

Phase-Angle Controller For Vibratory Feeders Rated up to 6 Amps

TS35 rail mounting construction (IP 20)

Characteristics:

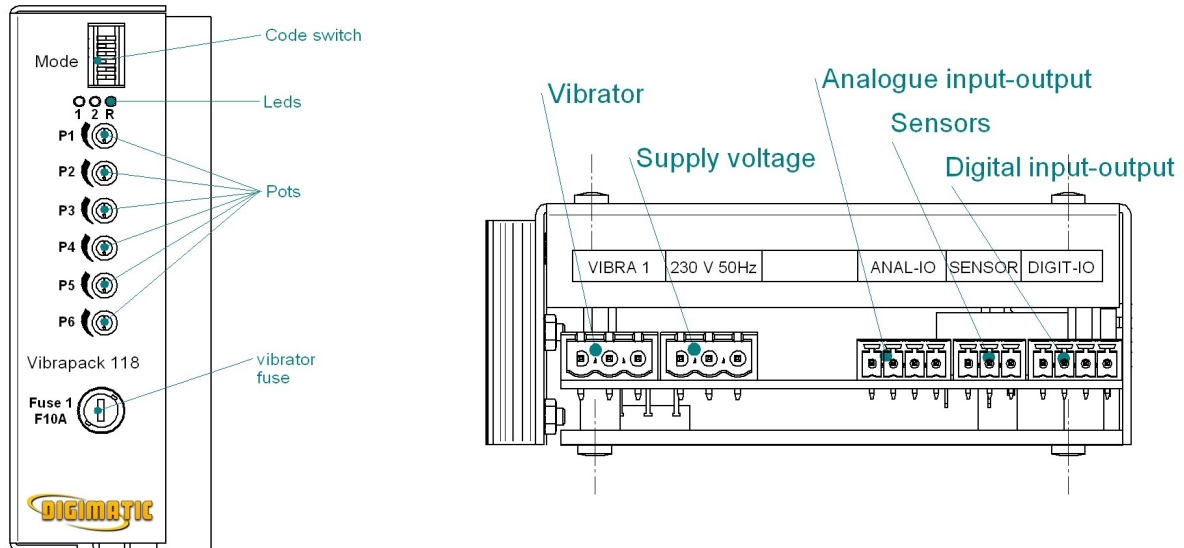
- Soft start, adjustable start-up
- On-Off Delay (0-4sec)
- Output frequency 50Hz or 100Hz
- Adjusting of minimum and maximum limit of vibration amplitude
- Can be mounted on aTS35 rail
- regulation with potentiometer or 0-5V signal voltage
- Two transducer input for proximity switches or optic gates (PNP)
- 24V voltage supply for the transmitters
- External potential free or 24 V direct start-stop function
- Various operating modes



Type:	VIBRAPACK-118
Supply voltage:	230V 50Hz +6% -10%
Output current:	0 – 6A
Output frequency:	adjustable 50Hz or 100Hz
Resistance of the potentiometer controlling the output power:	5K-10 Kohm
Enable input:	Contact or 24V DC \pm 10%
Input resistance:	10 Kohm
Transmission inputs:	24V DC \pm 10%
Input resistance:	10 Kohm
Transmitter output supply voltage:	20-30V max.40mA
Fuse:	F10A (5 x 20mm)
Network disjunction:	Low-voltage in- and outputs from the network are galvanically disconnected.
Operating temperature:	-25°C - +85°C
Mechanical data:	
Dimensions:	160 x 105 x 59
Weight:	1,0 kg
Protection ratio:	IP20
Construction:	Metal casing mounted on TS35 rail TS35

The VIBRAPACK-118 electronics is fit for regulating the vibration amplitude of max. 8A vibrating feeder operated by ~230 V network. It works on the principle of phase-splitting. It has soft starting function. At starting the slope of the amplitude running-up can be adjusted between 0-4 seconds with a potentiometer. It can operate the vibrating-feeders at a frequency of 50Hz or 100Hz. The vibration amplitude can be adjusted with a potentiometer or by a 0-5V signal voltage. It has a transmitter input fit for sensing the two (optic, or inductive, 24V DC, PNP) components. The inputs can be inverted according to the type of the transmitters. It can operate in different modes and the requested mode can be selected with a mode switch.

Construction:



Potentiometers:

P1, P2, P3, P4, P5, P6 Adjusting potentiometers. For adjusting timing and vibration amplitude according to mode.

Control LED:

1- red V1 output on
 2- red V2 output on
 R- green Ready / program running

When switching on the supply voltage of the electronics the R green led will light permanently for 4 seconds then starts to flash. The flashing led indicates that the device is ready to operate. The outputs and the inputs are now working according to the selected mode.

