Elettronica srl

Electronic control circuits for electromagnetic vibrator feeders

new edition

Internet: www.mpelettronica.com

e-mail: mp@mpelettronica.com

MP Elettronica srl
Via Torino, 62-80
20099 Sesto San Giovanni
Milano - ITALY
Tel. +39 02 24 03 864
Fax +39 02 24 00 643

World Wide Office
Tel. +39 02 76110495
+39 02 76110284
Fax +39 02 76110596

MP Elettronica srl
Via Campagna, 10
21041 Albizzate
Varese - ITALY
Tel. +39 0331 98 52 10
Fax +39 0331 98 52 10

STCAT/01-1/3

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

INDEX CATALOGUE

Code	Rev.	Type	Description	N° pag.	D.T.
STCAT	02		Cover, index, company profile	3/3	0
STRC35	01	R3FC-R3FCS-R5FC	economic series, 2,5A/3A/6,3A ON-OFF/3000-6000/ramp	1/1	3
STRV6	01	RV6-RV6S	super stabilized 6,3A triple ON-OFF/3000-6000/ramp automatic input 0-10V/0-20mA	1/1	1
STPRX92	00	PRX92	circuit for sensor NPN-PNP with 2 delay time	1/1	1
STPRX99	00	PRX99	circuit for sensor NPN-PNP with 3 delay time ON/OFF no flow ALLARM-EV air blow	1/1	1
STRS96	00	RS96	super stabilized 6,3A-Automatic Input	1/1	1
STCV	01	CV6-CV8/CV10 CV20/CV40 CV70/CV100	stabilized series-5/10/20/40/70A automatic input 0-10V/0-20mA triple ON-OFF/3000-6000/ramp	2/2	6
STCVS	00	see series STCV	stabilized amplitude with sensor SIND1/2	2/2	2
STVBS06	00	VBS06 VBS06/D	super stabilized -6,3A double ON-OFF/3000-6000/ramp	1/1	1
STCV99	00	CV99	super stabilized 6,3A (8A) triple ON-OFF/3000-6000/ramp automatic input 0-10V/0-20mA	1/1	5
STMTR01 STMDL	00 00	MTR01	tre-phase motor-driver feeder with input sensor NPN/PNP 3 delay	1/1 2/2	1 3
STFQ1/2 STFQ1PWM STFQ1DIG	01	FQ1 FQ2 FQ1 PWM FQ1DIG	control amplitude/frequency ON-OFF/3000-6000/ramp/3-6,3A Digital with microprocessor 6,3A	2/2	1
STALIM 01	00	ALIM 01	monitoring of vibrators with amplitude sensor (SIND2)	1/1	2

RODUCTS ODIFICATION

All products are identified with the following model: (in case of lack of mode specification, the field will by identified with the mark X)

PV YYYYY Z H KKK

typology product
- R3FXX
- R5FXX
- VIBC5
- TC95A

type
- **A**-circuit
- **Z**-box

power supply
- **1**-115V / • **2**-230V
- **3**-400V / • **4**-230/400V
- **5**-till to 500V
- **6**-400V three phase
- **7**-400V 3 phase+neuter

personalization
- **STD**-standard
- **ABC**-customer code
- execution

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

Electronic Control Circuits For Electromagnetic Vibrators

Company Profile

M.P. Elettronica boasts of more than **20 years** experience in the design and marketing of electronic control systems and circuits (all stabilized) for vibratory units and electromagnetic linear vibratory feeders in widely differing configurations.

Our innovative technical solutions and implementation of customized application systems have enabled us to establish a leading position in the specific sector of electromagnetic vibration. Our production ranges from the **3A** control system to that of **70A** in both the standard stabilized version (**series "RC"**) and the super stabilized version (the vibratory feeder vibrates with the same amplitude against a variation of +/- 20% in the mains voltage) with automatic controls 0/10V - 0/20ma (**series "CV"**) and series **CVS** amplitude stabilized with vibration sensor **SIND2** which fully stabilizes the vibrations of the vibratory feeder regardless of its load conditions. All circuits are available in the version for **3000/6000** vibrations per minute (1500 - 750 V/m upon request), supply voltages 48/110/230/400V-till 600V **50/60Hz** (or other voltages upon request), start-up ramp, auxiliary **ON-OFF** input and MIN/MAX regulation, mains filter. (CE/EMC mark) .

Circuits are also available for inductive, capacitive and optical (**type PRX92-PRX99**) sensors signalling the "overflow" of linear vibratory feeders for the stopping and timed switching on of cylindrical vibratory feeders, as well as complete controls (**Series RC/CV99/CV6 +PRX99**) for integrated hopper systems, cylindrical and linear vibratory feeders with relative sensors. And a variable frequency digital control circuit **FQ1DIG** with sensor **SIND3** and **FQ1** (6A)**- FQ2** (3A), unique of its kind, allows optimizing operation of the vibratory feeder by searching for its resonance frequency (**maximum performance**), thereby eliminating its lengthy and difficult mechanical calibration. At last is also available a circuit code **ALIM01** that, with **SIND2** sensor, monitoring electromagnetic and mechanical vibrators with **Alarms.**

Customized versions are possible for each of our circuits whether open (IP00) or boxed (IP65-NEMA 4/4X) subject to verification with current European Standards. Legislative obligations to apply the european standards for the certification of conformity "**CE**" of electronic products in general have involved us in extensive work of verification, testing and application of said standards.

Thanks to the **great reliability** of our circuits, designed and produced by us with relative certification, our vast experience and highly professional level of our organization, we have steadily gained larger and larger market shares.In this specific sector we have a total production of **thousands of control units**.

We maintain a consistent level of research and commitment to ensure a continuous development and extension of circuits applied to **electromagnetic vibration**.

Special Executions on request

Inox Box - **IP66 (NEMA 4/4X**) - **Driving module for multiple vibrators** - Double speed -Double output - Customized versions and labels - Voltage from 24Vac to 600Vac - Driving vibrators 1500 V/m - 750 V/m - Controllers with feedback for mills

Internet: www.mpelettronica.com

e-mail: mp@mpelettronica.com

IQNET Registration No. it-1329

M P Elettronica S.r.L
is a firm
certificated
UNI EN
ISO
9001:2000

Certificato CSQ n. 9105.MPEL

QUALITY SYSTEM

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST R35
Rev. 01
Page 1/1

Electronic Control Circuits For Electromagnetic Vibrators

"RC" Series

GENERAL

The series "**RC**" circuits (**R3FC-R3FC/S-R5FC**) have been especially designed for controlling the amplitude of vibration in **industrial electromagnetic vibrators.**

Of modern conception, the system is based on a integrated circuit which guarantees perfect synchronization of the Triac firing pulse with the wave from of the working voltage under all conditions, with "overload" control.

The controllers also include a suitable circuit for soft start with provision for choosing the ramp time (**0,2 sec./2 sec.**) and for temperature compensation of the phase angle.

Appropriately over-dimensioned power stages are provided to handle any overloads without interruption, whether operating at **50** or **60** Hz.

Highly linear range of adjustment, as well as provision for setting the maximum and minimum vibration limits complete the list of main features embodied in the series "**RC**" controllers.

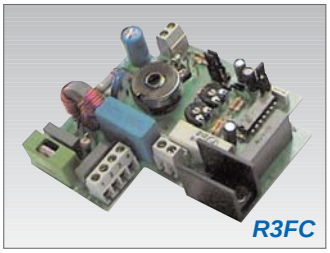
Vibration regulation is through an external potentiometers (see enclosed wiring diagram) and **ON-OFF** type control with external low power contact for weighing and batching system (also for high currents) and ON/OFF signal voltage.

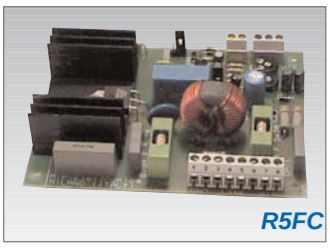
The controllers can be supplied either in our standard configuration or else in a new circuit configuration or customized box, with no alteration of the electrical reliability characteristics.

Furthermore we should be willing to provide our costumers with technical service on a continuos basis for improved utilization of the product, and the creation of new accessory products.

The **series** "**RC**" circuits are supplied already set in standard version. However access may be made to the PC board for re-adjustments of the minimum and maximum limits.

When ordering, please state the required model and working voltage. In the box **R3F-R5F** is possible to insert **PRX92/PRX99** circuit for electronic and mechanical sensor to complete controls to integrated hopper - bowl feeder - linear feeder.





ELECTRICAL CHARACTERISTICS

Tension of Feeding: **230V** +/- 5% 50/60Hz

Consumption: 1,5W max

Current Max: 2,5 A - 3,15A - 6,3A (RMS)

Fuses: double (2,5A/3,15A/6,3A) F 250V 5x20 H 1500 A

Load Min.: 50 mA (RMS)

Potentiometer of Reg.: 100K linear

Frequency of Vibration: 3000/6000 cycles to minute (50Hz)

Time of Ramp: 0,2 sec. or 2 sec. (modifiable)

Regolation Min.: 80V +/- 30%

Regolation max: 220V - 30%

Degree of pollution: 2

Position of Assemblage: horizontal or vertical

Degree of Protection: IP54 in box (IP00 only circuit)

Temperature of Storage: -15 °C / + 80 °C

Temperature of Operation: -5 °C / + 45 °C

Range of Relative Humidity: 80% till to 31°C

Installation Class: II

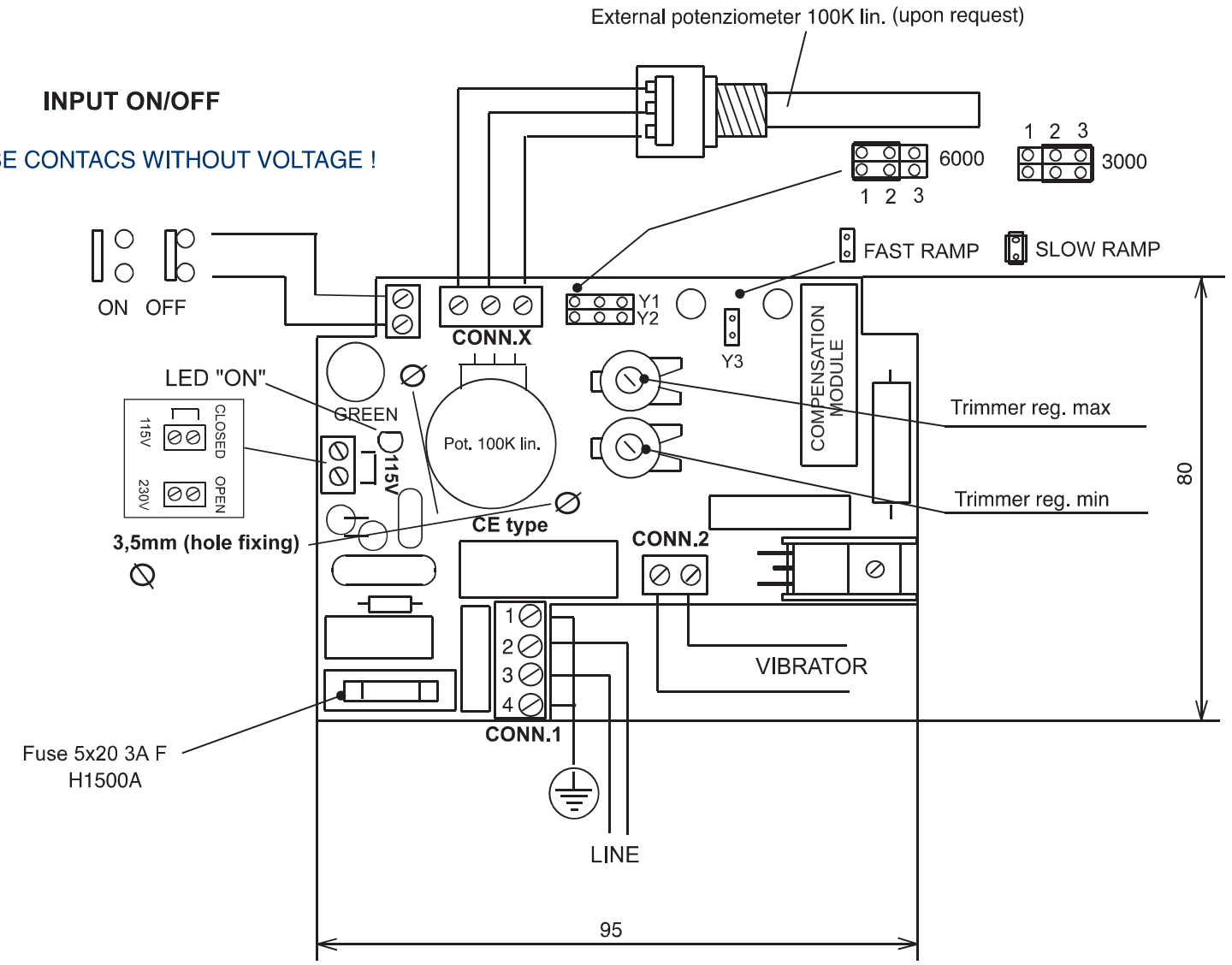
Altitude: till to 2000 meters

European Norms: EMC CE

Guarantee: 1 year (from date on circuit)

AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code
R3FC	Fire-retardant plastic	RAL 7035	100 x 100 x 53	PV R3FCX Z2 STD
R3FC	League aluminum	RAL 7035	100 x 100 x 53	PV R3FCX Z2 STM
R3FC+PRX92	Fire-retardant plastic	RAL 7035	100 x 100 x 53	PV R3PRX Z2 STD
R3FSC	Fire-retardant plastic	RAL 7035	164 x 100 x 67	PV R3FSC Z2 STD
R3FSC	League aluminum	Light Grey	110 x 135 x 60	PV R3FSC Z2 STM
R5FC	Fire-retardant plastic	RAL 7035	165 x 130 x 70	PV R5FCX Z2 STD
R5FC+PRX92	Fire-retardant plastic	RAL 7035	165 x 130 x 70	PV R5PRX Z2 STD
R5FC	League aluminum	Light Grey	145 x 130 x 60	PV R5FCX Z2 STM



SKETCH AND CHARACTERISTICS TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING.

