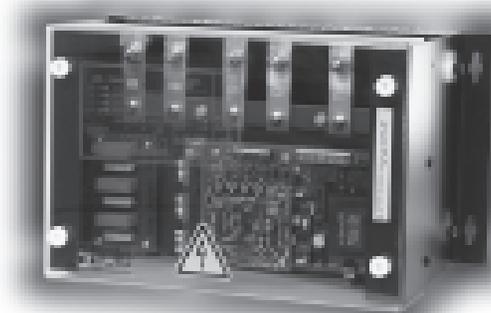


- Industrial design
- 1- or 3-phase connection
- Phase-angle or multi-cycle control
- For resistive or inductive load
- Low noise factor



## ► Technical data

### ► 1. Functions

Power control type according to selected unit:

ESGT-1PH	1-phase phase-angle control
ESGT-1PH-SP	1-phase multi-cycle control
ESGT	3-phase phase angle-control
ESGT-SP	3-phase multi-cycle control in 3-wire systems (3~/PEN)
ESGT-SP-N	3-phase multi-cycle control in 4-wire systems (3~/N/PE)

### ► 2. Indicators

Power circuit:

LED1 red:	indication of overtemperature device (heat sink)
LED2 red:	indication of phase loss (3-phase units only)
LED3 red:	indication of overtemperature motor (PTC)
LED4 green:	indication of control voltage

Master control unit:

LED "SE":	indication of activation
LED "S1":	indication of output
LED "S2":	indication of max. output voltage

Additional LEDs depending on selected function module

### ► 3. Mechanical design

Metal housing with plastic cover, IP rating IP00

Mounting on mounting plate

Distance to other devices:	min. 100mm
Mounting position:	cooling fins vertical
Terminal:	depends on power class (cross-head or hexagon-head screw), IP rating IP00

Initial torque:	depends on terminal screw
Terminal capacity:	see table (page 2)

### ► 4. Input circuit

Supply voltage: 230V AC terminals L1-N (other voltages on request)

Tolerance:	±15%
Rated frequency:	48 to 62Hz
Duration of operation:	100%

### ► 5. Control contact 1-2

Function:	activation
Connections:	potential free, terminals 1-2
Loadable:	no
Line length:	max. 10m, twisted pair

### ► 6. Control contact 3-4

Function: setting of firing angle  
 Activation: potentiometer (not included) or control signal 0 to 10V resp. 4 to 20mA (switchable)

Connections:	
Terminal 3:	control voltage 0-10V
Terminal 4:	ground
Terminal 7:	referenz voltage 10V (for use of remote potentiometer only)

Control range:	
3~/PEN	approx. 20% to 100% of output voltage
3~/N/PE	approx. 5% to 100% of output voltage

### ► 7. Signaling contact S1

Function:	1 potential free change over contact
Connections:	indication of activation 14-15-16
Switching capacity:	1500VA (6A / 250V AC)
Fusing:	6A

### ► 8. Signaling contact S2

Function:	1 potential free change over contact
Connections:	indication of max. output voltage 17-18-19
Switching capacity:	1500VA (6A / 250V AC)
Fusing:	6A

### ► 9. Signaling contact Fault

Function:	1 potential free change over contact
Connections:	centralized alarm 20-21-22
Switching capacity:	1500VA (6A / 250V AC)
Fusing:	6A

### ► 10. Power circuit

Supply voltage:	3~ 220V to 500V AC	terminals L1-L2-L3
Tolerance:	±15%	
Rated frequency:	48 to 62Hz	

### ► 11. Power classes

See table (page 2)

### ► 12. Ambient conditions

Ambient temperature:	-25 to +55°C (according to IEC 68-1)
Storage temperature:	-25 to +75°C
Transport temperature:	-25 to +75°C
Relative humidity:	5% to 95% not condensing (according to IEC 721-3-3 class 3K3)
Pollution degree:	2 (according to IEC 664-1)

