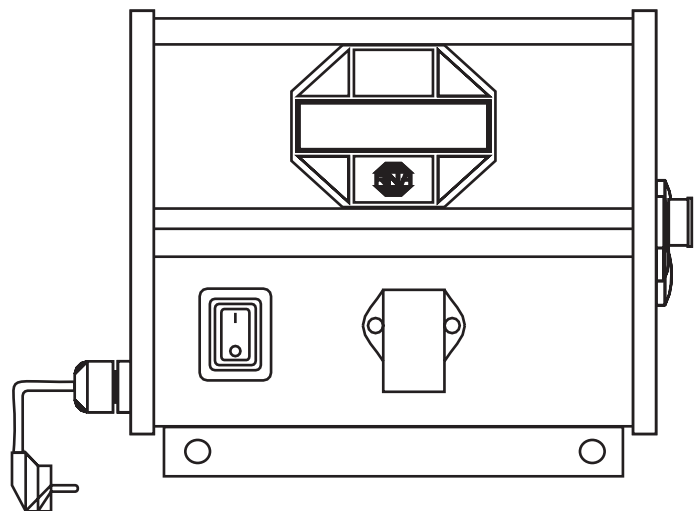


Components

- Compact Control Units
- Frequency Control Units
- Module Technology

Control Boxes for
Vibratory Drive Units



RNA Components for Feed Technology



RNA Services

Almost 2000 complete feed systems per annum are delivered by RNA. Because of our vast experience in feed technology, all the components are extensively tested under practical conditions and are extremely reliable and robust. New knowledge is constantly being acquired and utilised in the further development of all the components to achieve product improvements.

We can supply you with a complete range of efficient drives and control systems, together with accessories of recognised high quality and functionality, even for tasks with special performance requirements.

Best possible service, immediate delivery and high availability, as well as product versions for the pharmaceutical and food industries, with licences based on UL and CSA standards, complete our product range.

All our products are thoroughly tested before delivery to guarantee their fault free use.

Last but not least our employees stand behind all our products. The yardstick for all our work is the satisfaction of our customers. We know that continuous, business success can only be achieved through the best quality by meeting all the requirements imposed by a particular task.

We look forward to talking to you!

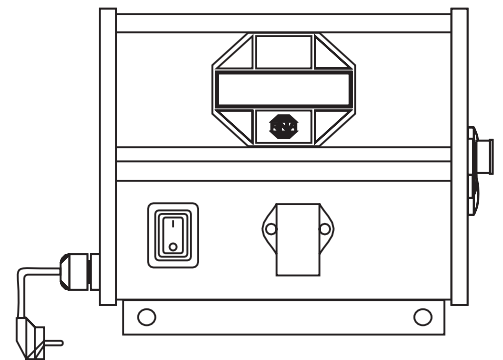


RNA Control Boxes

RNA supplies optimum control concepts. These range from low cost units to the self-calibrating high-tech unit with microprocessor control. Intelligent processing of peripheral sensors, tailored to the requirements of feed technology allow communication with hierarchy control systems. Moreover, the control units are available under a CE and CSA/UL licence.

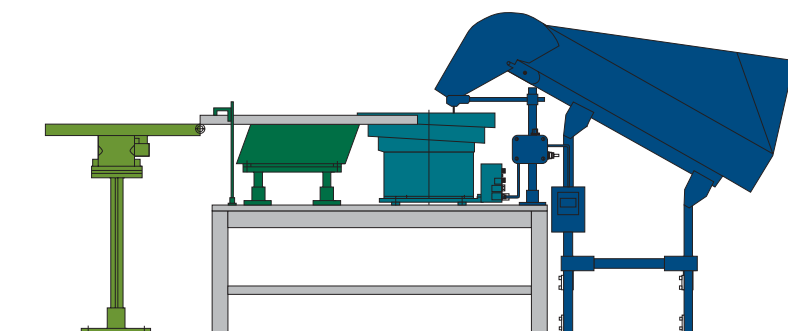
Contents

Subject	may be found on
Selection matrix	Page 4
Enclosed Compact Controller	
ESG 1000	Page 6
ESG 2000	Page 7
ESK 2000	Page 8
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Enclosed Frequency Controller	
ESR 2000	Page 10
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Module Technology for Panel Mounting	
ESM 906 and ESM 910 (vibration conveyor)	Page 12
EGM 92 (sensor amplifier)	Page 13
Plug connections	Page 14
Technical data	Page 15








We reserve the right to carry out technical modifications.
All dimensions are shown in millimetres.