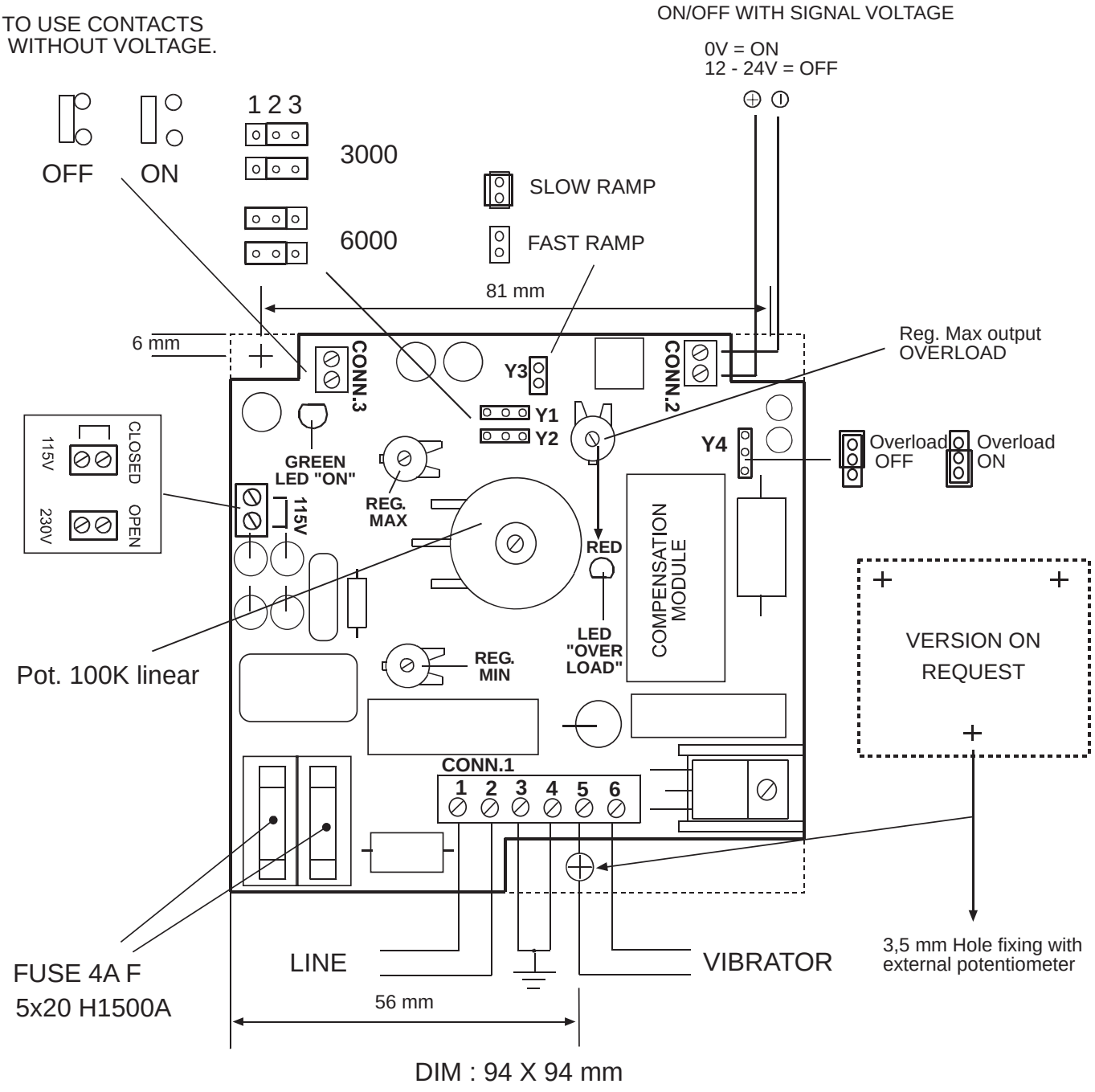
NOTE :
When change from 3000 to 6000 (vibration at minute) or from 6000 to 3000 to control MIN vibration.

NOTE :
If You are used only the electronic circuit (IP00) insert it and cable it in a container that could guarantee an excellent safety degree respecting the Normative European in force and isolate the terminals of the potenziometer with the little rubbers in endowment.
Each responsibility from a wrong use of the electronic circuit is declined.

Description: CONTROL CIRCUIT R3FC (STABILIZED)

CODE	REV	DATE	DRAFTSMAN	SHEET
DTR3FC	00	02/03	E. PEDRAZZI	1/1

MP ELETTRONICA



DIM : 94 X 94 mm

IMPORTANT :

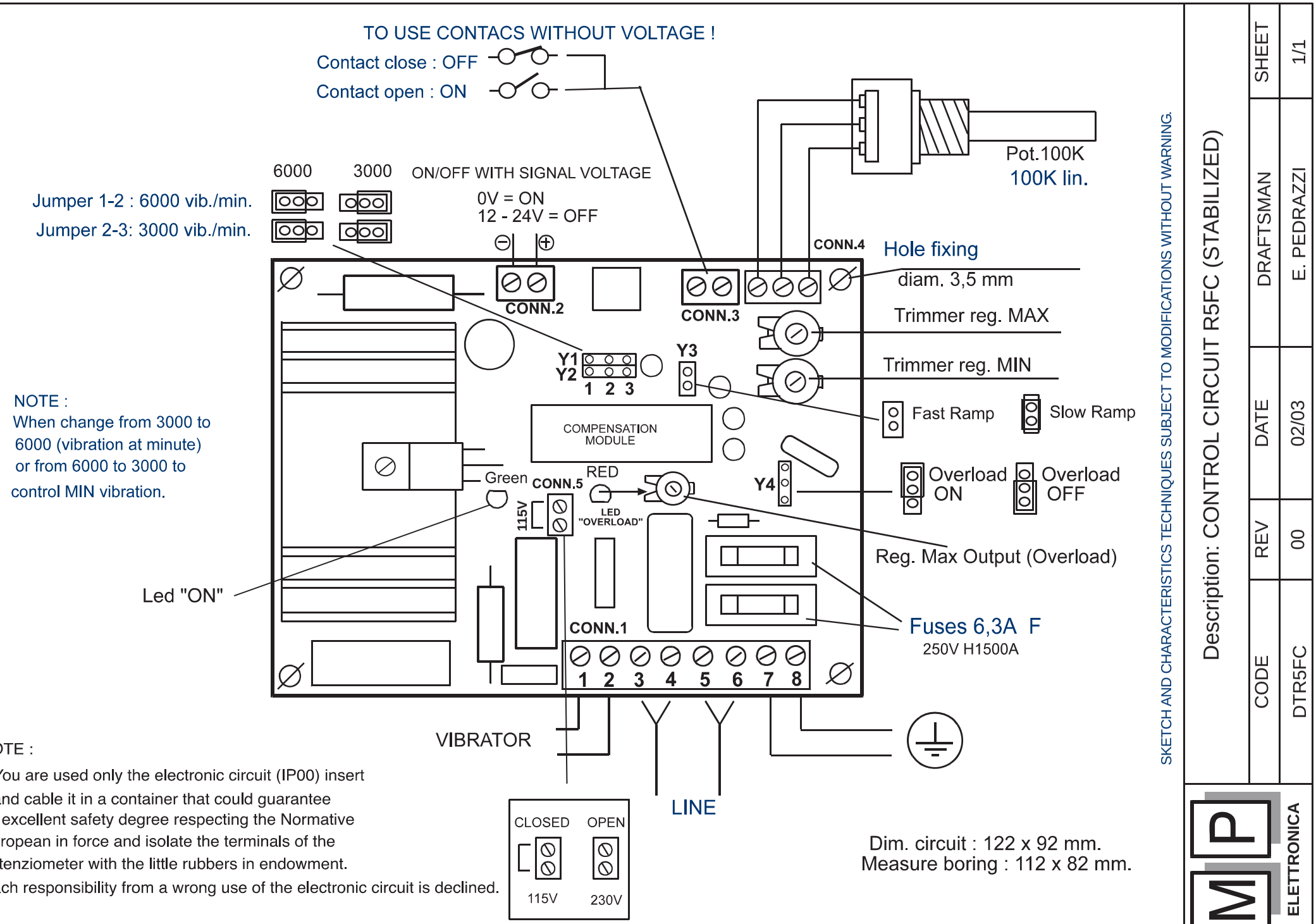
If You are used the electronic circuit (IP00) insert it and cable it in a container that could guarantee an excellent safety degree respecting the Normative European in force and isolate the terminals of the potenziometer with the little rubbers in endowment.
Each responsability from a wrong use of the electronic circuit is declined.

SKETCH AND CHARACTERISTICS TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING.

M P
ELETTRONICA

Description: CONTROL CIRCUIT R3FSC STABILIZED

CODE	REV	DATE	DRAFTSMAN	SHEET
R3FSC	00	02/03	E. PEDRAZZI	1/1


TO USE CONTACS WITHOUT VOLTAGE !
Contact close : OFF
Contact open : ON
6000
3000
Jumper 1-2 : 6000 vib./min.
Jumper 2-3: 3000 vib./min.
ON/OFF WITH SIGNAL VOLTAGE
0V = ON
12 - 24V = OFF
Pot.100K
100K lin.
CONN.4
Hole fixing
diam. 3,5 mm
CONN.2
CONN.3
Trimmer reg. MAX
Trimmer reg. MIN
Y1
Y2
Y3
1 2 3
Fast Ramp
Slow Ramp
COMPENSATION MODULE
Green
RED
CONN.5
115V
LED "OVERLOAD"
Y4
Overload ON
Overload OFF
Reg. Max Output (Overload)
Led "ON"
CONN.1
Fuses 6,3A F
250V H1500A
1 2 3 4 5 6 7 8
VIBRATOR
LINE
CLOSED
OPEN
115V
230V
NOTE :
When change from 3000 to 6000 (vibration at minute) or from 6000 to 3000 to control MIN vibration.
NOTE :
If You are used only the electronic circuit (IP00) insert it and cable it in a container that could guarantee an excellent safety degree respecting the Normative European in force and isolate the terminals of the potenziometer with the little rubbers in endowment.
Each responsibility from a wrong use of the electronic circuit is declined.
Dim. circuit : 122 x 92 mm.
Measure boring : 112 x 82 mm.
SKETCH AND CHARACTERISTICS TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING.
Description: CONTROL CIRCUIT R5FC (STABILIZED)
SHEET 1/1
DRAFTSMAN E. PEDRAZZI
DATE 02/03
REV 00
CODE DTR5FC
MP ELETTRONICA

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9001:2000
CERT. 9105 MPEL

Cod. ST RV6
Rev. 01
Page 1/1

Electronic Controller for Electromagnetic Vibrator

"RV6 - RV6S"

with optional circuit PRX07 for sensor NPN/PNP

GENERAL

STABILIZED PROFESSIONAL CONTROLLER, COMPACT, ECONOMIC, CURRENT TILL TO 6,3A RMS OR IN METALLIC BOX IP66, ONLY CIRCUIT OR CIRCUIT WITH SUPPORT DIN35 WITH EXTERNAL POTENTIOMETER.
(OPTIONAL CIRCUIT PRX07 FOR SENSOR NPN/PNP)

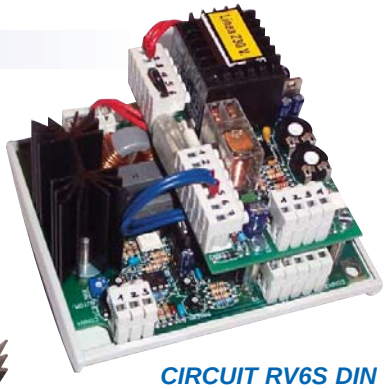
METALLIC BOX RV6-RV6S
PV RV6XX Z2 STD

GENERAL CHARACTERISTICS

VOLTAGE (115V) 230V OR 400V, 50-60 HZ - 3000/6000 VIB/MIN - AUTOMATIC INPUT 0-10V - MULTIPLE ON/OFF INPUT- SLOW/FAST RAMP-
REG. VIBRATION MIN/MAX MAN/AUTOMATIC- LINE INPUT WITH SCHUKO PLUG - VIBRATOR OUTPUT WITH CONNECTOR.
OUTPUT ELECTRO VALVE AIR BLOW. OUTPUT 24VCA - MAX 200MA

APPLICATIONS

REGULATION OF LINEAR AND SMALL VIBRATORS CIRCULAR TILL 6,3A WITH AUTOMATIC INPUT (PLC)

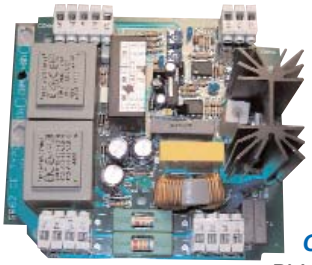


CIRCUIT RV6S DIN
PV RV6X A2 DIN

OPTIONS

BOX IP65 (NEMA 4/4X) - INOX BOX- PERSONALIZED LABEL - DOUBLE SPEED - CONNECTOR FOR VIBRATOR.
CIRCUIT PRX07 FOR NPN/PNP (RV6S)

CIRCUIT PRX07
PVPRX07A2STD



CIRCUIT RV6
PV RV6XX A2 STD

ELECTRICAL CHARACTERISTICS

TENSION OF FEEDING: (115) 230V or 400V +/- 20% 50/60Hz

CONSUMPTION: 1,5W max

CURRENT MAX: 6,3A (RMS)

LOAD MIN: 50 mA (RMS)

FREQUENCY OF VIBRATION: 3000/6000 cycles to minute (50Hz)

TIME OF RAMP: 0,1 sec. o 1 sec. (modifiable)

REGOLATION MIN.: 80V +/- 30% (230V) 140V +/- 30% (400V)

REGOLATION MAX: 200V - 30% (230V) 380V-30% (400V)

ON/OFF: free contact-voltage signal 0-24Vcc

INPUT CONSUMPTION AUTOM. 010V: 0-10V 1mA max

INPUT IMPEDANCE 0-10V: 50Komh-50ohm

DEGREE OF PROTECTION: IP66 in box (NEMA4-4X)