Adjusting the code switch:

Separately adjustable functions						
1	2	3	4	5	6	Function
ON						If the transmitter gives +24 V at presence of part
OFF						If the transmitter gives +24 V at absence of part
	ON					V1 frequency 50 Hz
	OFF					V1 frequency 100 Hz
		ON				
		OFF				
Mode selection						
1	2	3	4	5	6	Mode
			OFF	OFF	OFF	Mode 0
			OFF	OFF	ON	Mode 1
			OFF	ON	OFF	Mode 2
			OFF	ON	ON	Mode 3
			ON	OFF	OFF	Mode 4
			ON	OFF	ON	Mode 5
			ON	ON	OFF	Mode 6 (not programmed)
			ON	ON	ON	Mode 7 (not programmed)

Vibration control operation modes:

Mode 0: independent control of vibrating feeder

Mode 0	
V1	Vibrating feeder 1
V2	
Transmitter 1	Input selection
Transmitter 2	
Enabling input	Enabling
P1 potentiometer	
P2 potentiometer	
P3 potentiometer	V1 adjusting of the slope of amplitude running-up at starting
P4 potentiometer	
P5 potentiometer	V1 maximum amplitude adjusting
P6 potentiometer	V1 minimum amplitude adjusting

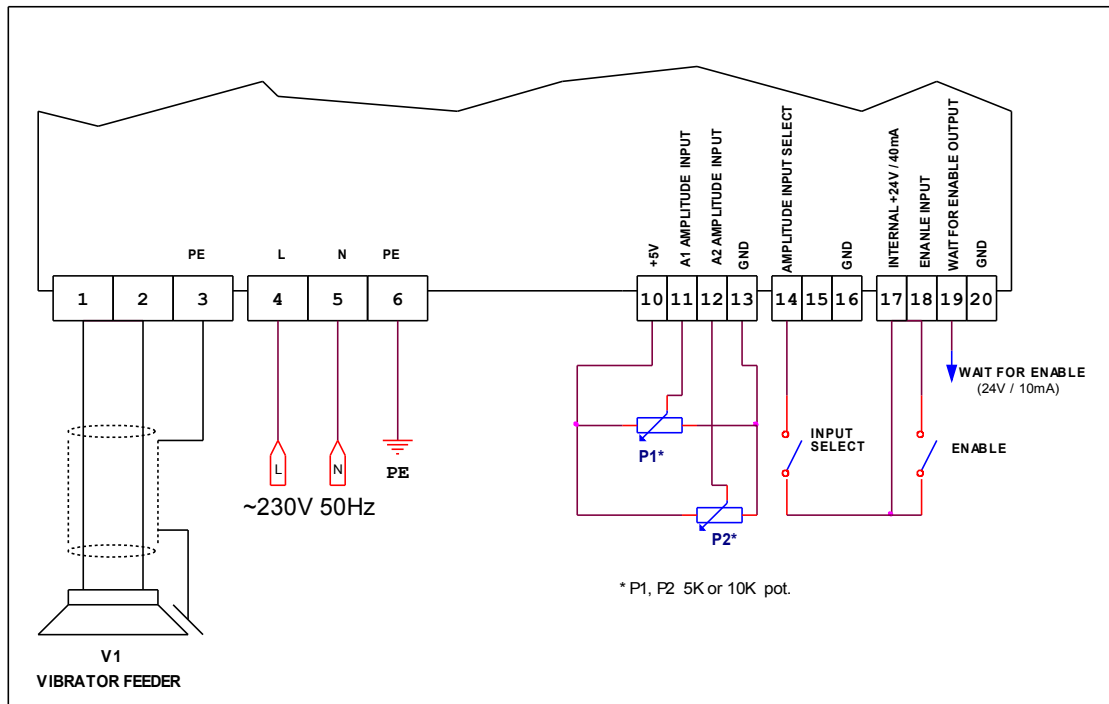
After the rising edge of the enabling signal during continuous enabling signal:

- Waiting for enabling signal ceases.
- The vibrating feeder starts with the selected running up. The amplitude of the vibration is proper to the selected input.
- If the transmitter J1 is active then the amplitude adjusting A1 input directs the vibrating feeder. If the transmitter J1 is not active then the amplitude adjusting A2 input directs the vibrating feeder.

When the enabling signal ceases:

- The vibrating feeder stops.
- Emits 'waiting for enabling' signal.
- Operation of the vibrating feeder remains disabled till the enabling signal appears.

Wiring to mode 0 with vibration amplitude regulated by potentiometer:



Mode 1: two transmitter mode with one vibrating feeder.