Further product catalogues from the RNA component supply range



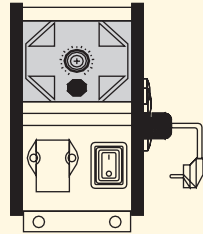
Colouring of the product catalogues:

-  Step Feeders
-  Bunkers
-  Vibratory Feeders
-  Conveyors
-  Linear Feeders

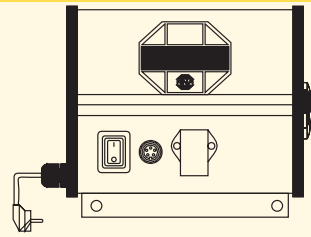


Selection Matrix

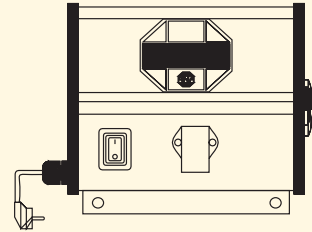
The controller best suited for any application can be determined on the basis of the selection matrix.



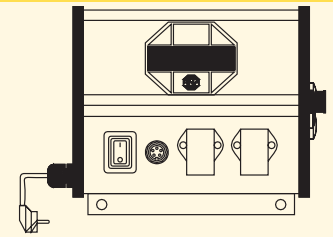
ESG 1000



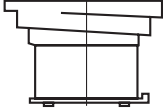

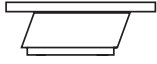
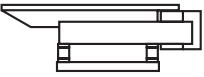
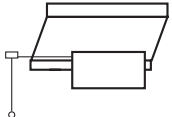
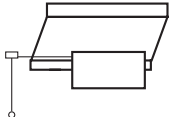
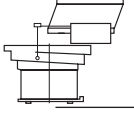
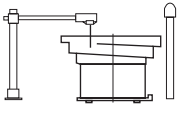
ESK 2000

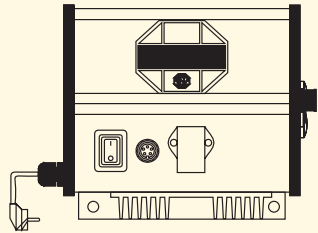


ESG 2000

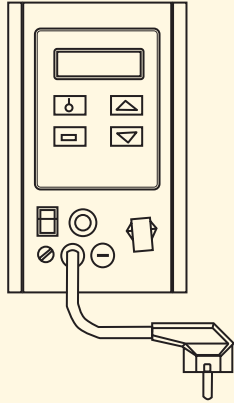


ESK 2001

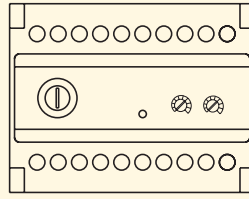
Vibratory feeder		ESG 1000		ESG 2000		ESK 2000		ESK 2001	
		110 V	230 V	110 V	230 V	110 V	230 V	110 V	230 V
	SRC-N 63	X	X	X	X	X	X	X	X
	SRC-N 100	X	X	X	X	X	X	X	X
	SRC-N 160	X	X	X	X	X	X	X	X
	SRC-N 200	X	X	X	X	X	X	X	X
	SRC-B 200	X	X	X	X	X	X	X	X
	SRC-N 250	X	X	X	X	X	X	X	X
	SRC-B 250	X	X	X	X	X	X	X	X
	SRC-N 400		X	X	X	X	X	X	X
	SRHL 400		X	X	X	X	X	X	X
	SRC-N 630		X	X	X	X	X	X	X
SRC-N 800				X		X			
	GL-01	X	X	X	X	X	X	X	X
	GL-1	X	X	X	X	X	X	X	X
	SLK-05	X	X	X	X	X	X	X	X
	SLK-N6	X	X	X	X	X	X	X	X
	SLK-N6G	X	X	X	X	X	X	X	X
	SLL175	X	X	X	X	X	X	X	X
	SLL 400	X	X	X	X	X	X	X	X
	SLL 800	X	X	X	X	X	X	X	X
	SLL 804	X	X	X	X	X	X	X	X
	SLF 1000		X	X	X	X	X	X	X
	Series BV	X	X	X	X	X	X	X	X
	Series BVL	X	X	X	X	X	X	X	X
	Actuation of vibratory and linear feeder								X in conjunction with sensor
	Actuation of vibratory feeder and vibratory hopper								X in conjunction with sensor
	Filling level monitor								
	LC-N 24V								
	PNP switching sensors								
	Indicator lamp								