TEMPERATURE OF STORAGE: -10 °C / + 80 °C

TEMPERATURE OF OPERATION: 0 °C / + 45 °C

EUROPEAN NORMS: EMC CE

GUARANTEE: 1 year (from date on circuit)

Type	Box	Colour	Dimensions	Code	Price €
RV6	Alluminum Box	RAL 7035	130 x 130 x 80	PV RV6XX Z2 STD	
RV6S	Alluminum Box	RAL 7035	130 x 130 x 80	PV RV6SX Z2 STD	
RV6	Circuit		107 x 120 x 15	PV RV6XX A2 STD	
RV6S	Circuit		107 x 120 x 70	PV RV6SX A2 STD	
RV6-DIN35	Circuit Din		107 x 120 x 25	PV RV6XX A2 DIN	
RV6S-DIN35	Circuit Din		107 x 120 x 80	PV RV6SX A2 DIN	
PRX07	Circuit		96 x 60 x 15	PV PRX07 A2 STD	

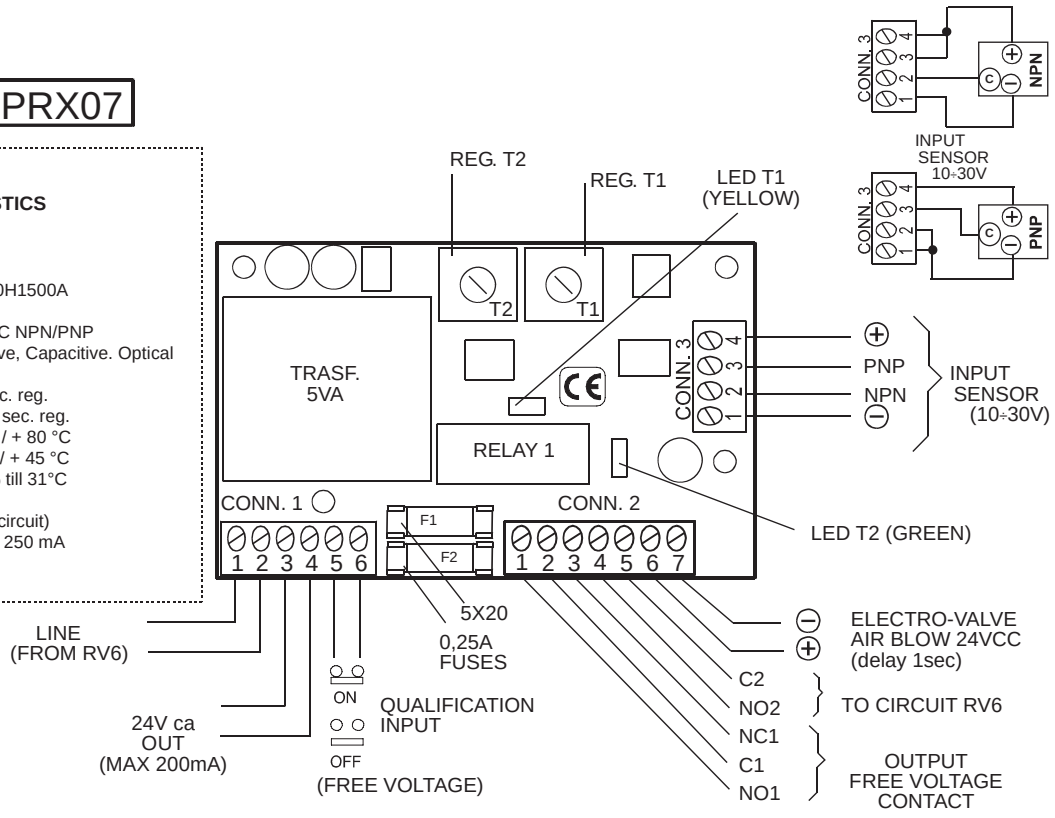
ELETTRONICA

CODE	REV	DATE	DRAFTSMAN	SHEET
DT PRX07	00	10/05	E. PEDRAZZI	1/1

Description: CIRCUITPRX07 FOR TIME DELAYED VIBRATOR STOP

CIRCUIT PRX07

ELECTRICAL CHARACTERISTICS
Voltage: 230 Vca +/- 5% 50/60Hz
(115-400V a richiesta)
Consumption: 1,5W max
Fuses: double 0,25A F 250V 5x20H1500A
Current Max 24Vca: 200mA
Sensor Input: optoisolated NO/NC NPN/PNP
Type of Sensor: Mechan., Induttive, Capacitive. Optical
Voltage Sensor: 18 Vcc
Energization Delay (T1): 0-10 sec. reg.
De-energization Delay (T2):0-10 sec. reg.
Temperature Of Storage: -10 °C / + 80 °C
Temperature of Operation: 0 °C / + 45 °C
Range of relative humidity: 80% till 31°C
Altitude: till 2000 meters
Guarantee: 1 Year (from date on circuit)
NOTE: Max current for all loads - 250 mA



DIM. 60X96

T1 = DELAY ON **T2 = DELAY OFF**

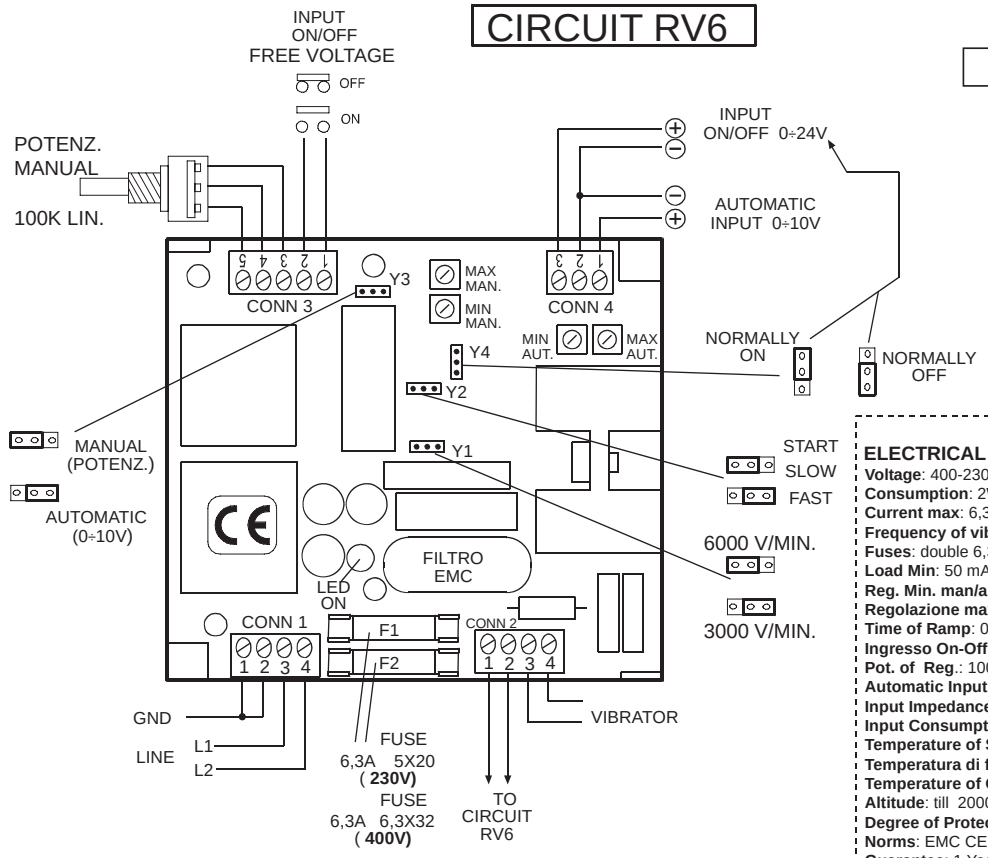
ELETTRONICA

CODE	REV	DATE	DRAFTSMAN	SHEET
DT RV6	00	10/05	E. PEDRAZZI	1/1

Description: ELECTRONIC CIRCUIT RV6

CIRCUIT RV6

DIM. 107X120



ON REQUEST IS POSSIBLE TO USE AMPITUDE SENSOR SIND2

ELECTRICAL CHARACTERISTICS
Voltage: 400-230V (115V) +/- 10% 50/60Hz
Consumption: 2W max
Current max: 6,3A (RMS)
Frequency of vibration: 3000/6000 V/min. (50Hz)
Fuses: double 6,3A F 250V 5x20 H 1500 A (EN 627-2 CEI)
Load Min: 50 mA (RMS)
Reg. Min. man/aut: 80V +/- 30%
Regolazione max man/aut: 200V - 30%
Time of Ramp: 0,2 sec. o 2 sec. (by jumper)
Ingresso On-Off: doppio:contatto pulito/0-24V cc
Pot. of Reg.: 100K linear
Automatic Input: 0-10V
Input Impedance 0-10V: 50Kohm
Input Consumption Autom. 0-10V: 1 mA max
Temperature of Storage: -10 °C / + 80 °C
Temperatura di funzionamento: 0 °C / + 45 °C
Temperature of Operation: 80% sino a 31°C
Altitude: till 2000 m.
Degree of Protection: IP66 in box (NEMA 4 -4X)
Norms: EMC CE
Guarantee: 1 Year (from date on circuit)

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

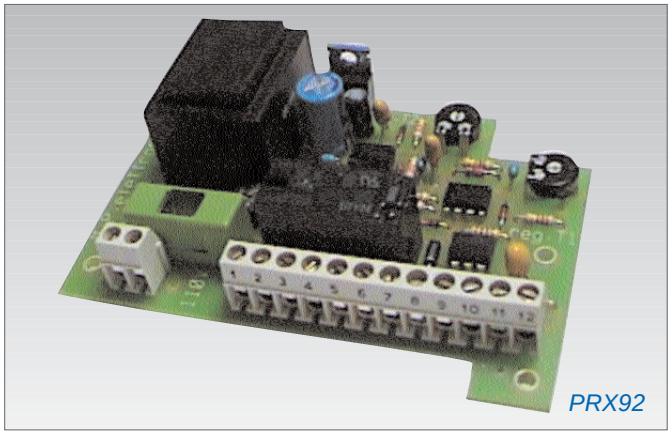
Cod. ST PRX92
Rev. 00
Page 1/1

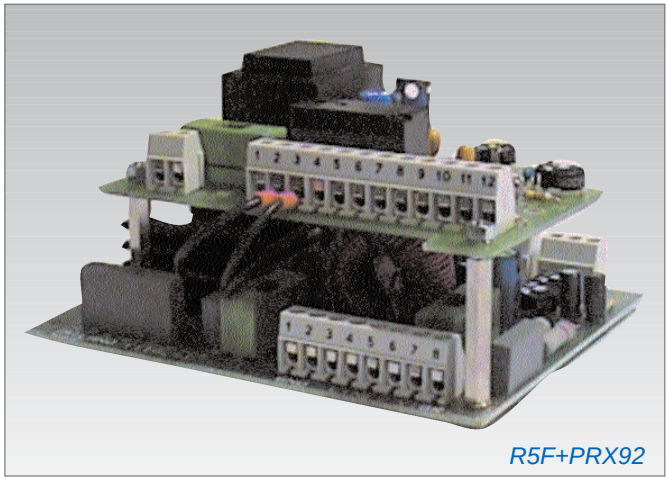
Electronic Circuit For Time Delayed Vibrator Stop

"PRX92" Circuit

GENERAL

The **PRX92** electronic vibrator stop circuit can be used to stop round electromagnetic vibrators or electromagnetic vibratory hoppers through mechanical, inductive, capacitive or optical (photocells) **sensors** with **NPN** or **PNP** outputs. The circuit also features **2 timed** delays from **0-6** sec or **0-12** sec, which are adjustable, for stop and start of the vibrator.


PRX92


R5F+PRX92

DEFINITION T1/T2

(Case with hopper/automatic distributor/mechanical sensors)

T1: When the contact of the mechanical **sensors is closed** (= automatic distributor empy = no components)
T1 is the delay time for ON condition of the hopper discharging into the automatic distributor.

T2: When the contact of the mechanical **sensors is open** (=automatic distributor full=component present)
T2 is the delay time for **OFF** condition of the hopper discharging into the automatic distributor.

N.B.:This applies also in the case of signalling the overflow of a vibratory channel coupled with an automatic distributor by means of the **electronic sensors** (e.g. photocells).

ELECTRICAL CHARACTERISTICS

Supply Voltage: 230 Vca +/- 5% 50/60 Hz
Consumption: 1,5W max
Fuses: 0,2A F 250V 5x20 H1500A
Inputs for Sensors: optoisolated NO/NC NPN/PNP
Type of Sensors: mechan. inductive. capacitive or optical
Supply Voltage for Sensors: 12 Vcc
Energization Delay (T1): 0-6 sec. o 0-12 sec. reg.
De-Energization Delay (T2): 0-6 sec. o 0-12 sec. reg.
Output for Vibrator Stop: 2 NO/NC 10A 250Vca max
Position of Assemblage: horizontal or vertical
Temperature of Storage: -10 °C / + 80 °C
Temperature of Operation: 0 °C / + 45 °C
Range of Relative Humidity: 80% till to 31°C
Altitude : till to 2000 meters

APPLICATIONS

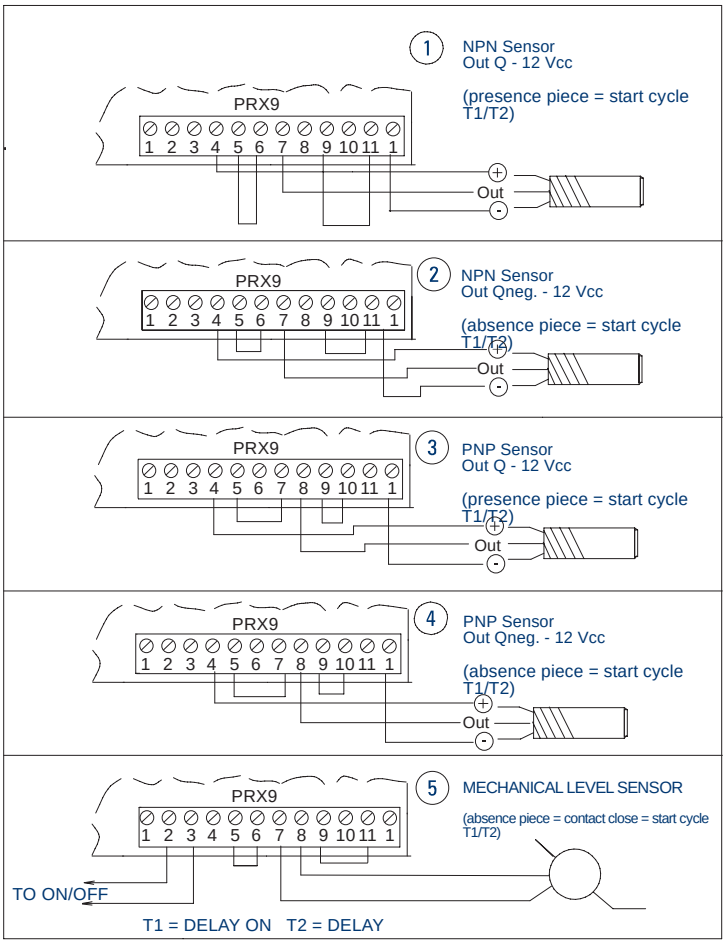
The **PRX92** electronic vibrator stop circuit can be used in various configurations, such as:
1) For controlling **overflow** of a vibratory chute at the output of a round vibrator.
2) For controlling the **loading** in a round vibrator from a hopper by means of mechanical level indicators.
3) For energizing readout **photocells** instead of the mechanical device used as level sensor.