Mode 1	
V1	Vibrating feeder
V2	
Transmitter 1	Minimum part sensor
Transmitter 2	Maximum part sensor
Enabling input	Enabling signal
P1 potentiometer	Adjusting of start delay (0-4mp)
P2 potentiometer	Adjusting of stop delay (0-4mp)
P3 potentiometer	V1 adjusting of the slope of amplitude running-up at starting
P4 potentiometer	
P5 potentiometer	V1 maximum amplitude adjusting
P6 potentiometer	V1 minimum amplitude adjusting

At permanent enabling signal:

- 'Waiting for enabling' signal ceases
- If neither of the two transmitters senses charge 'constantly' (with 0-4 sec adjustable delay) the vibrating feeder starts with soft start (with 0-4 sec adjustable running-up).
- If both transmitters sense charge 'constantly' (with 0-4 sec delay) the vibrating feeder stops.

When the enabling signal ceases:

- The vibrating feeder stop.
- Emits 'waiting for enabling' signal.
- Operation of the vibrating feeder remains disabled till the enabling signal appears.

Mode 2: two transmitter mode with one vibrating feeder.

Mode 2	
V1	Vibrating feeder
V2	
Transmitter 1	Minimum part sensor
Transmitter 2	Maximum part sensor
Enabling input	Enabling signal
P1 potentiometer	Adjusting of start delay (0-4mp)
P2 potentiometer	Adjusting of stop delay (0-4mp)
P3 potentiometer	V1 adjusting of the slope of amplitude running-up at starting
P4 potentiometer	
P5 potentiometer	V1 maximum amplitude adjusting
P6 potentiometer	V1 minimum amplitude adjusting

After rising edge of enabling signal at permanent enabling signal:

- 'Waiting for start' signal ceases
- If neither of the two transmitters gives signal 'constantly' (with 0-4 sec adjustable delay) the vibrating feeder starts with soft start (with 0-4 sec adjustable running-up).
- If both transmitters give signal 'constantly' (with 0-4 sec adjustable delay) both the vibrating feeder stops. Gives 'waiting for starting' signal. Restart is possible only after the next rising edge of enabling signal.

When the enabling signal ceases:

- The vibrating feeder stop.
- Emits 'waiting for enabling' signal.
- Operation of the vibrating feeder remains disabled till the enabling signal appears.

Mode 3: *One transmitter mode with one vibrating feeder .*

Mode 3	
V1	Vibrating feeder
V2	-
Transmitter 1	Minimum part sensor
Transmitter 2	-
Enabling input	Enabling signal
P1 potentiometer	Adjusting of start delay (0-4mp)
P2 potentiometer	Adjusting of stop delay (0-4mp)
P3 potentiometer	V1 adjusting of the slope of amplitude running-up at starting
P4 potentiometer	-
P5 potentiometer	V1 maximum amplitude adjusting
P6 potentiometer	V1 minimum amplitude adjusting

At permanent enabling signal:

- 'Waiting for enabling' signal ceases
- If the transmitter does not give signal 'constantly' (with 0-4 sec adjustable delay) the vibrating feeder starts with soft start (with 0-4 sec adjustable running-up)
- If the transmitter gives signal 'constantly' (with 0-4 sec delay) the vibrating feeder stops.

When the enabling signal ceases:

- The vibrating feeder stop.
- Emits 'waiting for enabling' signal.
- Operation of the vibrating feeder remains disabled till the enabling signal appears.

Mode 4: *One transmitter mode with one vibrating feeder.*

Mode 4	
V1	Vibrating feeder
V2	-
Transmitter 1	Minimum part sensor
Transmitter 2	-
Enabling input	Enabling
P1 potentiometer	Adjusting of start delay (0-4mp)
P2 potentiometer	Adjusting of stop delay (0-4mp)
P3 potentiometer	V1 adjusting of the slope of amplitude running-up at starting
P4 potentiometer	-
P5 potentiometer	V1 maximum amplitude adjusting
P6 potentiometer	V1 minimum amplitude adjusting

After rising edge of enabling signal at permanent enabling signal:

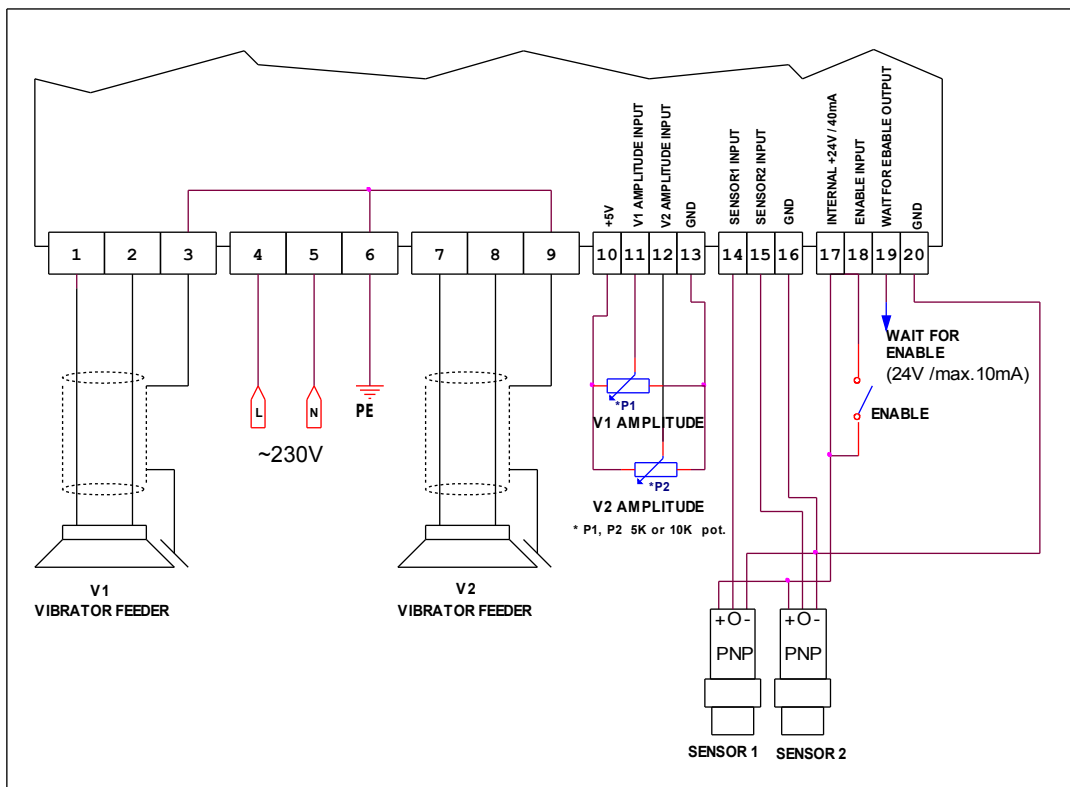
- 'Waiting for start' signal ceases
- If the transmitter does not give signal 'constantly' (with 0-4 sec adjustable delay) the vibrating feeder starts with soft start (with 0-4 sec adjustable running-up).
- If both transmitters give signal 'constantly (with 0-4 sec adjustable delay) both the vibrating feeder stops. Gives 'waiting for starting' signal. Restart is possible only after the next rising edge of enabling signal.

When the enabling signal ceases:

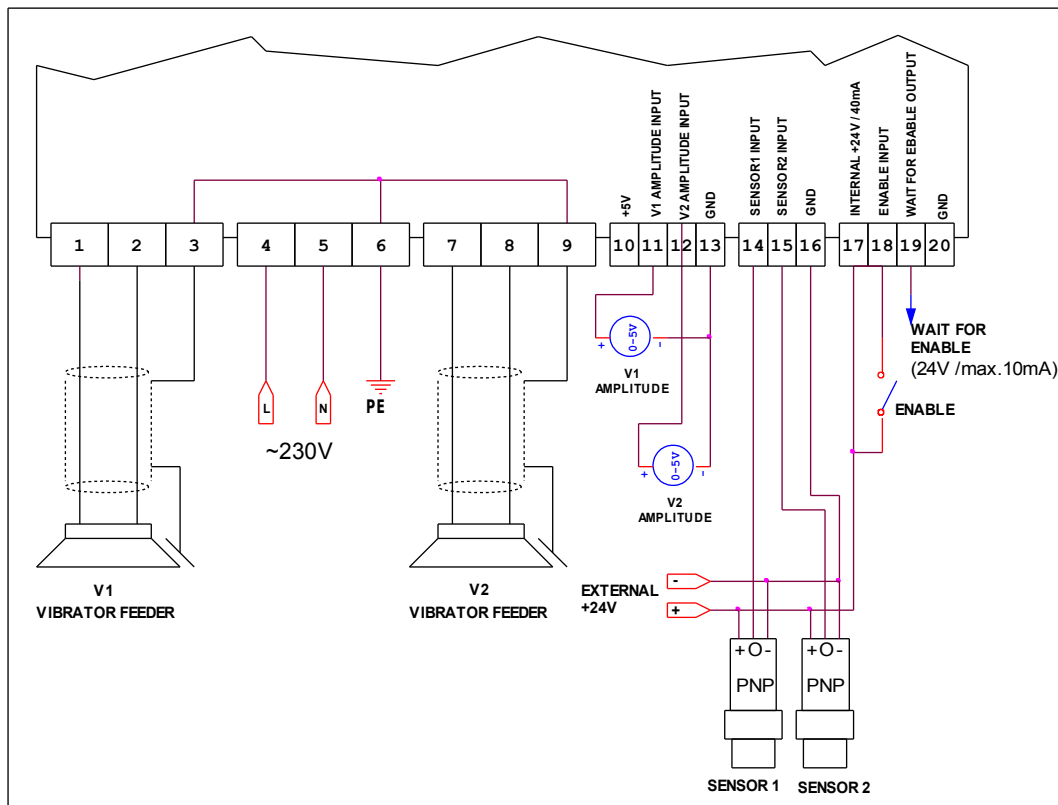
- The vibrating feeder stop.
- Emits 'waiting for enabling' signal.
- Operation of the vibrating feeder remains disabled till the enabling signal appears.