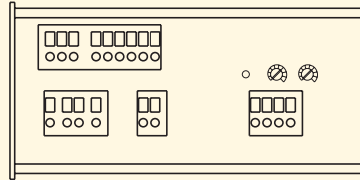
ESR 2000



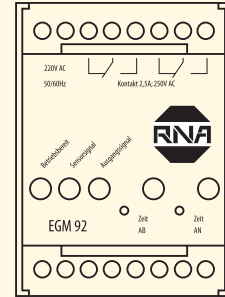
ESR 25/28



ESM 906



ESM 910

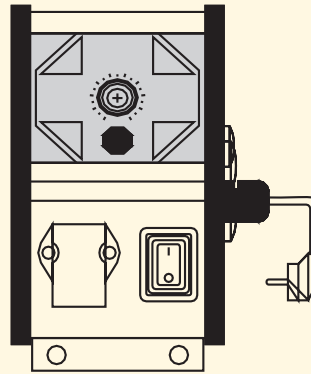


EGM 92

	ESR 2000		ESR 25		ESR 28		ESM 906		ESM 910		EGM 92	
	110 V	230 V	110 V	230 V	110 V	230 V	110 V	230 V	110 V	230 V	110 V	230 V
	X	X	X	X			X	X	X	X		
	X	X	X	X			X	X	X	X		
	X	X	X	X			X	X	X	X		
	X	X	X	X			X	X	X	X		
	X	X	X	X			X	X	X	X		
	X	X	X	X			X	X	X	X		
		X	X	X	X	X		X	X	X		
		X	X	X	X	X			X	X		
		X	X	X	X	X			X	X		
	X	X					X	X	X	X		
	X	X					X	X	X	X		
on rs									X in conjunction with sensors			
on rs									X in conjunction with sensors			
												X in conjunction with ESC 06 (warning lamp)

Sensor amplifier with time delay

Compact Controllers Series ESG 1000



Application

Controller for the operation of a vibratory or linear feeder

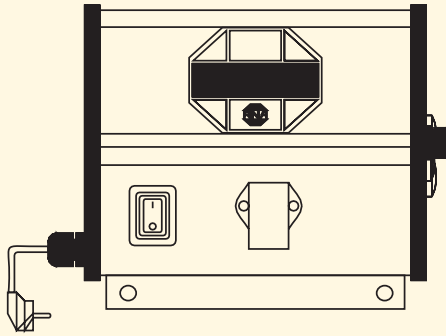
Equipment

- A power output for vibratory or linear feeder
- Internal switching to 230V or 110V mains voltage
- Output power adjustable by potentiometer mounted on front panel
- Manual adjustment of the transient and decay responses by changing the time constants
- External actuation 24 VDC/potential-free contact
- Plug-in connection for RNA vibratory and linear feeders
- Two-pole main switch
- CE, EMV and CSA/UL tested

Setting Parameters

- Adjustable soft start time of drive
- Output voltage U_{min} / U_{max}
- Mains voltage range 230 / 110 volts

Compact Controllers Series ESG 2000



Application

Controller for the operation of a vibratory or linear feeder

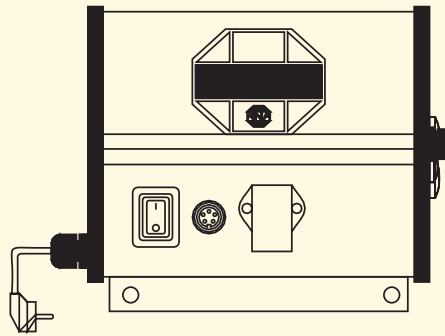
Equipment

- A power output for vibratory or linear feeder
- Automatic switching to 230V or 110V mains voltage
- Membrane keyboard for setting and varying the working values in the setting menus.
- Simple menu guide for varying the setting parameters
- Manual adjustment of the transient and decay responses by changing the time constants
- External actuation 24 VDC
- Two optocouplers for status messages and further links
- Messages from the controller:
 - Operational = Controller switched on
 - Active = Controller running
- Possibility of connecting external devices, e.g. solenoid valve
- Plug-in connection for RNA vibratory and linear feeder
- Two-pole mains switch
- CE, EMV and CSA/UL tested

Setting Parameters

- Actuation of vibratory or linear feeder
 - Vibration amplitude
 - External control
 - Signal direction of external control
 - Soft start time and soft stop time
- Storage of programmed settings
- Blocking of settings against unauthorised entries
- Status display (control of vibration frequency)
- Resetting to RNA works setting