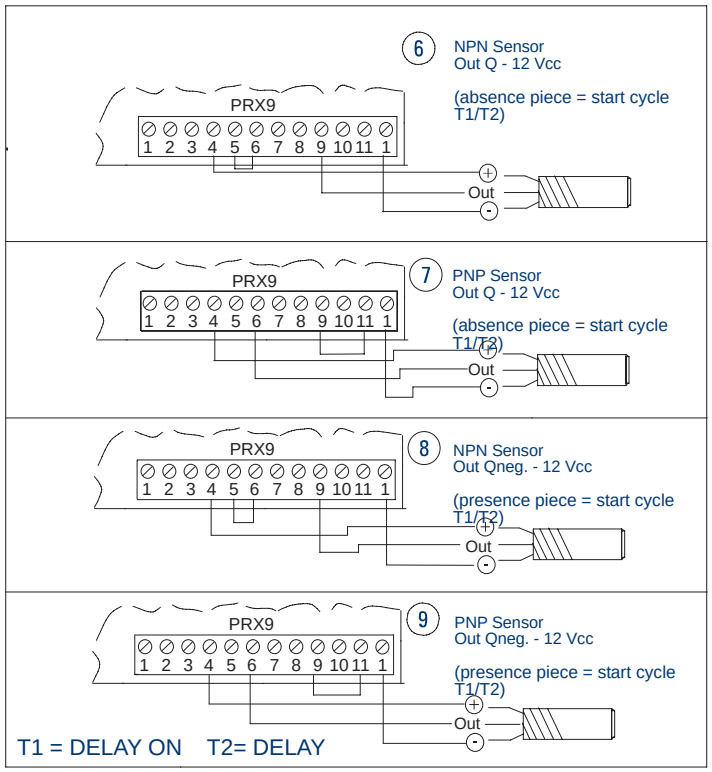
Hence it is possible to couple our PC boards of the **R** and **CV** series, for commanding and automating a complete feeder system.

Thanks to the remarkable compactness and the great reliability guaranteed by galvanic and opto-isolation of the imputs, the **PRX92** proves to be a valid help in all those cases where it is required to automate component loading and selection cycles with the aid of mechanical and electronic sensors

AVAILABLE VERSIONS

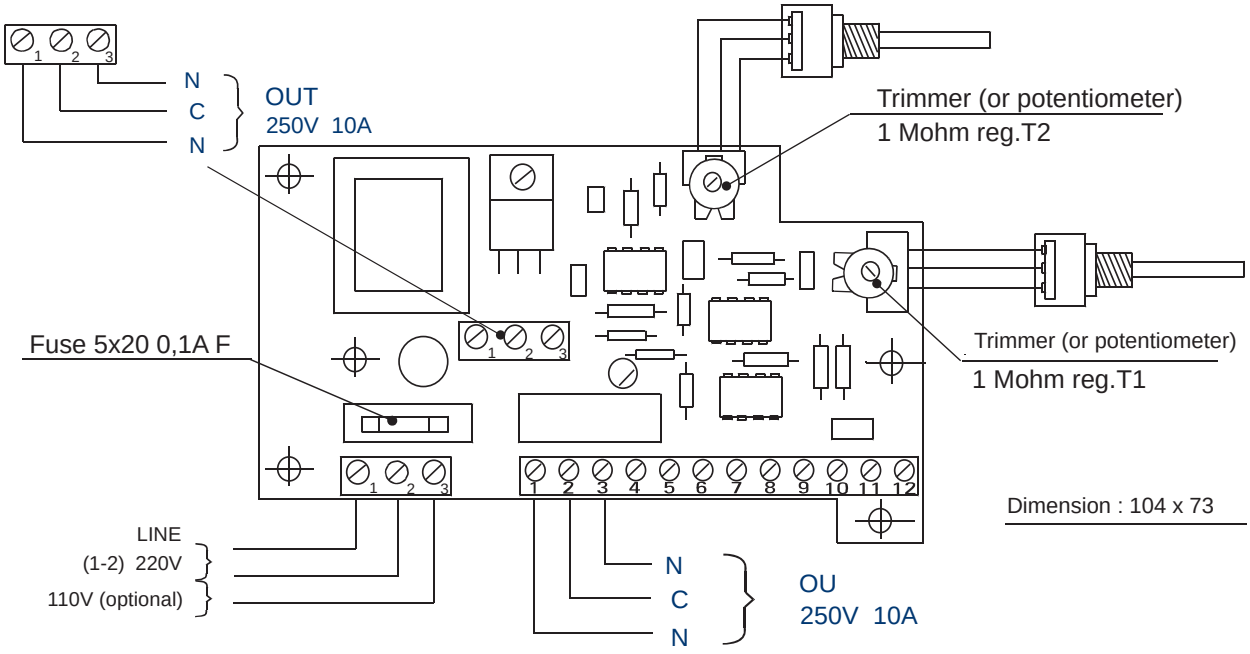
Circuit	Description	Dimensions	Code
PRX92	Circuit for sensor with trimmers	95 x 65 x 35	PV PRX92 A2 STD
PRX92/PEX	Circuit for sensor with external potentiometers	95 x 65 x 35	PV PRX92 A2 PEX

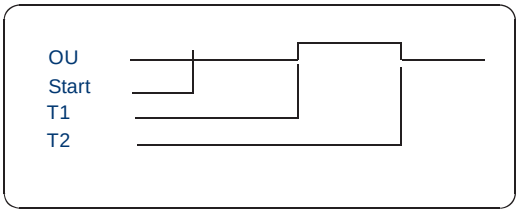




MP ELETTRONICA	Description: PRX92 SCHEME OF CONNECTION				
	CODE	REV	DATE	DRAFTSMAN	SHEET
	DTPRX92	00	05/98	E. PEDRAZZI	2/3

MP ELETTRONICA	Description: PRX92 SCHEME OF CONNECTION				
	CODE	REV	DATE	DRAFTSMAN	SHEET
	DTPRX92	00	05/98	E. PEDRAZZI	3/3





Description: ELECTRONIC CIRCUIT FOR TIME DELAYED VIBRATOR STOP

CODE	REV	DATE	DRAFTSMAN	SHEET
DTPRX92	00	05/98	E. PEDRAZZI	1/3

MP ELETTRONICA

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. **ST PRX99**
Rev. **00**
Page **1/1**

Electronic Circuit For Time Delayed Vibrator Stop and Allarms

Circuit "PRX99"

GENERAL

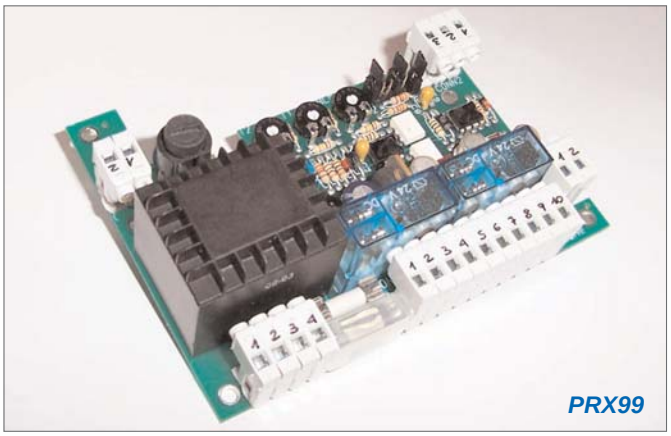
The universal interface electronic circuit **PRX99** for electronic sensors (**NPN-PNP**, optics, inductives, capacitives, NO-NC) allows to feed and manage a sensor that can be used in automatic feeding systems made with electromagnetic vibrators (sensor inside the linear Vibrator or circular Vibrator, to control the "overflow" and to regulate the correct flow or selection).
The circuit has a separate control for the timer delay for activation and deactivation of the vibrator and for the low flow alarm. The circuit keeps the times separate during functioning and therefore makes it impossible for them to be modified by either the shape of the pieces or any irregular flow of said pieces on the selection convey. Input and 24V output lines and Air Blow are protected by fuses. The Air Blow starts with the vibrator and continues working for a further 2 seconds after the vibrator has stopped.
Every function is monitored by a signalling Led (Led yellow - **T1**, Led Green - **T2**, Led Red - **Allarm**) and power contacts without voltage are available at the output for possible connection of similar circuits or accessories. The total usage must be below the **5VA** supplied by the standard transformer (voltages up to **10VA** upon request). This means that the available voltage is a total of **200mA**, i.e. the sum of the absorption of the circuit (approx. 50mA), of the sensor **10-30V dc** fed by 18V, of the Electro-valve Air Blow and any other possible module connected to the output approx **24Vca**, must be within such limit.

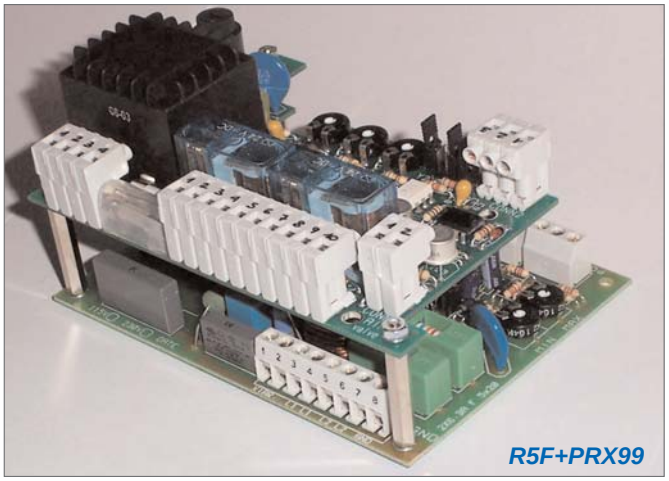
DEFINITION T1/T2 ALARM

(Case with hopper/automatic distributor/mechanical sensors

T1: When the contact of the mechanical **sensors is closed** (= automatic distributor empy = no components)
T1 is the delay time for ON condition of the hopper discharging into the automatic distributor.

T2: When the contact of the mechanical **sensors is open** (=automatic distributor full=component present)
T2 is the delay time for **OFF** condition of the hopper discharging into the automatic distributor.





T.ALARM: Delay, for Alarm absence pieces
N.B.:This applies also in the case of signalling the overflow of a vibratory channel coupled with an automatic distributor by means of the **electronic sensors** (e.g. photocells).

SPECIAL APPLICATION : To work with linear/bowl feeder/hopper

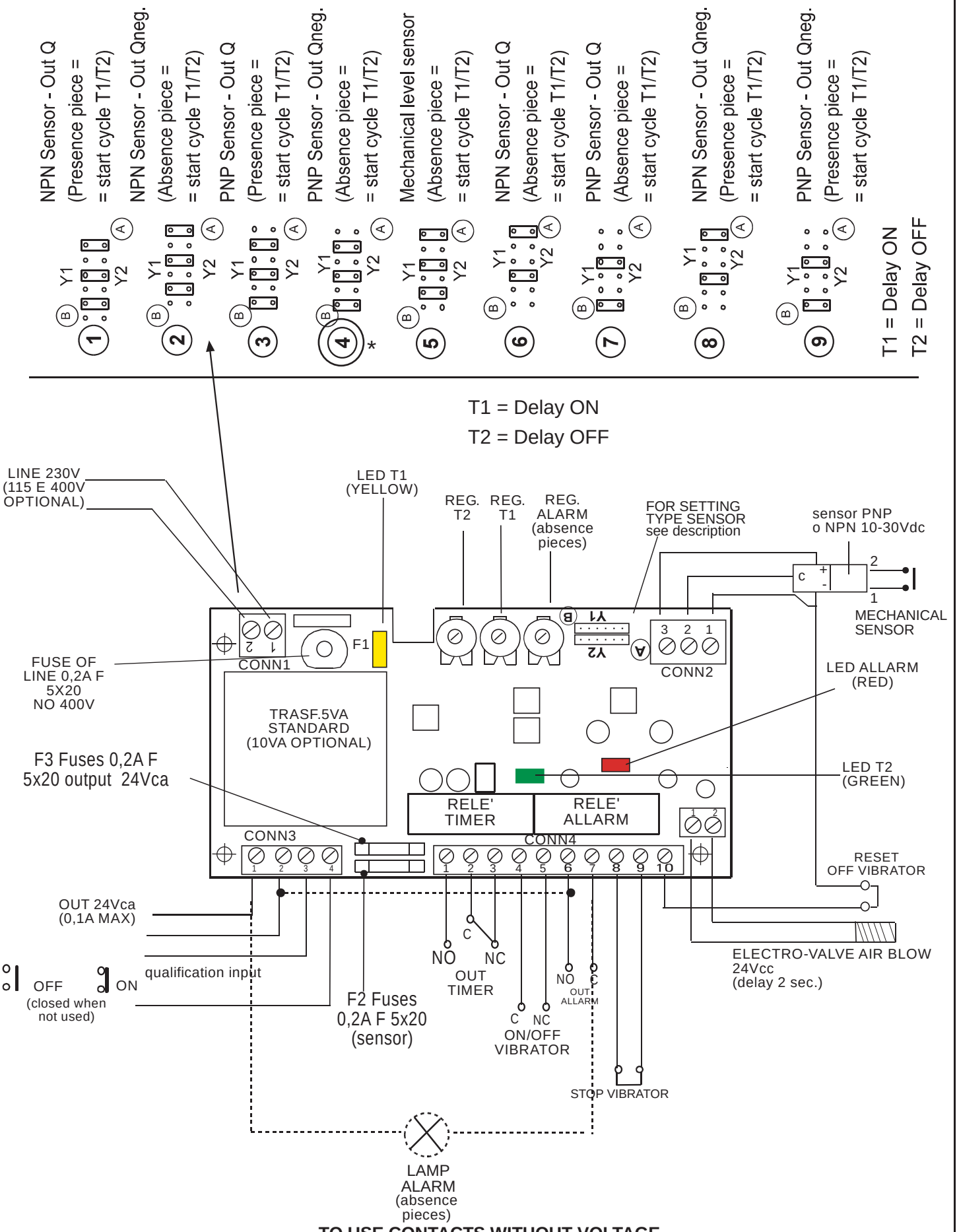
The **PRX99** circuit mechanically connected to the **R5FC**, **CV99** or all other vibrator controlling circuits, allows to implement a material loading and selection process ruled by vibrators (hopper, circular, linear) and divided into several phases all completely independent in all their main function (feeding the vibrators; managing the sensors NPN/PNP, their times and air blows; low flow alarm visible thanks to the self-feeding alarm light).