9. Power classes

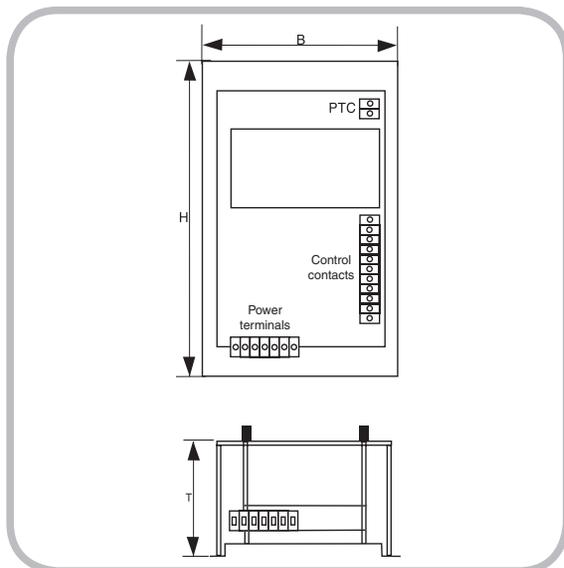
Type	Max. load current per phase A	Recommended semiconductor fuse (optional) A	Line fuse A	Recommended line cross section mm <sup>2</sup>	Weight kg	Size
ESGT 08	8	15	16	1.5	1.3	A
ESGT 15	15	25	25	2.5	1.9	B
ESGT 25	25	30	32	4.0	1.9	B
ESGT 35	35	40	50	6.0	2.3	B
ESGT 50	50	60	80	10	2.3	B
ESGT 60	60	80	100	16	2.4	B
ESGT 75	75	80	100	25	3.7	C
ESGT 90	90	100	125	35	3.9	C
ESGT 120	120	130	200	50	3.9	C
ESGT 160	160	200	250	50	4.2	C
ESGT 220	220	300	300	70	8.5	D
ESGT 280	280	400	350	95	8.8	D
ESGT 350	350	450	400	120	9.3	E
ESGT 420	420	600	500	150	9.8	E
ESGT 560	560	750	630	240	18	F
ESGT 720	720	900	800	300	18	F
ESGT 1000	1000	1200	1200	500	18.9	F
ESGT 1250	1250	1800	1500	2x 300	36	G
ESGT 1600	1600	2000	1600	2x 500	38	G
ESGT-1PH 08	8	10	16	1.5	1.0	A
ESGT-1PH 15	15	25	25	2.5	1.1	A
ESGT-1PH 25	25	30	32	4.0	1.5	A
ESGT-1PH 35	35	40	50	6.0	1.6	A
ESGT-1PH 50	50	60	80	10	2.8	B
ESGT-1PH 60	60	80	100	16	2.8	B
ESGT-1PH 75	75	80	100	25	3	B
ESGT-1PH 90	90	100	125	35	3	B
ESGT-1PH 120	120	130	200	50	3	B
ESGT-1PH 220	220	300	300	70	7.8	C
ESGT-1PH 280	280	400	350	95	8.8	C
ESGT-1PH 350	350	450	400	120	9.4	C

Dimensions of multi-cycle control units are similar to phase-angle units  
 All values refer to standardized motors according to IEC 72 and UNE 20106.

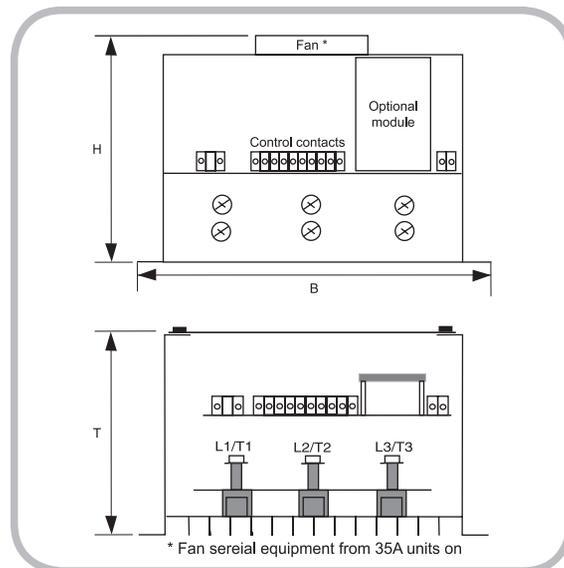
Dimensions

Design	Dimensions H x B x T (mm)
A	140 x 200 x 115
B	195 x 260 x 170
C	235 x 360 x 200
D	360 x 400 x 240
E	460 x 490 x 240
F	500 x 520 x 360
G	565 x 960 x 380