Compact controllers Series ESK 2000



Application

Controller for the operation of a vibratory or linear feeder and connection of two sensors for monitoring and controlling the material flow

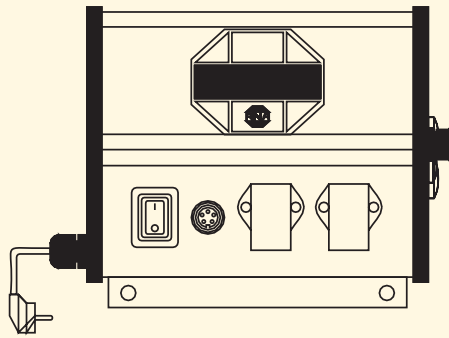
Equipment

- A power output for vibratory or linear feeder
- Automatic switching to 230V or 110V mains voltage
- Membrane keyboard for setting and varying the working values in the setting menus.
- Simple menu guide for varying the setting parameters
- Manual adjustment of the transient and decay responses by changing the time constants
- External actuation 24 VDC
- Two relay outputs and two optocouplers for status messages and further links
- Messages from the controller:
 - Operational = Controller switched on
 - Active = Controller running
- Possibility of connecting external devices, e.g. solenoid valve
- Connection of a maximum of 2 sensors whose function and switching behaviour are programmable. (Supply voltage 24V DC 10 mA).
- Plug-in connection for RNA vibratory and linear feeder, sensors and communication
- Two-pole mains switch
- CE, EMV and CSA/UL tested

Setting Parameters

- Actuation of vibratory or linear feeder
 - Vibration amplitude
 - External control
 - Signal direction of external control
 - Soft start time and soft stop time
- Storage of programmed settings
- Setting of sensor input 1 and sensor input 2
 - Input, reversing signal on and off
 - Time until switching and off time
- Selection of sensor links (up to 7 possibilities)
- Setting the cycle monitors (monitoring of sensors 1 and/or 2)
- Blocking of settings against unauthorised entries
- Status display (control of vibration frequency)
- Permanently programmed application examples
- Performance target with external voltage
- Resetting to RNA works setting

Compact Controllers Series ESK 2001



Application

Controller for the operation of two vibratory and/or linear feeders and connection of two sensors for monitoring and controlling the material flow

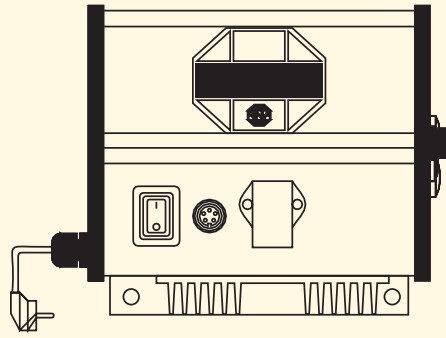
Equipment

- Two power outputs
- Automatic switching to 230V or 110V mains voltage
- Membrane keyboard for setting and varying the working values in the setting menus.
- Simple menu guide for varying the setting parameters
- Manual adjustment of the transient and decay responses by changing the time constants
- External actuation 24 VDC
- Two relay outputs and two optocouplers for status messages and further links
- Messages from the controller:
 - Operational = Controller switched on
 - Active = Controller running
- Possibility of connecting external devices, e.g. solenoid valve
- Connection of a maximum of 2 sensors whose function and switching behaviour are programmable. (Supply voltage 24V DC 10 mA).
- Plug-in connection for RNA vibratory and linear feeder, sensors and communication
- Two-pole mains switch
- CE, EMV and CSA/UL tested

Setting Parameters

- Actuation of vibratory or linear feeder may be selected separately
 - Vibration amplitude
 - External control
 - Signal direction of external control
 - Soft start time and soft stop time
- Storage of programmed settings
- Setting of sensor input 1 and sensor input 2
 - Invert input of signal direction
 - Time until switching and off time
- Selecting the sensor linkages (up to 7 possibilities)
- Selecting the cycle monitors (monitoring of sensors 1 and/or 2)
- Blocking of settings against unauthorised entries
- Status display (control of vibration frequency)
- Permanently programmed application examples
- Performance target with external voltage
- Resetting to RNA works setting

