continuous speed control subject to the temperature difference.
☐ Designed for use in combination with ceiling fans or fans which move the room air towards the floor to save heating energy. The unit optimises the difference between the floor and ceiling temperature.

■ **Function**
☐ Stepless speed control between (0 – 100 %) in relation to the temperature difference between both temperature sensors and the equalisation with the set value.
☐ Inclusive temperature sensors with a flying lead (1 x 10 m long, for mounting underneath the ceiling; 1 x 2 m long, for mounting above the floor.
☐ If the temperature difference rises the fan speed increases proportionally and slows down for falling temperature.
☐ Proportional range can be adjusted stepless from 1 – 10 K.

■ **Technical data**

Voltage	230 V, 1 ph., 50/60 Hz
Current max.	2.5 A (T 40 E)
Adjustable control range	1 – 10 K
Protection to	IP 20
Dimensions mm	W 210 x H 85 x D 55
Weight approx.	0.7 kg
Wiring diagram-No.	SS-438

■ **Adjustment possibilities**
☐ On/off (with function display)
☐ Automatic/manual operation.
☐ Reverse of air flow direction.
☐ Proportional range.
☐ Summer operation: as manual speed controller. Depending on the fan type motor humming might be produced.

■ **Casing**
Impact resistant, white polymer, for surface and flush mounting.

AVAILABLE IN THE UK ONLY!

ACSW 2

Automatic changeover panel with automatic duty sharing ACSW 2

Features

- Suitable for use with twin fans where one fan is running and the other is on stand-by. Ensuring continuous ventilation in the event of motor failure with duty sharing.
- Automatic change over in event of motor failure or flow using current sensing or via an external switch (e.g. airflow switch).
- Manual selection of fan A or B at any time to check that both fans are functioning.
- Automatic duty sharing time 8 selections between 3 and 24 hours.
- Over current setting between 3 and 8 amps.
- Can be used with a run on timer (accessory ZT).
- Visual indication of fan running and which fan has failed if any.
- Visual and audiable alarm in case of fan failure and alarm output for B.M.S.
- Suitable for use with Helios electronic and auto transformer speed controllers (accessory).
- Volt free contacts for remote indication.

Specification

- **Casing**
  Impact resitant polymer casing finished in black and off white.
- **Protection**
  Protection to IP 40.
- **Operation**
  The unit detects the current of the fan circuit of external switch (airflow) and switches to the stand-by fan if the current in the first fan is too low. Or when the switch is open using an external switch or airflow switch (accessory).
- **Duty share cycles**
  Adjustable options 3, 6, 9, 12, 15, 18, 21 and 24 hours.

Type	ACSW 2
Ref. No.	7750
Current max.	8 Amps.
Voltage	220/240 V, 1 ph.
Frequency	50 Hz
Protection	IP 40
Dimensions in mm	W 180 x H 120 x D 60
Weight	0.31 kg