Size A

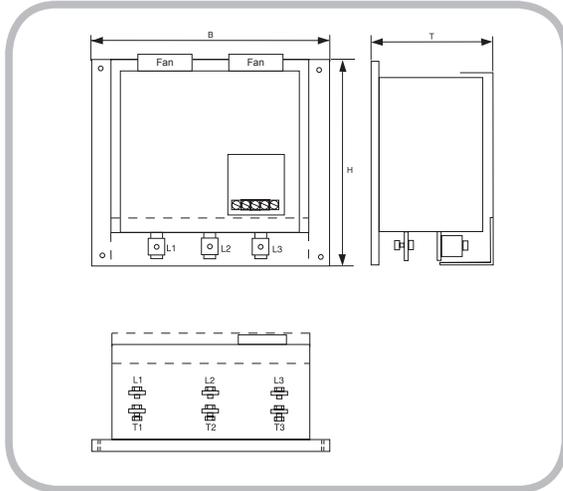


Size B,C

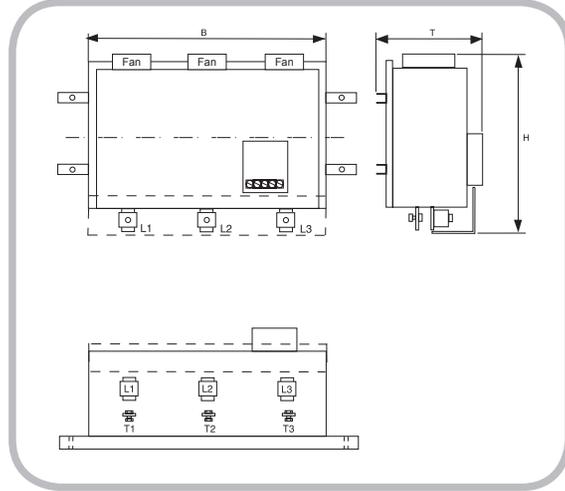


## Dimensions

### Size D,E



### Size F,G



## Functions

The ESGT is a power controller that is available in different designs, functionalities and sizes.

### Multi-cycle control

The ESGT-SP or ESGT-SP-N is a power controller for three or four-wire systems. For power control the device clocks the output voltage. Depending on the setting of the remote control potentiometer, the output of the device is disconnected from the power supply for short periods. Over a control period therefore, the power draw of the connected load is reduced by the value set on the potentiometer. Since the load is switched on and off only at zero crossing, the supply system is not subjected to additional reactive power components or harmonics by the ESGT-SP(-N). This power control can only be used for slow-acting loads (such as heating elements) as the operation of loads such as motors and lighting systems is disturbed by the off-times.

### Phase-angle control

The ESGT is a power controller that is based on the principle of phase-angle control. A thyristor bridge is set by the remote control potentiometer so that the thyristor switches the connected loads to the supply network in every sinusoidal half-wave only when the selected voltage level is reached. This produces a reduced rms voltage and therefore a smaller power draw by the load. This type of power control is suitable for all types of resistive and inductive loads. In 3-wire systems (without a neutral conductor) the output power can be infinitely regulated from around 20% to 100%; in 4-wire systems it can be infinitely regulated from around 5% to 100%.

### Add-on modules (phase-angle control units only)

#### Constant current or constant voltage regulation

An additional control circuit measures either the current or the output voltage and compares it with an adjustable setpoint value. If the actual value differs from this setpoint value the module will regulate the thyristor bridge to eliminate this difference. In this way, it is possible to produce a constant current or a constant voltage.

#### Output current limitation with rapid tripping

The output current is compared with an adjustable setpoint value ( $0.1$  to  $1.0 \times I_N$ ). If the output current exceeds this setpoint value the module regulates the ESGT again.

If the maximum current value set at the factory is exceeded, the power section will be immediately shut down and blocked.