Frequency Controllers Series ESR 2000



Application

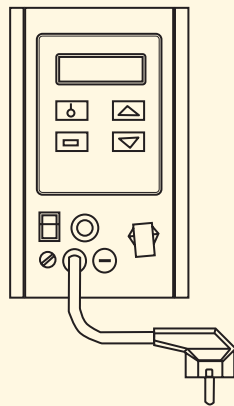
Controller for the operation of a vibratory or linear feeder and connection of two sensors for monitoring and controlling the material flow and **manually** adjustable vibration frequency. (for example using interchangeable bowls with various weights)

Equipment

- A power output for vibratory or linear feeder
- Oscillation frequency is adjustable, i.e. fine mechanical tunings (fitting springs) are not necessary
- Automatic switching to 230V or 110V mains voltage
- Membrane keyboard for setting and varying the working values in the setting menus.
- Simple menu guide for varying the setting parameters
- Manual adjustment of the transient and decay responses by changing the time constants
- External actuation 24 VDC
- Two relay outputs and two optocouplers for status messages and further links
- Messages from the controller:
 - Operational = Controller switched on
 - Active = Controller running
- Possibility of connecting external devices, e.g. solenoid valve
- Connection of a maximum of 2 sensors whose function and switching behaviour are programmable. (Supply voltage 24V DC 10 mA).
- Plug-in connection for RNA vibratory and linear feeder, sensors and communication
- Self-protective (max. current monitoring)
- Two-pole mains switch
- CE and EMV tested

Setting Parameters

- Actuation of vibratory or linear feeder
 - Vibration amplitude
 - External control
 - Signal direction of external control
 - Soft start time and soft stop time
 - Frequency manually adjustable
- Storage of programmed settings (5 memory places)
- Setting of sensor input 1 and sensor input 2
 - Invert input of signal direction
 - Time until switching and off time
- Selection of the sensor links (up to 7 possibilities)
- Setting the cycle monitors (monitoring of sensors 1 and/or 2)
- Blocking of settings against unauthorised entries
- Status display (control of vibration frequency)
- Permanently programmed application examples
- Performance target with external voltage
- Resetting to RNA works setting



Application

Controller for the operation of a vibratory or linear feeder and connection of one sensor for monitoring and controlling the material flow and automatic adjustment of the exciter frequency (vibration frequency) of the vibratory drive and equalisation of the load-independent vibration response

Equipment

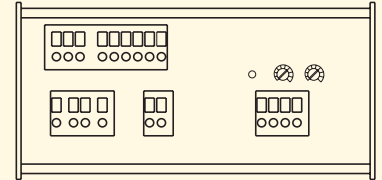
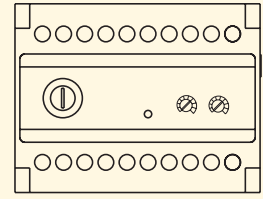
- Automatic adjustment of the vibration frequency after calibration, i.e. fine mechanical tunings (fitting springs) are not necessary
- Switching to 230V or 110V mains voltage¹⁾
- Membrane keyboard for setting and varying the working values in the setting menus.
- Simple menu guide for varying the setting parameters
- Manual adjustment of the transient and decay responses by changing the time constants
- External actuation 24 VDC (in conjunction with ESC06 board) (not included in the scope of supply)
- Three optocouplers for status messages and further linkages (in conjunction with ESC06 board) (not included in the scope of supply)
- Messages from the controller:
 - Operational = Controller switched on
 - Active = Controller running
 - Alarm = Controller stopped
- Possibility of connecting external devices, e.g. solenoid valve (only in connection with ESC06 and EBX)
- Connection of a maximum of 1 sensor whose function is programmable. (Supply voltage 24V DC 10 mA).
- Plug-in connection for RNA vibratory bowl and linear feeder, sensors and communication
- Self-protecting (max. current monitoring)
- Two-pole main switch
- CE and EMV tested

Setting Parameters

- Automatic calibration (the controller "learns" the typical characteristics of the vibratory feeder)
- Actuation of vibratory or linear feeder
 - Vibration amplitude
 - External control
 - Signal direction of external control
 - Soft start time and soft stop time
- Storage of programmed settings
- Setting of sensor input 1
 - Input, reversing signal direction
- Status display (calibration and operation values)
- Resetting to RNA works setting

1) Note: When converting the mains voltage to 110V the output voltage of the controller remains 200V!
For this reason vibratory and linear feeders must always be used in 200V.