ELECTRICAL CHARACTERISTICS

Supply Voltage: 230 Vca +/- 5% 50/60 Hz
Consumption: 1,5W max
Fuses: 0,2A F 250V 5x20 H1500A
Inputs for Sensors: optoisolated NO/NC NPN/PNP
Type of Sensors: mechan. inductive. capacitive or optical
Supply Voltage for Sensors: 12 Vcc
Energization Delay (T1): 0-6 sec. o 0-12 sec. reg.
De-Energization Delay (T2): 0-6 sec. o 0-12 sec. reg.
Alarm Delay: 30 sec.
Output for Vibrator Stop: 2 NO/NC 10A 250Vca max
Position of Assemblage: horizontal or vertical
Temperature of Storage: -10 °C / + 80 °C
Temperature of Operation: 0 °C / + 45 °C
Range of Relative Humidity: 80% till to 31°C
Altitude : till to 2000 meters
Delay EV air blow: 2 sec.

AVAILABLE VERSIONS

Circuit	Description	Dimensions	Code
PRX99	Circuit for sensor with trimmers	95 x 65 x 35	PV PRX99 A2 STD
PRX99/PEX	Circuit for sensor with external potentiometers	95 x 65 x 35	PV PRX99 A2 PEX



TO USE CONTACTS WITHOUT VOLTAGE

MP ELETTRONICA	Description: INTERFACE CIRCUIT FOR SENSOR PRX99 WITH ALLARMS			
CODE	REV	DATE	DRAFTSMAN	SHEET
DTPRX99	00	12/02	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST RS96
Rev. 00
Page 1/1

Stabilized Electronic Control Circuits For Electromagnetic Vibrator

"Controller RS96"

GENERAL

Stabilized circuit **RS96** has been especially designed for regulating the intensity of vibration and stabilized amplitude in industrial vibratory feeders.

Of modern conception, the system uses an integrated module which guarantees **perfect synchronization** of the triac firing pulse with the wave form of the working voltage under all conditions.

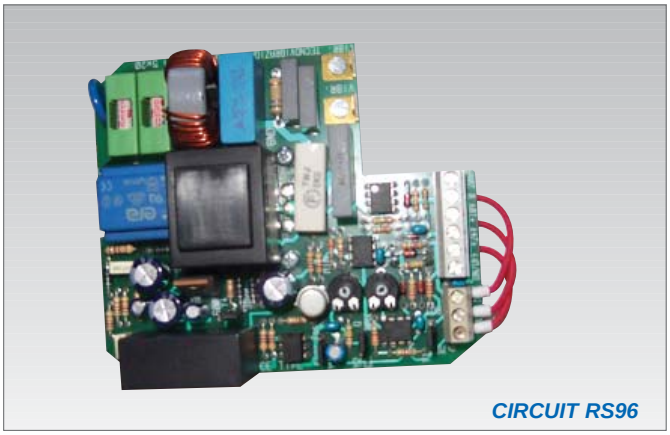
The system is also includes a special circuit for soft start, with provision for selecting the ramp time by relative jumper (standard 1 sec.) as well as **temperature compensation** of the phase angle.An appropriately over-dimensioned power stage is provided for handing any overloads without interruptions, whether operating at **50Hz** or **60Hz**.

All imput galvanically isolated from power supply, a highly **linear** range of adjustment, manual and automatic input (**0-10V/0-20mA** optional), together with provision for setting the maximum and minimum vibration limits with **professional trimmers** complete the list of main features offered by stabilized controller **RS96.**

Vibration regulation is through an external **professional** potentiometer. It is also possible to use and on ON-OFF/input for **weighing** and **batching systems**.

The controller **RS96** thanks to their total reliability combined with great versatility, can be used to drive any type of **industrial electromagnetic vibrator**, whether small or medium . The unit is supplied either in open version (without case) or in boxes version (IP55/65-NEMA 4/4x).

METALLIC BOX RS96


CIRCUIT RS96

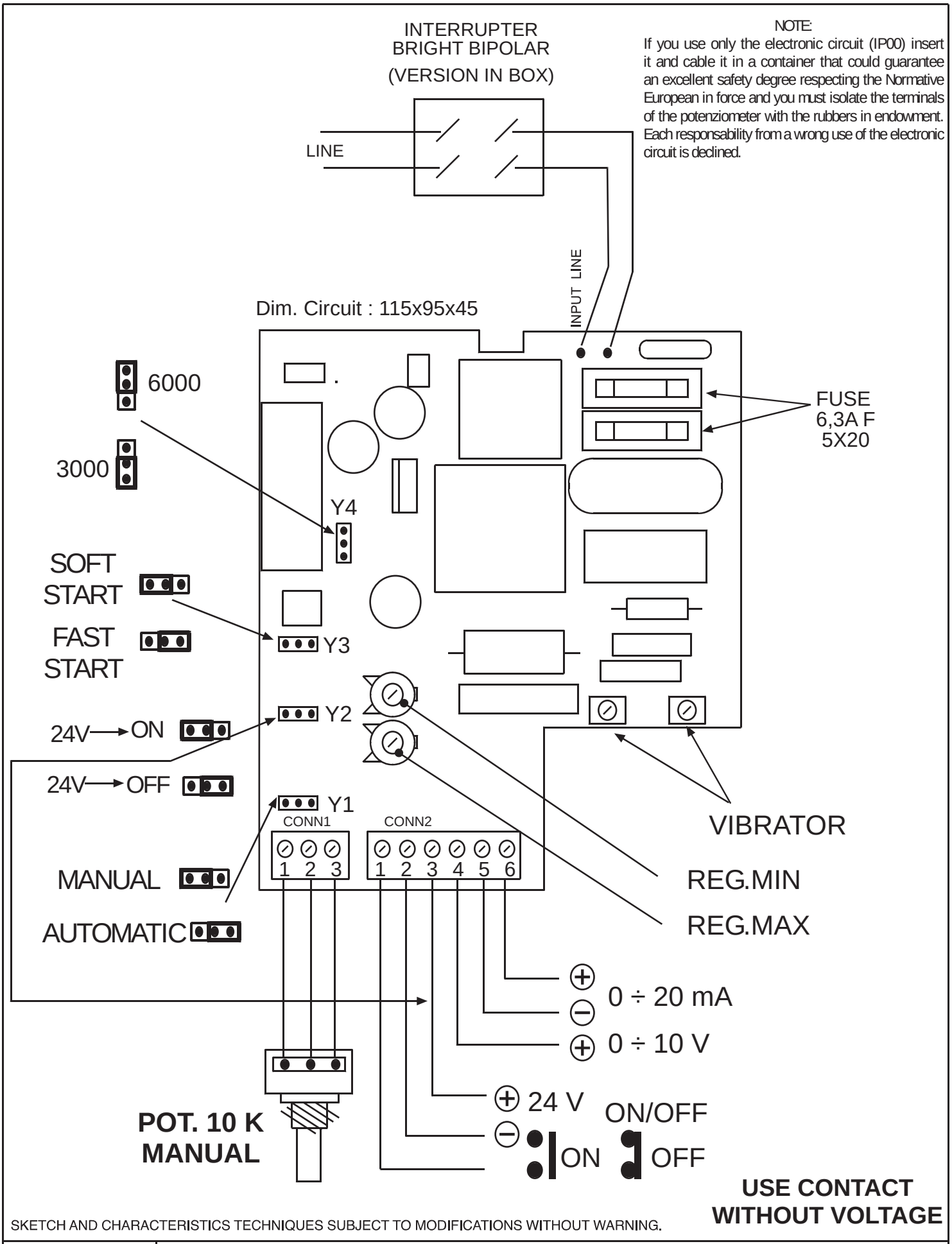
ELECTRICAL CHARACTERISTICS

Tension of Feeding: 230V (115V) +/- 5% 50/60Hz
Stabilization: +/-20%
Consumption: 2W max
Current Max: 6,3 (RMS)
Fuses CV5: double 6,3A F 250V 5X20 H1500A
Load Min.: 50 mA (RMS)
Potentiometer or reg.: 10Kohm linear
Frequency of Vibration: 3000/6000 V/m (50Hz)3600/7200(60Hz)
Time of Ramp: 0,2 sec. or 2 sec. (by jumper)
Regolation Min. Man/Aut: 80V+/- 30%
Regolation Max. Man/Aut: 200V - 30%
Input ON-OFF: contact without voltage/ voltag sign/10-30Vcc
Automatic Input: 0-10V/0-20mA
Automatic Input Consumption 0-10V: 1 mA max
Input Impedance 0-10V: 50Kohm
Input Impedance 4-20mA: 50ohm
Degree of pollution: 2
Position of Assemblage: horizontal or vertical
Degree of Protection: IP55 in box - IP65 NEMA 4/4X
Temperature of Storage: -15 °C / + 80 °C
Temperature of Operation: -5 °C / + 45 °C
Range of Relative Humidity: 80% till to 31°C
Installation Class: II
Altitude: till to 2000 meters
European Norms: EMC CE
Guarantee: 1 year (from date on circuit)

AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code
RS96	Alluminium	RAL 7035	164X100X67	PV RS96X Z2 STD

Type	Description		Code
RS96	Control Circuit	115x95x45	PV RS96X A2 STD



NOTE:
If you use only the electronic circuit (IP00) insert it and cable it in a container that could guarantee an excellent safety degree respecting the Normative European in force and you must isolate the terminals of the potenziometer with the rubbers in endowment. Each responsability from a wrong use of the electronic circuit is declined.

USE CONTACT WITHOUT VOLTAGE

SKETCH AND CHARACTERISTICS TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING.

ELETTRONICA

Description: STABILIZED CONTROL CIRCUIT RS96

CODE	REV	DATE	DRAFTSMAN	SHEET
DTRS96	00	10/02	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST CV
Rev. 01
Page 1/2

Stabilized Electronic Control Circuits For Electromagnetic Vibrator

"CV" Series

GENERAL

The circuits in this series, besides their **stability** to temperature and their **reliability**, also have the characteristic of being able to **compensate** for any varations in the mains power supply voltage (more **+/- 20%**), thereby ensuring constant amplitude of the vibrations independently of the fluctuations which the mains voltage is subject to throughout the twenty four hours in the day.
This advantage is specially important each time the flow the components out from the vibrator must be **kept as costant** as possible in order not to run the risk of impairing the correct operation of the equipment downstream to the vibrator.
In fact the CV series circuits (**CV6/CV10/CV20/CV40-CV70/CV100** on request) supply the vibrator terminals with voltage such as to ensure constant amplitude of vibration.
This advantage remains the same regardless of the type of power supply voltage (230/400V or 115V,415V, 440V, 460V, 480V upon request).
In addition to the features described above, this circuit has the following characteristics :

1) Potentiometer for manual setting and galvanically isolated inputs **0/10V** and **0/20mA** for automatic operation.

2) Operation at **50** (and **60)** Hz and **3000** (3600)V/m and **6000** (7200) V/m.
(750V/m and 1500V/m on request).

3) Provision for operating as nr.2 **ON-OFF**(contact or signal voltage) type with soft start for using photocells or proximity switches without need for power contacts.

4) Provision for manual operation (through linear **100K** potentiometer) or automatic operation through inputs **0/10V** and/or **0/20mA**.

5) Power output with double isolated SCR (from CV20 to CV70); in the event of failure of one SCR the other one can be used (see DTCVMOD).
With reference to draw DTCV6/DTCVXY note that the circuit can operate coupled to a photocells or proximity switch with output not under voltage in loading or batching system.
It is also possible to implement very brief **ON-OFF** cycles without impairing the ramp start charateistics.


CV10F INOX


CV20F


CV40


CV6-CV8

The series **CV** control circuits, thanks to their total reliability combined with great versatility, can be used to drive any type of **industrial electromagnetic vibrator**, whether small, medium or high power. The unit is supplied either in open version (without case, IP00) or in boxes version (IP55/65-NEMA 4/4x). On request, is available a contact that signal the Vibrator ON.