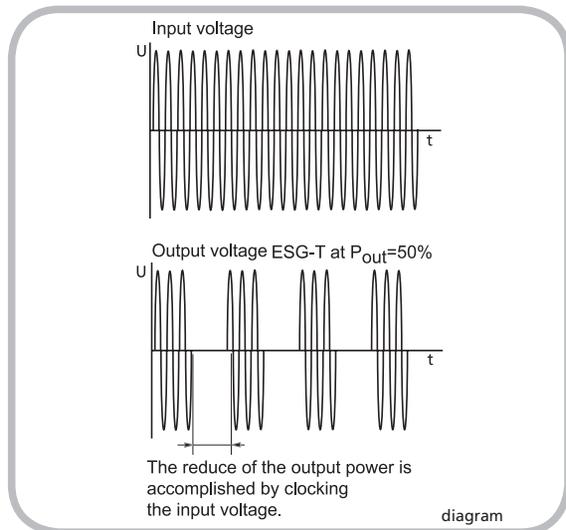
#### Analogue output, current or voltage

The output current or the output voltage of the ESGT can be read via an analogue output.

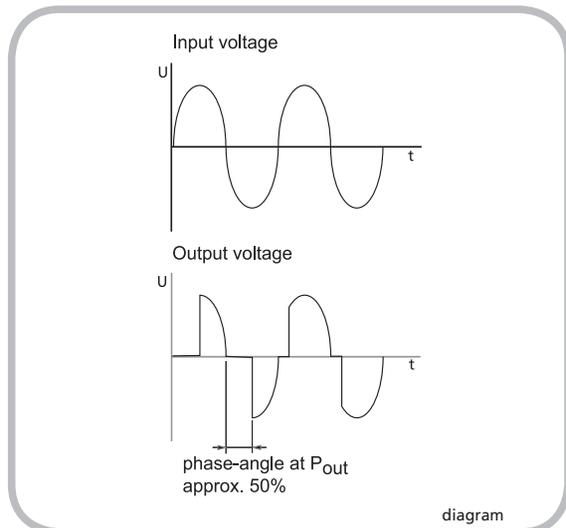
### ESGT-1PH; ESGT-1PH-SP

The devices are designed for AC-current and offer the same functionality as the corresponding three-phase devices.

### Flow chart of a multi-cycle control

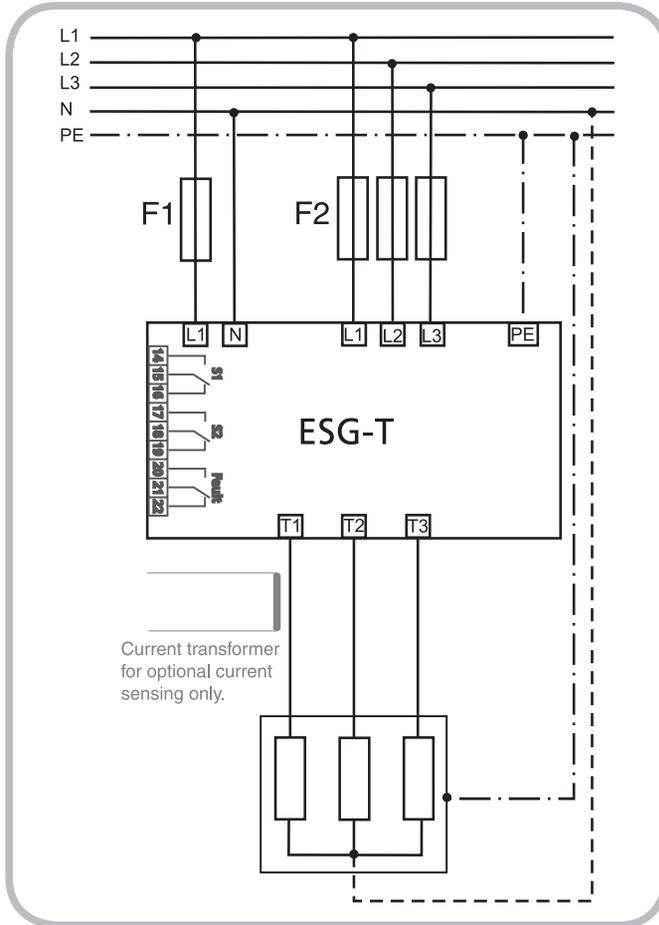


### Flow chart of a phase-angle control



## Connections

### Power circuit



### Master control unit