Modules Series ESM 906 and 910



Application

Controller for operating a vibratory or linear feeder

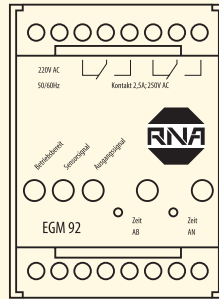
Equipment

- A power output for vibratory or linear feeder
- Output power with potentiometer or analogue voltage 0 to 10V DC, adjustable
- External actuation, 24 VDC
- CE and EMV tested
- Status message for ready and active

Setting Parameters

- Output voltage U_{min} / U_{max}
- Mains voltage 230V or 110V
- Control by potential-free contact or 24 V DC

Sensor Amplifier Series EGM 92



Application

Sensor amplifier for a sensor with separately adjustable switching times for material flow or rather filling level in the vibratory feeder or hopper.

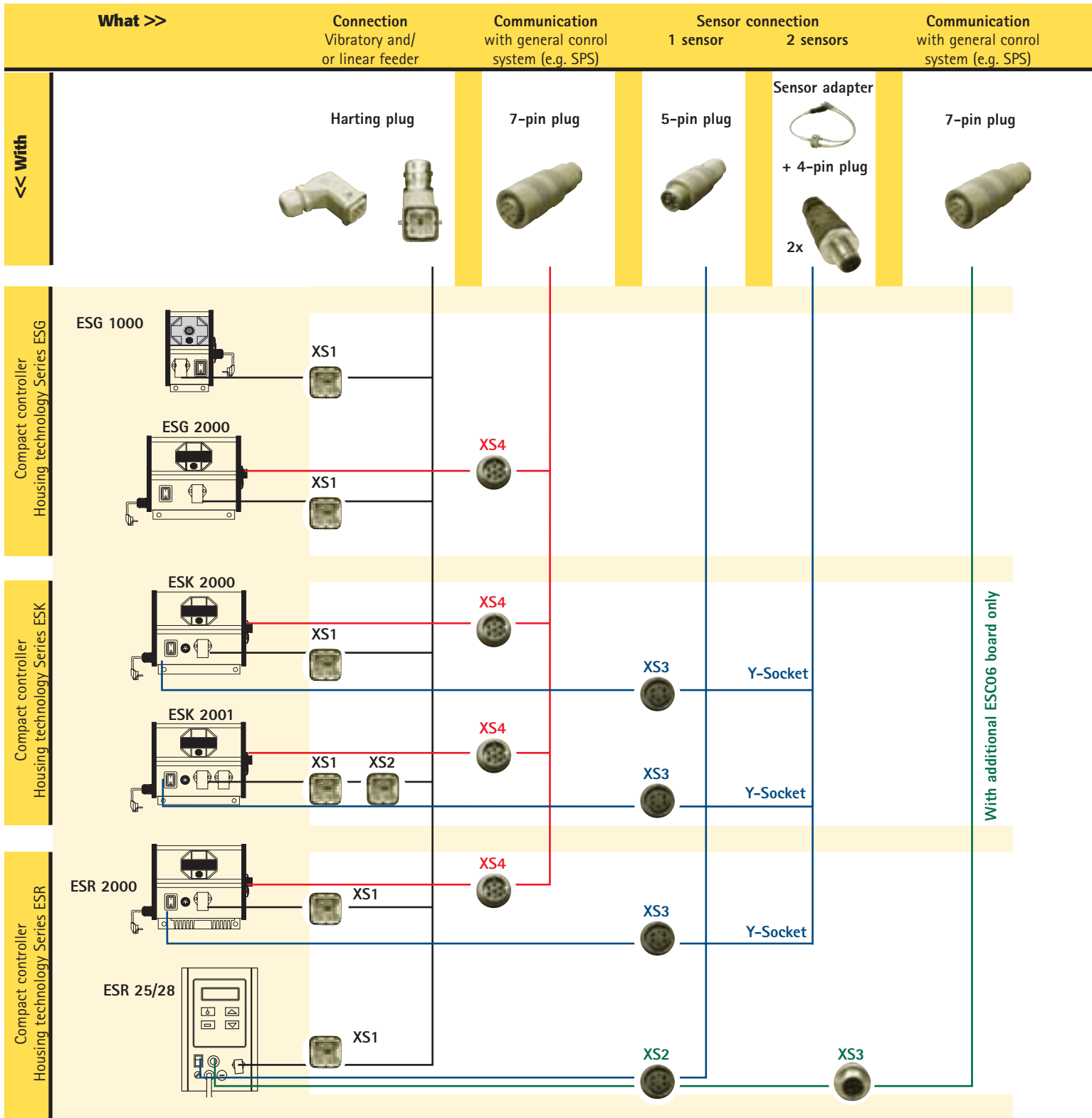
Equipment

- two potential-free replaceable contacts
- mains connection 230V / 50-60Hz
- signals: ready for operation, sensor signal, output signal