ELECTRICAL CHARACTERISTICS

Tension of Feeding: 230V or 400V +/- 20% 50/60Hz
Consumption: 1,5W max (CV6)-3,5 max(CV10-CV70)
Current Max: 5/10/20/40/70 A RMS
Fuses CV6/CV8: double 6A F 500V 6,3X32 H1500A
double 8A F 500V 6,3X32 H1500A
Fuses CV10/40: double 10/20A F 660V 10X38 H100000A
double 40A F 500V 14X51 H120000A
Protection Fuse CV10/40: 6,3x32 500mA 500V
Load Min.: 50 mA (RMS)
Potentiometer of reg.: 100Kohm linear
Frequency of Vibration CV6/8: 3000/6000 V/m (50Hz)
Freq. of Vibration CV10/70: 3000 / 6000 V/m (50Hz)
Time of Ramp: fast ramp 0,1 sec. / slow ramp 1 sec.
Regolation Min.: 80V+/- 30% (230V) 140V+/- 30% (400V)
Regolation Max: 200V - 30% (230V) 350V-30% (400V)
Automatic Input Consumption 0-10V: 1 mA max
Input Impedance 0-10V: 50Kohm / **0-20mA**: 50ohm
Input ON/OFF: contact / 0-24 Vcc
Degree of pollution: 2
Position of Assemblage: horizontal or vertical
Degree of Protection: IP55 in box - IP65-NEMA4-4X
Temperature of Storage: -15 °C / + 80 °C
Temperature of Operation: -5 °C / + 45 °C
Range of Relative Humidity: 80% till to 31°C
Installation Class: II
Altitude: till to 2000 meters
European Norms: EMC CE
Guarantee: 1 year (from date on circuit)

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST CV
Rev. 01
Page 2/2

Stabilized Electronic Control Circuits For Electromagnetic Vibrator

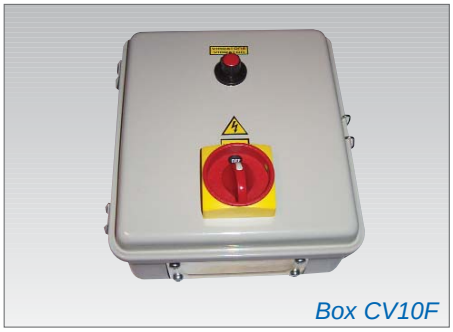
"CV" Series

AVAILABLE VERSIONS

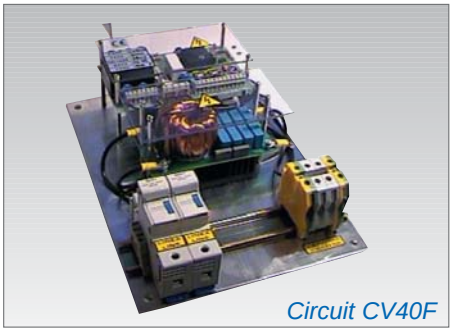
Type	Description		Code
CIRCUIT	CV6/8F	230V-6A(8A)	PV CV6(8)FX A2 STD
CIRCUIT for DIN 35	CV6/8F	230V-6A(8A)	PV CV6(8)FX A2 DIN
CIRCUIT baseplate + plexiglass	CV6/8F	230V-6A(8A)	PV CV6(8)FX A2 SBP
BOX	CV68/F	230V-6A(8A)	PV CV6(8)FX Z2 STD
BOX PLASTIC	CV6/8F	230V-6A(8A)	PV CV6(8)FX Z2 STP
CIRCUIT	CV6/8F	400V-6A(8A)	PV CV6(8)FX A3 STD
CIRCUIT for DIN 35	CV6/8F	400V-6A(8A)	PV CV6(8)FX A3 DIN
CIRCUIT baseplate + plexiglass	CV6/8F	400V-6A(8A)	PV CV6(8)FX A3 SBP
BOX	CV6/8F	400V-6A(8A)	PV CV6(8)FX Z3 STD
BOX PLASTIC	CV6/8F	400V-6A(8A)	PV CV6(8)FX Z3 STP
CIRCUIT	CV10/IF	230V/400V-10A	PV CV10F A4 STD
BOX	CV10/F	230V/400V-10A	PV CV10F Z4 STD
CIRCUIT	CV10/F	FINO 500V-10A	PV CV10F A5 STD
BOX	CV10/F	FINO 500V-10A	PV CV10F Z5 STD
CIRCUIT	CV20/F	230V/400V-10A	PV CV20F A4 STD
BOX	CV20/F	230V/400V-20A	PV CV20F Z4 STD
CIRCUIT	CV20/F	FINO 500V-20A	PV CV20F A5 STD
BOX	CV20/F	FINO 500V-20A	PV CV20F Z5 STD
CIRCUIT	CV40/F	230V/400V-40A	PV CV40F A4 STD
BOX	CV40/F	230V/400V-40A	PV CV40F Z4 STD
CIRCUIT	CV40/F	FINO 500V-40A	PV CV40F A5 STD
BOX	CV40/F	FINO 500V-40A	PV CV40F Z5 STD
CIRCUIT	CV70/F	230/400V-70A	PV CV70F A4 STD
BOX	CV70F	230/400V-70A	PV CV70F Z4 STD
CIRCUIT	CV100/1	230/400V-100A	PV CV100 A4 STD
BOX	CV100/1	230/400V-100A	PV CV100 Z4 STD

Note: Is possible to supply all versions with double speed n. 2 potentiometers, to add after the last figures the code **S2V**' or for the double output '**S2U**' (**PV CV10F A4 STD S2V)**.

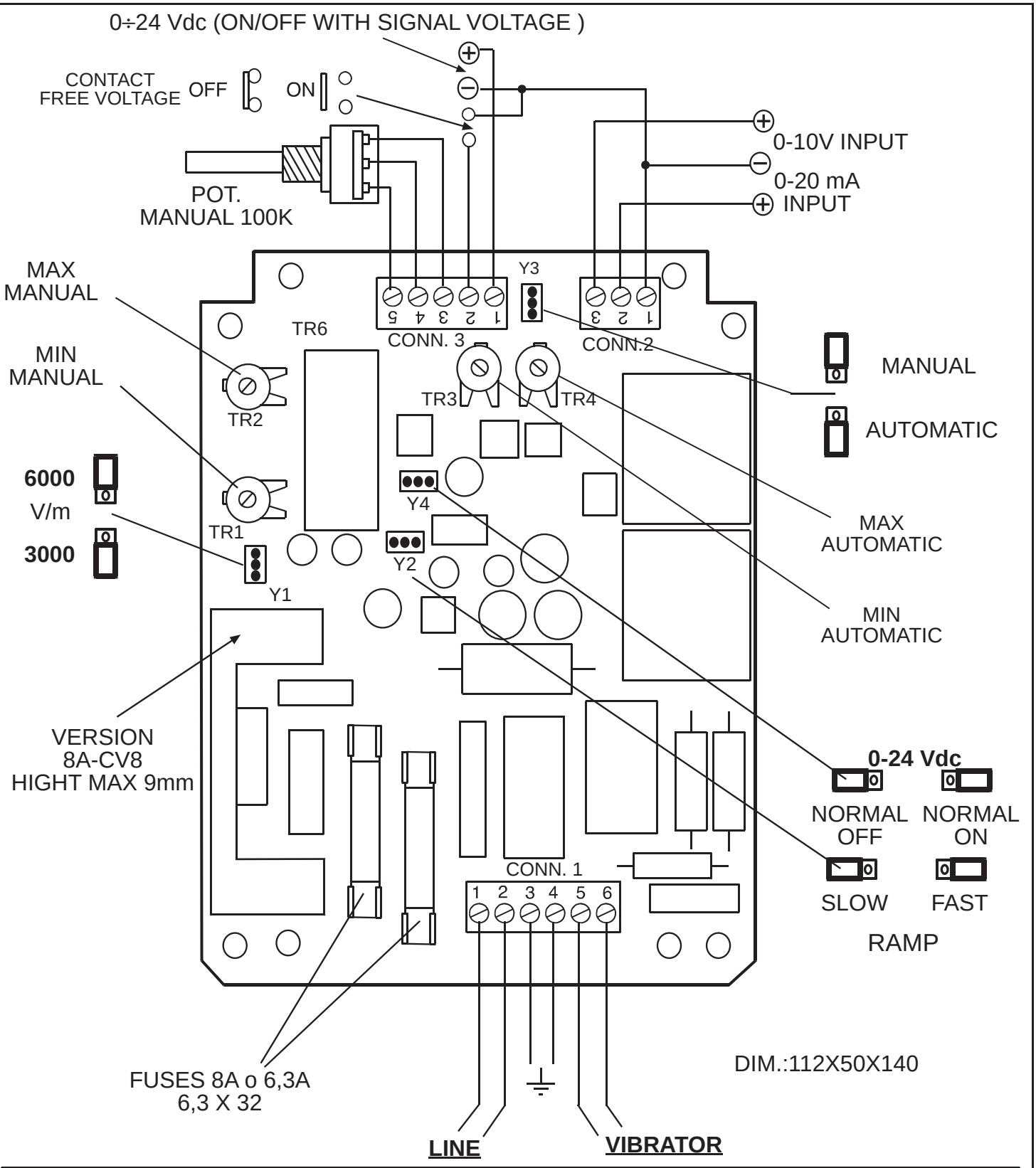
Box CV6FS



Box CV10F



Circuit CV40F

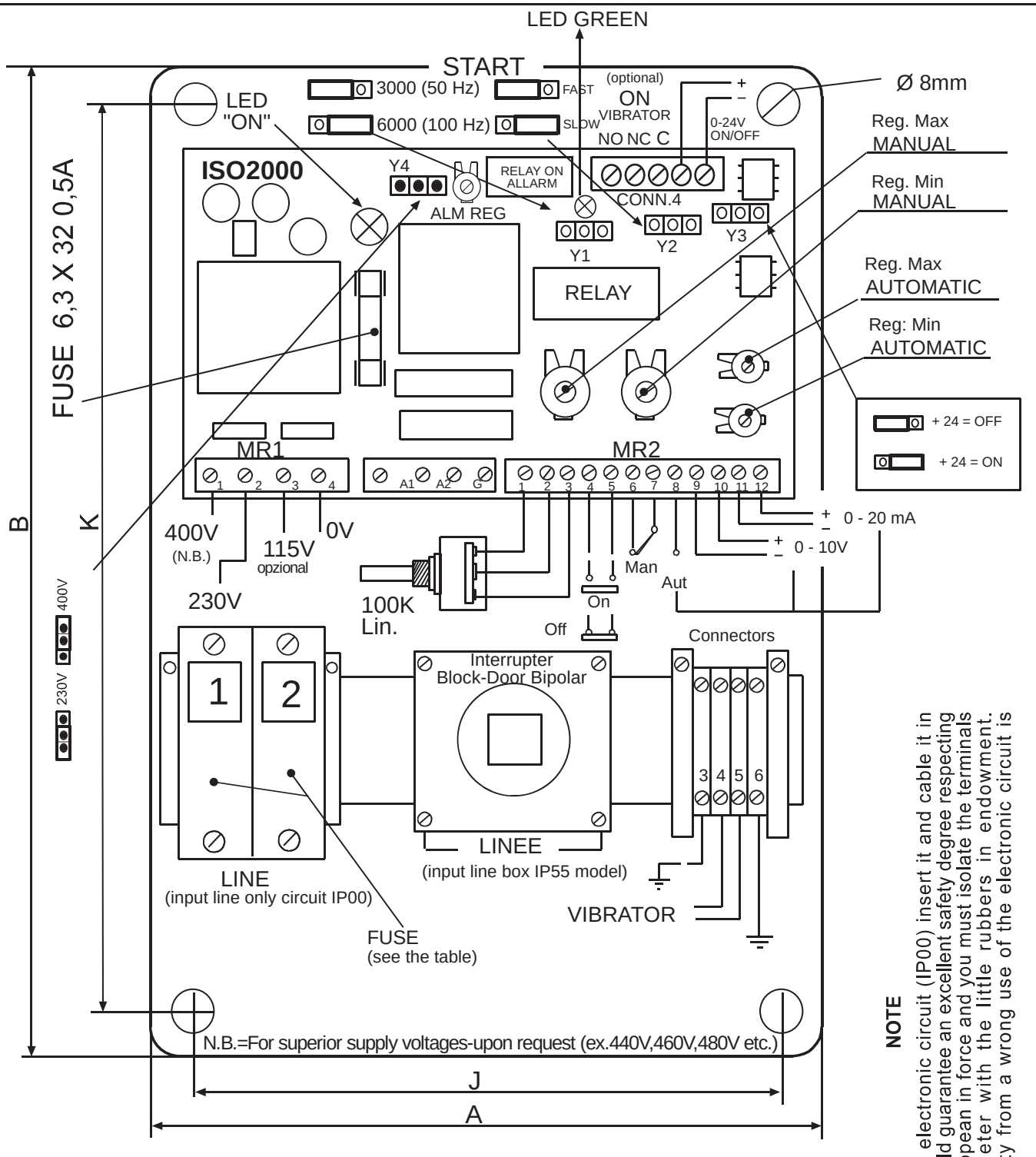


DIMENSIONS AND MEASURE BORING		
Circuit for DIN 35 Max Height = 55 mm DIM. Circuit= 140 x 145 mm	Circuit with base plate and cover Max Height = 60 mm DIM. Circuit= 115 x 145 mm Measure boring = 99 x 129 mm	Only Circuit Max Height = 45 mm DIM. Circuit= 145 x 112 mm Measure boring = 66,5 x 129 mm

M P
ELETTRONICA

Description: CIRCUIT CV6/F-CV8/F

CODE	REV	DATE	DRAFTSMAN	SHEET
DT CV6F-CV8F	00	06/04	E. PEDRAZZI	1/1



NOTE

If You use only the electronic circuit (IP00) insert it and cable it in a container that could guarantee an excellent safety degree respecting the Normative European in force and you must isolate the terminals of the potenziometer with the little rubbers in endowment. Each responsability from a wrong use of the electronic circuit is declined.

Measure (mm) circuits from CV10 to CV100 (IP00)

Circuit IP00 (*)	Dimension			Boring measure		Dim. Connectors	Fuse Dim./Ampere	
	A	B	h	J	K			
CV 10/F	170	230	100	145	205	4 mmq	10,3x38	10A
CV 20/F	170	320	100	145	295	10 mmq	10,3x38	20A
CV 40/F	243	320	100	219	295	16 mmq	14x51	40A
CV 70/F	280	380	130	255	355	25 mmq	22x58	70A
CV100/F	280	380	130	255	355	25 mmq	22x58	100A

SKETCH AND CHARACTERISTICS TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING.