Connecting using VIBRAPACK-118 internal supply voltage:

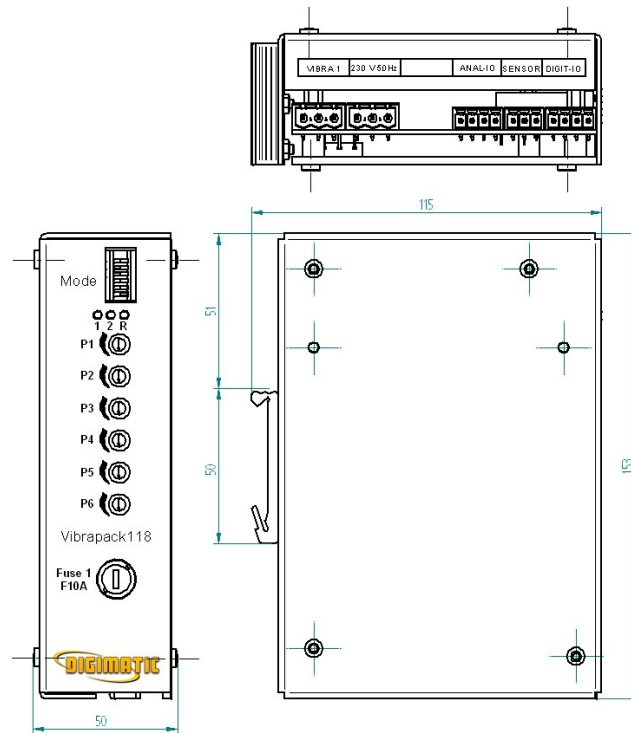
The internal supply voltage necessary for transmitters can only be used if the current drain of the transmitters is less than 40mA.



Connecting using external supply voltage:



Dimensions:



Declaration:

The producer (Digimatic Ltd.) guarantees the functional operation and technical data of VIBRAPACK-118 type control electronics.

The guarantee period is one year and starts on the date of take-over. The guarantee does not cover damages and breakdowns due to improper usage, aggressive handling or elemental damage. The repairs according to guarantee are performed in the workshop of Digimatic Ltd. The guarantee claim is to be declared at the site of purchase. We reserve the right of modification of the equipment due to improvements.

Safety instructions:

It is important to read and understand the safety instructions in order to avoid damage of the equipment or possible accidents.

Make sure that the person working with the equipment understands and keeps the safety regulations.

The equipment described above is a control device for operating vibrating feeders. The technical limits declared in the instruction must be kept.

Disregarding of the regulations described below may cause injuries or even death.

Installation, exchange in case of breakdown can be performed only by qualified electrician keeping the related regulations of electrotechnics.

Before operation make sure that the earth cable is unbroken and is mounted to the terminal. For checking the safety of the earthing cables only control equipments designed for this purpose can be used.

INSTALLING INSTRUCTIONS:

Make sure to check the list below before connecting the control unit to the network and before starting:

- Is the casing of the control electronics intact?
- Is it connected according to the documentation?
- Are the connecting screws properly tightened?
- Are the joints clamped into their places?
- Are all cables intact?
- Is the proper operation ensured?
- Is the proper mode set on the control unit?

The control electronics can only be started in case of all answers are definitely yes.

The electronic parts of the equipment must be regularly checked and controlled. Defects like connection defect or cable damage must be immediately repaired.

After repairing or replacing the control unit or the vibrating wire the output of the control unit must be set to minimum before restarting. Make sure that the system works properly when raising the output.