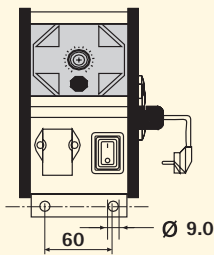
Setting Parameters

- two separately adjustable times

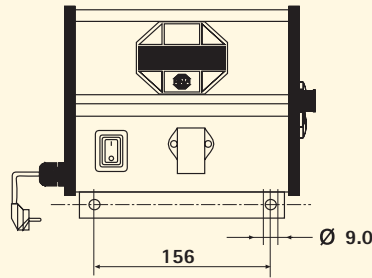
Plug Connections Compact Controllers Housing Technology



Technical Data



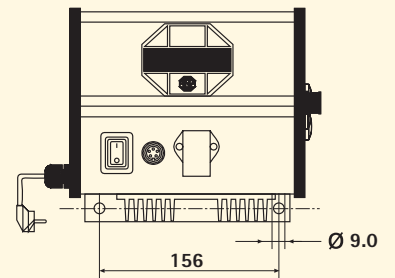
ESG 1000



ESG-2000

ESK-2000

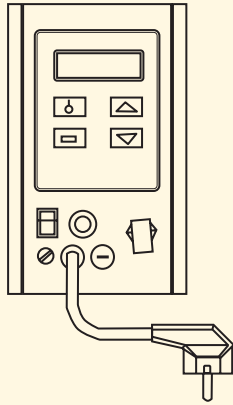
ESK-2001



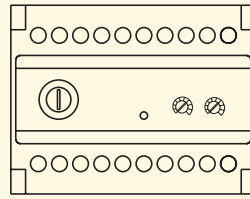
ESR-2000



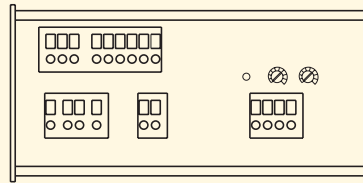
Type	ESG 1000	ESG-2000	ESK-2000	ESK-2001
Mains voltage	230 V AC, 50/60 Hz, +20 %/-15 % 110 V AC, 50/60 Hz, +10 %/-10 %	230 V AC, 50/60 Hz, +20 %/-15 % 110 V AC, 50/60 Hz, +10 %/-10 %	230 V AC, 50/60 Hz, +20 %/-15 % 110 V AC, 50/60 Hz, +10 %/-10 %	230 V AC, 50/60 Hz, +20/-15 % 110 V AC, 50/60 Hz, +10/-10 %
Output voltage	0 ... 208 V _{eff} / 230 V AC 20 ... 105 V _{eff} / 110 V AC	0 ... 208 V _{eff} / 230 V AC, 0 ... 98 V _{eff} / 110 V AC	0 ... 208 V _{eff} / 230 V AC, 0 ... 98 V _{eff} / 110 V AC	0 ... 208 V _{eff} / 230 V AC, 0 ... 98 V _{eff} / 110 V AC
Operating mode	Phase shift	Phase shift	Phase shift	Phase shift
Load current max. channel 1+2	–	–	–	10 A _{eff} / 4 A _{eff}
Load current max.	6 A _{eff}	10 A _{eff}	10 A _{eff}	10 A _{eff}
Load current min.	80 mA	80 mA	80 mA	80 mA
Internal fuse	Fine-wire fuse 5x20, 6,3 A träge	F 1 = 10 A	F 1 = 10 A	F 1 = 10 A / F 2 = 4 A
Soft start/stop time	soft start adjustable + switched off	0 ... 5 sec. may be selected separately	0 ... 5 sec. may be selected separately	0 ... 5 sec. may be selected separately
Theoretical value external	–	–	0 ... 10 V DC	0 ... 10 V DC
Sensor inputs	–	–	2	2
Release input	Contact or 24 V DC	24 V DC (10-24 V DC)	24 V DC (10-24 V DC)	24 V DC (10-24 V DC)
Sensor supply	–	–	24 V DC, max. 60 mA (Per sensor input)	24 V DC, max. 60 mA (Per sensor input)
Sensor delay AN	–	–	0 ... 60 sec.	0 ... 60 sec.
Sensor delay AB	–	–	0 ... 60 sec.	0 ... 60 sec.
Outputs	–	2 Optocoupler	2 Relay / 2 Optocoupler	2 Relay / 2 Optocoupler
Status output (optocoupler)	–	max. 30 V DC 10 mA	max. 30 V DC 10 mA	max. 30 V DC 10 mA
Relay contacts	–	–	max. 6 A 250 V AC	max. 6 A 250 V AC
Operating temperature	0 ... 50 °C	0 ... 50 °C	0 ... 50 °C	0 ... 50 °C
Protective system	IP 54	IP 54	IP 54	IP 54
Dimensions W x H x D	80 x 190 x 140	192 x 180 x 132	192 x 180 x 132	192 x 180 x 132