M P
ELETTRONICA

Descriptrion: STABILIZED ELECTRONIC CIRCUIT CVXY/F(*)
HIGH STABILIZED

CODE	REV	DATE	DRAFTSMAN	SHEET
DTCVXY	03	10/10/01	E. PEDRAZZI	1/1

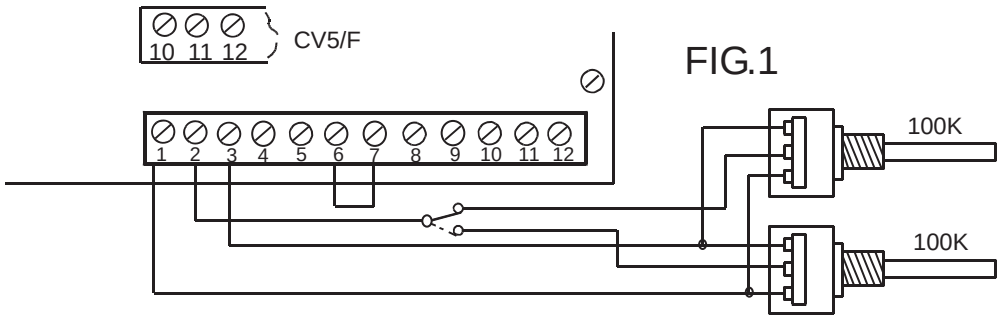


FIG.1

CONNECTION OF PARALLEL TYPE :

EACH POTENTIOMETER COULD COMPLETE THE WHOLE VARIATION OF THE VIBRATION

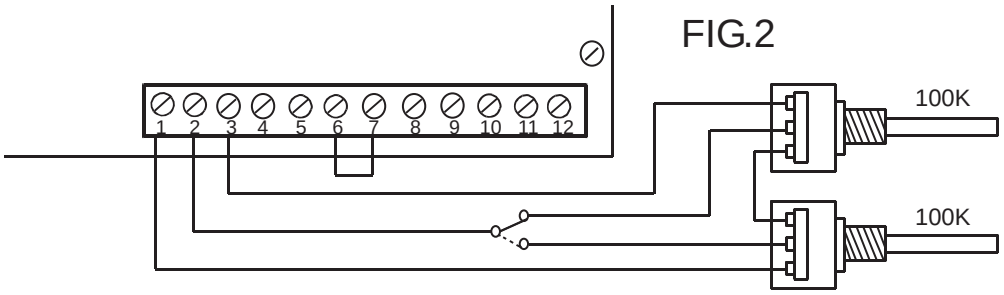


FIG.2

CONNECTION IN SERIES:

EACH POTENTIOMETER COULD COMPLETE ONLY HALF OF THE TOTAL VARIATION.

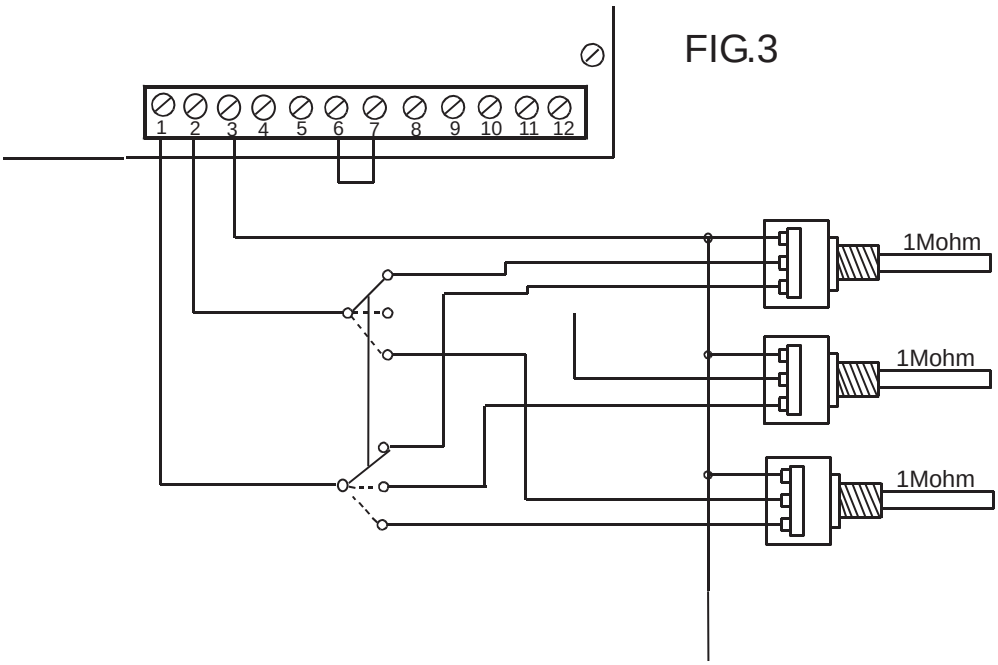


FIG.3

CONNECTION OF THREE OR MORE POTENTIOMETERS.

IN THIS CASE ACTS AN ONLY POTENTIOMETER FOR TIME ON THE TOTAL OF THE VIBRATION.

(IT IS POSSIBLE COMMUTE ONLY THE CENTRAL OF THE POTENTIOMETERS CONNECTING IN PARALLEL THE EXTREME LIKE IN FIG.1, USING, UNTIL TO A MAXIMUM OF 10, POTENTIOMETER FROM 1M W LINEAR. POTENZIOMETRI DA 1M OHM LINEAR).

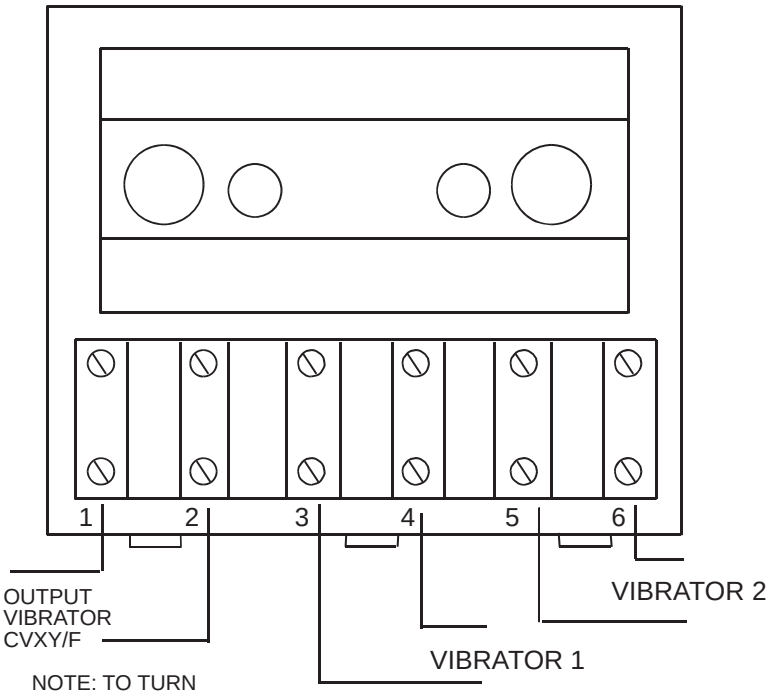
SCHEME OF CONNECTION VALID FOR:
CV10/F, CV20/F, CV40/F, CV70/F, CV100/F
For the CV5 enter with the potentiometer/s on the connector 10/11/12.

M P
ELETTRONICA

Description: CONTROL CIRCUIT WITH MORE POTENTIOMETERS

CODE	REV	DATE	DRAFTSMAN	SHEET
DTCV2V	00	05/98	E. PEDRAZZI	1/1

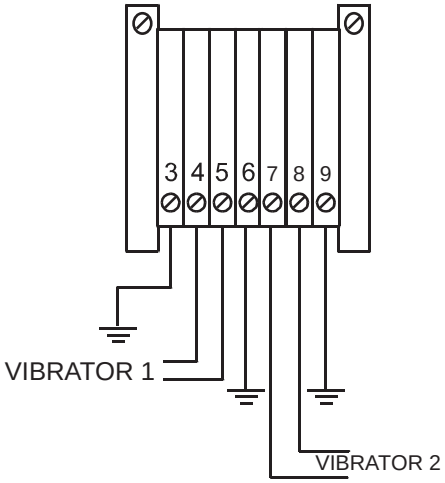
OPTIONAL MODULE FOR 1 VIBRATOR WITH 2 COILS



NOTE: TO TURN
THE WIRES IF
THE VIBRATOR DO NOT WORK

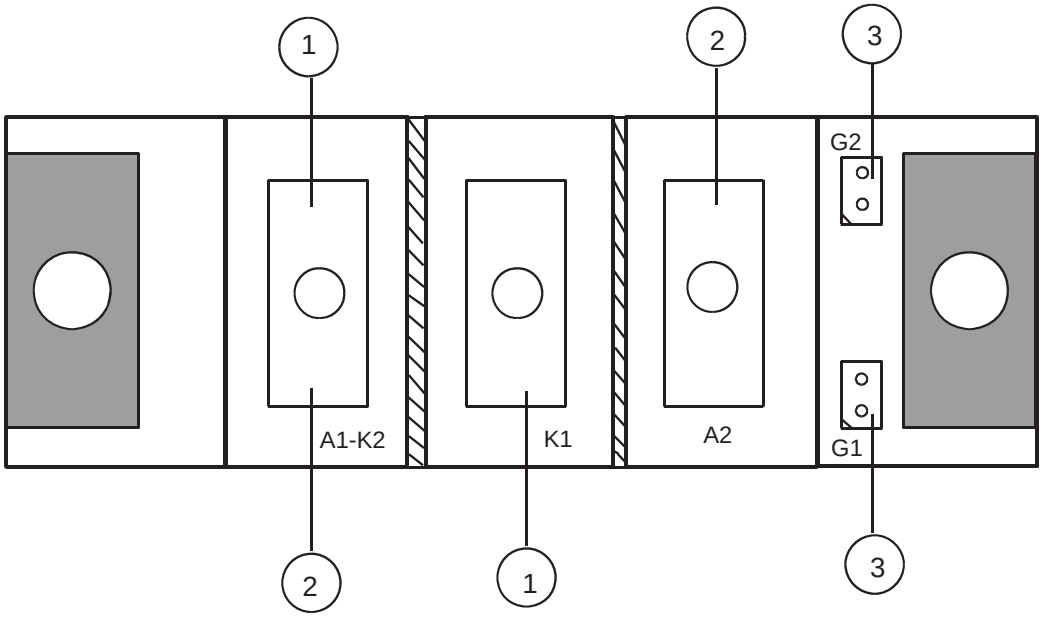
OPTIONAL OUTPUT
FOR DOUBLE VIBRATORS
(CIRCUIT CVXY)
TO USE WITH 2 VIBRATORS
(DOUBLE OUTPUT)

CONNECTORS



HOW TO UTILIZE THE SECOND SECTION OF
THE POWER MODULE IN THE CASE OF
BREAKAGE THE FIRST

Utilizzo normale : K2 - A2 - G2
(Normal Utilize)



In caso di rottura si utilizza : K1 - A1 - G1
In case of breakage to utilize : K1 - A1 - G1

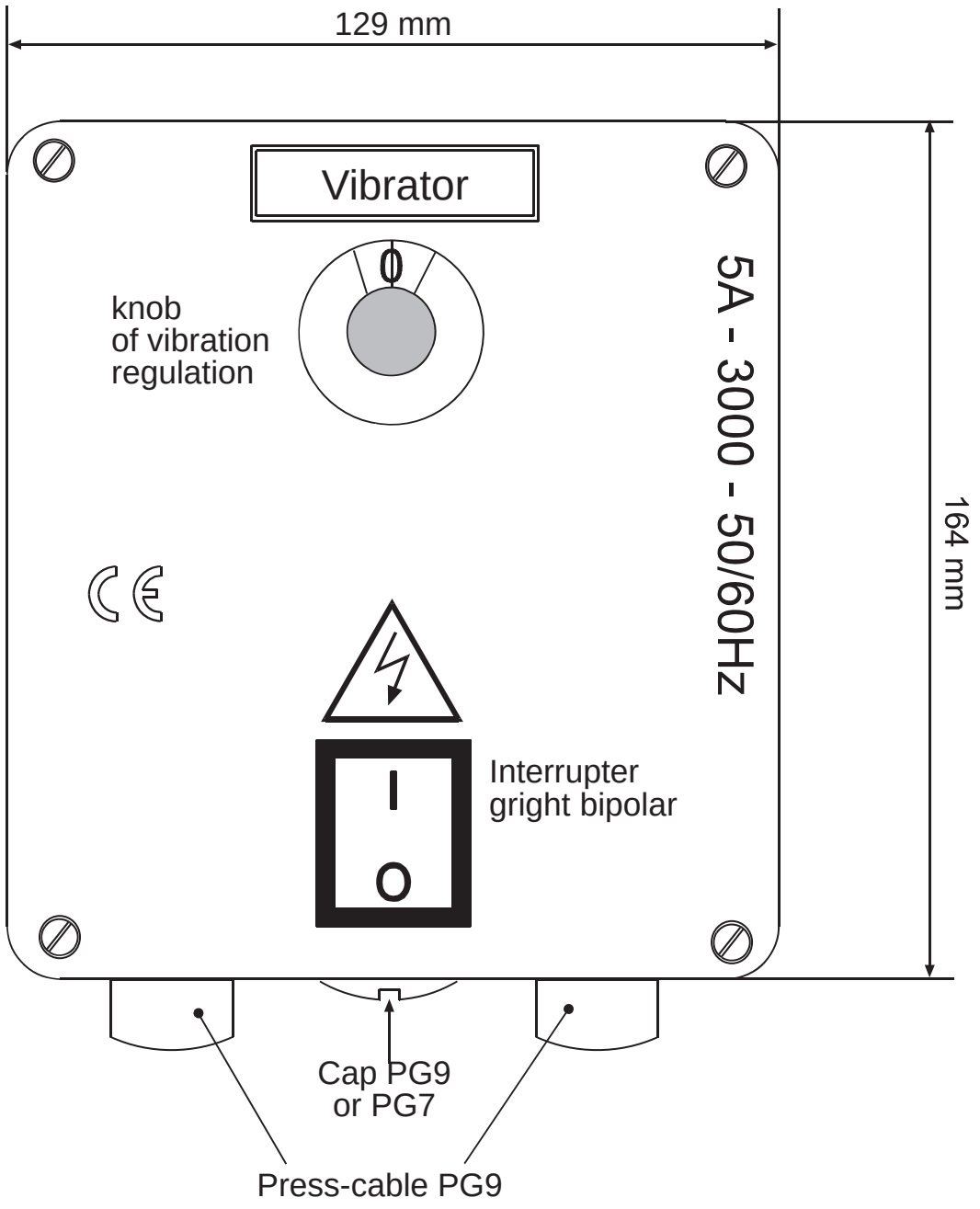
- Spostare filo 1 da A1-K2 a K1
- Spostare filo 2 da A2 a A1-K2
- Spostare filo 3 da G2 a G1
- Move wire 1 from A1-K2 to K1
- Move wire 2 from A2 to A1-K2
- Move wire 3 from G2 to G1