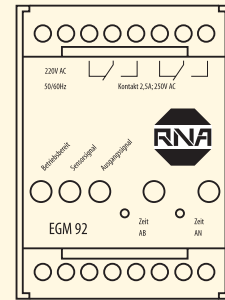
ESR 25/5A • ESR 28/8A



ESM 906



ESM 910



EGM 92

Module Technology, Panel Mounting

ESR 2000	ESR 25/5A*	ESR 28/8A	ESM 906	ESM 910	EGM 92
230 V AC, 50/60 Hz, Upgradable to 110 V AC 50/60 Hz	230 V AC 50/60 Hz Upgradable to 110 V AC 50/60 Hz	230 V AC 50/60 Hz Upgradable to 110 V AC 50/60 Hz	230 V AC, 50/60 Hz +6 % / -10 % 110 V AC, 50/60 Hz +6 % / -10 %	230 V AC, 50/60 Hz +6 % / -10 % 110 V AC, 50/60 Hz +6 % / -10 %	230 V AC, 50/60 Hz - +10 % on request
0 ... 208 V _{eff} / 230 V AC 20 ... 105 V _{eff} / 110 V AC	0 ... 210 V _{eff} / 230 V AC 20 ... 105 V _{eff} / 110 V AC	0 ... 210 V _{eff} / 230 V AC 20 ... 105 V _{eff} / 110 V AC	0 ... 220 V _{eff} / 230 V AC 0 ... 105 V _{eff} / 110 V AC	0 ... 220 V _{eff} / 230 V AC 0 ... 105 V _{eff} / 110 V AC	- -
Frequency reversal PWM	Frequency reversal PWM	Frequency reversal PWM	Phase shift	Phase shift	-
-	-	-	-	-	-
6 A _{eff}	5.5 A _{eff}	8.5 A _{eff}	6 A _{eff}	10 A _{eff}	-
80 mA	60 mA	60 mA	-	-	-
F 1 = 10 A	Mains fuse: 5x20 mm, 4 A Delay action, 12 13 72	-	-	-	-
0 ... 5 sec. may be selected separately	Start: 0.05 - 10 sec. / Stop: 0.005 - 10 sec.	-	Soft start permanently established	-	-
0 ... 10 V DC	-	-	0 ... 10 V or Poti 10 / k Ω	-	-
2	1	1	-	-	-
24 V DC (10-24 V DC)	Can be supplemented with additional print	-	potential-free contact / 12 ... 24 V DC, Ri 10 k Ω	-	-
per 24 V DEC, max. 60 mA	per 24 V DEC, max. 60 mA	per 24 V DEC, max. 60 mA	0 - 20 mA / 0 ... 10 V or Poti 10 / k Ω	24 V / 100 mA	-
0 ... 60 sec.	Sensor signal delay: 0,000 up to 10 sec.	-	-	0 ... 60 sec.	-
0 ... 60 sec.	Sensor signal delay: 0,000 up to 10 sec.	-	-	0 ... 60 sec.	-
2 Relay / 2 Optocoupler	-	-	2/0 PTO Coupler	-	Relay contact 2 x potential-free replaceable contact
max. 30 V DC 10 mA	24 V, 50 mA	24 V, 50 mA	30 V 0.1 A DC	30 V 0.1 A DC	-
max. 6 A 250 V AC	-	-	-	-	max. 6 A 250 V AC
0 ... 50 °C	0 ... 40 °C	0 ... 40 °C	0 ... 45 °C	0 ... 45 °C	0 ... 50 °C
IP 54	IP 54	IP 54	IP 20	IP 20	IP 30
192 x 180 x 132	140 x 220 x 160	140 x 220 x 160	104 x 177 x 112	150 x 74 x 109	55 x 75 x 110

* Also available with reduced output currents 0.6 A and 1.8 A, for adaptation to small vibratory drives.



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