NOTE : Validit... su CV20, CV40, CV70 e CV100
NOTE : (only CV20, CV40, CV70 and CV100)

MP
ELETTRONICA

Description: OPTIONAL MODULE FOR 2 VIBROTORS (CIRCUIT CVXY/F) AND SCR POWER MODULE

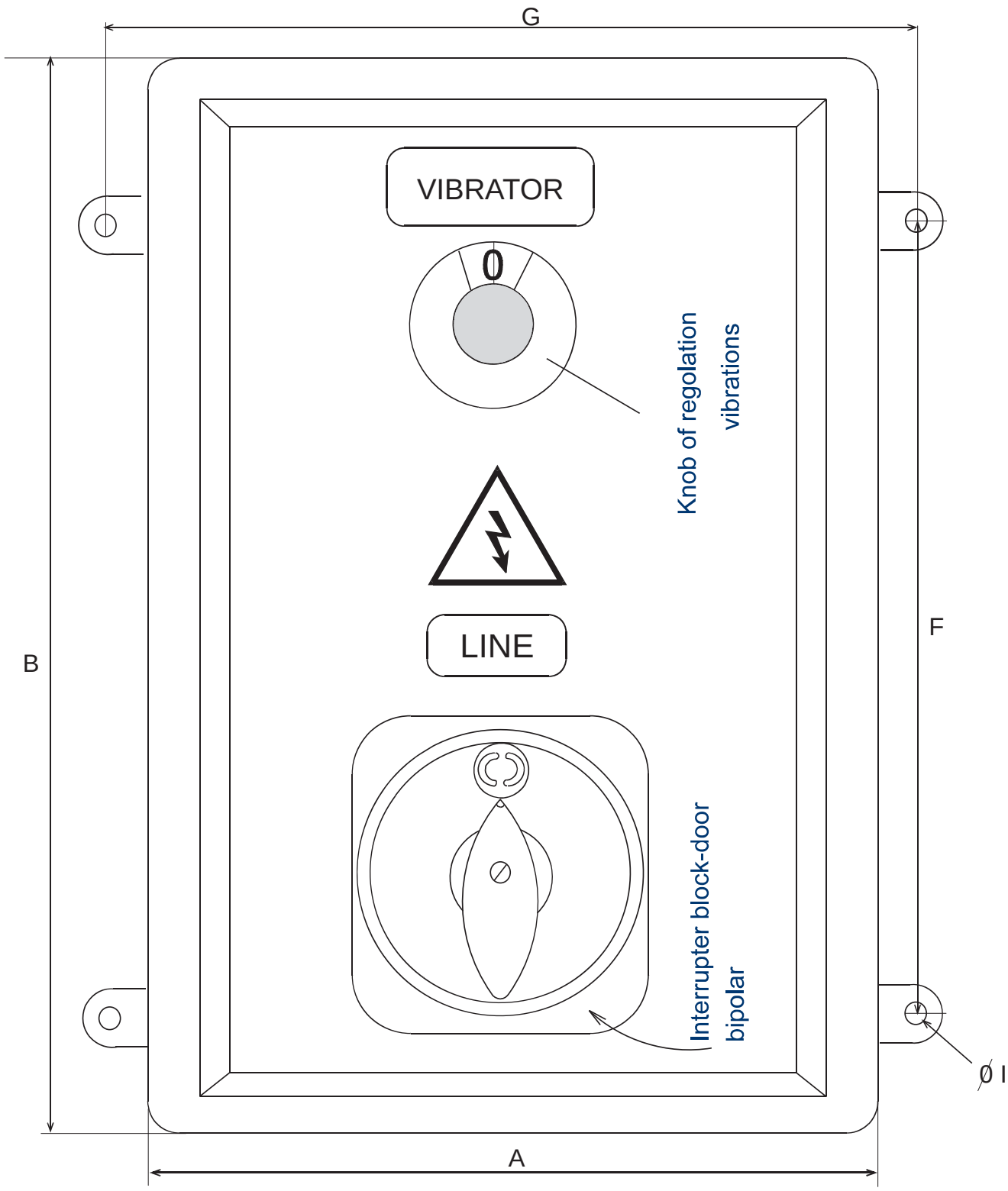
CODE	REV	DATE	DRAFTSMAN	SHEET
DTSCRMOD	00	12/97	E. PEDRAZZI	1/1



FIRE-RETARDANT PLASTIC (PVC) BOX, LIGHT GREY RAL7035,
PROTECTION CLASS IP55.

max height : 68mm

M P ELETTRONICA	Description: CIRCUIT CV5/F IN THE PLASTIC BOX				
	CODICE	REV	DATA	DISEGNATO	FOGLIO
	DTCV5P	00	12/97	E. PEDRAZZI	1/1



Dimension boxes from CV6 to CV100 (IP55)						
BOX	Dimension			G	F	Ø I
	A	B	h			
CV 06/F	130	250	111	140	170	8,5
CV 10/F	202	262	140	230	181	10
CV 20/F	202	352	140	265	196	10
CV 40/F	300	400	140	325	315	10
CV 70/F	312	412	140	328	240	13
CV100/F	372	462	235	400	240	13

NOTE :
Valid dimension also for the version to double potentiometer

MP ELETTRONICA

Description: DIMENSIONS OF THE BOXES OF REGOLATION CVXY/F IP55

CODE	REV	DATE	DRAFTSMAN	SHEET
DTCV55	00	12/97	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST CVS
Rev. 00
Page 1/2

Stabilized Electronic Control Circuits For Electromagnetic Vibrator With Vibration Sensor

"CV" S Series

GENERAL

The electronic command circuits series CV6/F and CVXY/F are now also available with a vibration sensor (**SIND1 or SIND2**). This allows to stabilise not only the line voltage variations, but also the variations of charge and flexibility of the spring.

The circuits maintain the functioning characteristics and the dimensions typical of the series without the sensor (**SERIES CVXY/F** please refer to the section on the catalogue **STCV REV.01**e and the related technical drawings as integral part to this schedule). These circuits are very easy to use.Once the sensor has been set (see explanation pictures - **DTINSEN**) and connected to the circuits, one only needs to use the trimmer regulating the sensibility, to adapt the functioning to vibrators having very different amplitude of vibration between them. This is so as to obtain a sufficiently wide regulation through the potentiometer (automatic signal **0-10V** and **0-20A**).

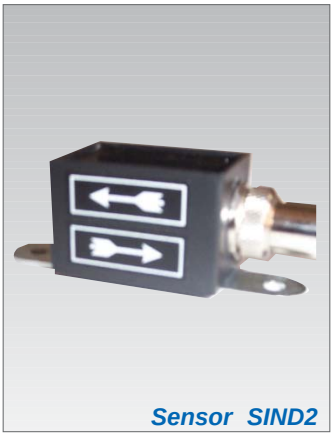
The circuits are supplied with a standard calibration. If the circuit is optimezed with an empty vibrator, then the working point must be set adequately below the line voltage, so that, once weighted down with the load, the circuit can keep the **vibration stable** supplying a higher exit voltage. If the *optimasation* is carried out with a *fully loaded* vibrator, then the voltage on the vibrator will only reduce as either channel or bucket empties. This is why the working point can be fixed close to the line voltage.

The circuits belonging to the **CVXY/FS** series are supplied with surch response times that can hardly ever cause any problem.

If, however, both the vibrator and the circuit still do not find a stable functioning condition, this would mean that the vibrator is way below the normal quality standards (due to either too much sensibility or a structure which is too light). In these circumstances, it is advisable to harden the whole thing, by either mechanically modifying the vibrator or by inserting more springs.

The circuits belonging to the **CVXY/FS** series, fitted with our own sensor **SIND1** and **SIND2**, are in fact able to considerably improve the functioning of either the vibrator or the installation,but cannot totally eliminate the planning errors made. A well made project, on the other han will be able to benefit further from using the above mentioned circuits, which have been purposely studied and implemented to **optimize** and best control any electronic vibrator in any given functioning condition.


CV6FS


Sensor SIND2


CV10/FS


CV40/FS

NOTES ON THE SENSOR:

The vibration or amplitude sensor is available in two versions:

SIND1 this version is ideal for heavy duty usage with a container of pressed molten aluminium and connecting cable protected by a metal spiral wire of a standard length of **2.5** meters.

According to the operative needs, this sensor can be fixed either with four self threading screws or with four brackets, available on request, or even with a hollow mounting made by the clients themselves.

SIND2 this version is ideal for a general industrial usage (reduced costs), with an unprotected cable and a resined container with a hollow fixing flange.

ELECTRICAL CHARACTERISTICS

Tension of Feeding: 230V or 400V +/- 20% 50/60Hz

Consumption: 1,5W max (CV5)-3,5 max(CV10-CV70)

Current Max: 5/10/20/40/70 A RMS

Fuses CV6/CV8: double 6A F 500V 6,3X32 H1500A
double 8A F 500V 6,3X32 H1500A

Fuses CV10/40: double 10/20A F 660V 10X38 H100000A
double 40A F 500V 14X51 H120000A

Protection Fuse CV10/40: 6,3x32 500mA 500V

Load Min.: 50 mA (RMS)

Potentiometer of reg.: 100Kohm linear

Frequency of Vibration CV6/8: 3000/6000 V/m (50Hz)

Freq. of Vibration CV10/70: 3000 / 6000 V/m (50Hz)

Time of Ramp: fast ramp 0,1 sec. / slow ramp 1 sec.

Regolation Min.: 80V+/- 30% (230V) 140V+/- 30% (400V)

Regolation Max: 200V - 30% (230V) 350V-30% (400V)

Automatic Input Consumption 0-10V: 1 mA max

Input Impedance 0-10V: 50Kohm / **0-20mA**: 50ohm

Input ON/OFF: contact / 0-24 Vcc

Degree of pollution: 2

Position of Assemblage: horizontal or vertical

Degree of Protection: IP54 in box (IP00 only circuit)

Temperature of Storage: -15 °C / + 80 °C

Temperature of Operation: -5 °C / + 45 °C

Range of Relative Humidity: 80% till to 31°C

Installation Class: II

Altitude: till to 2000 meters

European Norms: EMC CE

Guarantee: 1 year (from date on circuit)

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST CVS
Rev. 00
Page 2/2

Stabilized Electronic Control Circuits For Electromagnetic Vibrator With Vibration Sensor

"CV" S Series

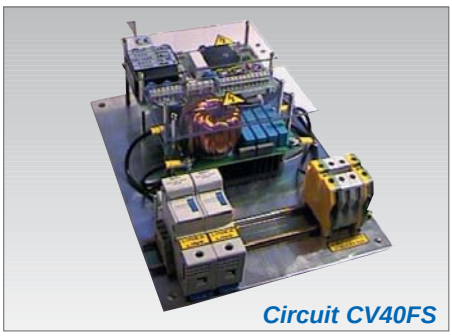
AVAILABLE VERSIONS

Type	Description		Code
CIRCUIT	CV6/8FS	230V-6A(8A)	PV CV6(8)FX A2 SSD
CIRCUIT for DIN 35	CV6/8FS	230V-6A(8A)	PV CV6(8)FX A2 DSN
CIRCUIT baseplate + plexiglass	CV6/8FS	230V-6A(8A)	PV CV6(8)FX A2 BSP
BOX	CV6/8FS	230V-6A(8A)	PV CV6(8)FX Z2 SSD
BOX PLASTIC	CV6/8FS	230V-6A(8A)	PV CV6(8)FX Z2 SSP
CIRCUIT	CV6/8FS	400V-6A(8A)	PV CV6(8)FX A3 SSD
CIRCUIT for DIN 35	CV6/8FS	400V-6A(8A)	PV CV6(8)FX A3 DSN
CIRCUIT baseplate + plexiglass	CV6/8FS	400V-6A(8A)	PV CV6(8)FX A3 SSP
BOX	CV6/8FS	400V-6A(8A)	PV CV6(8)FX Z3 SSD
BOX PLASTIC	CV6/8FS	400V6A(8A)	PV CV6(8)FX Z3 SSP
CIRCUIT	CV10 FS	230V/400V-10A	PV CV10F A4 SSD
BOX	CV10/FS	230V/400V-10A	PV CV10F Z4 SSD
CIRCUIT	CV10/FS	FINO 500V-10A	PV CV10F A5 SSD
BOX	CV10/FS	FINO 500V-10A	PV CV10F Z5 SSD
CIRCUIT	CV20/FS	230V/400V-10A	PV CV20F A4 SSD
BOX	CV20/FS	230V/400V-20A	PV CV20F Z4 SSD
CIRCUIT	CV20/FS	FINO 500V-20A	PV CV20F A5 SSD
BOX	CV20/FS	FINO 500V-20A	PV CV20F Z5 SSD
CIRCUIT	CV40/FS	230V/400V-40A	PV CV40F A4 SSD
BOX	CV40/FS	230V/400V-40A	PV CV40F Z4 SSD
CIRCUIT	CV40/FS	FINO 500V-40A	PV CV40F A5 SSD
BOX	CV40/FS	FINO 500V-40A	PV CV40F Z5 SSD
CIRCUIT	CV70/FS	230/400V-70A	PV CV70F A4 SSD
BOX	CV70/FS	230/400V-70A	PV CV70F Z4 SSD
CIRCUIT	CV100/1	230/400V-100A	PV CV100 A4 SSD
BOX	CV100/1	230/400V-100A	PV CV100 Z4 SSD

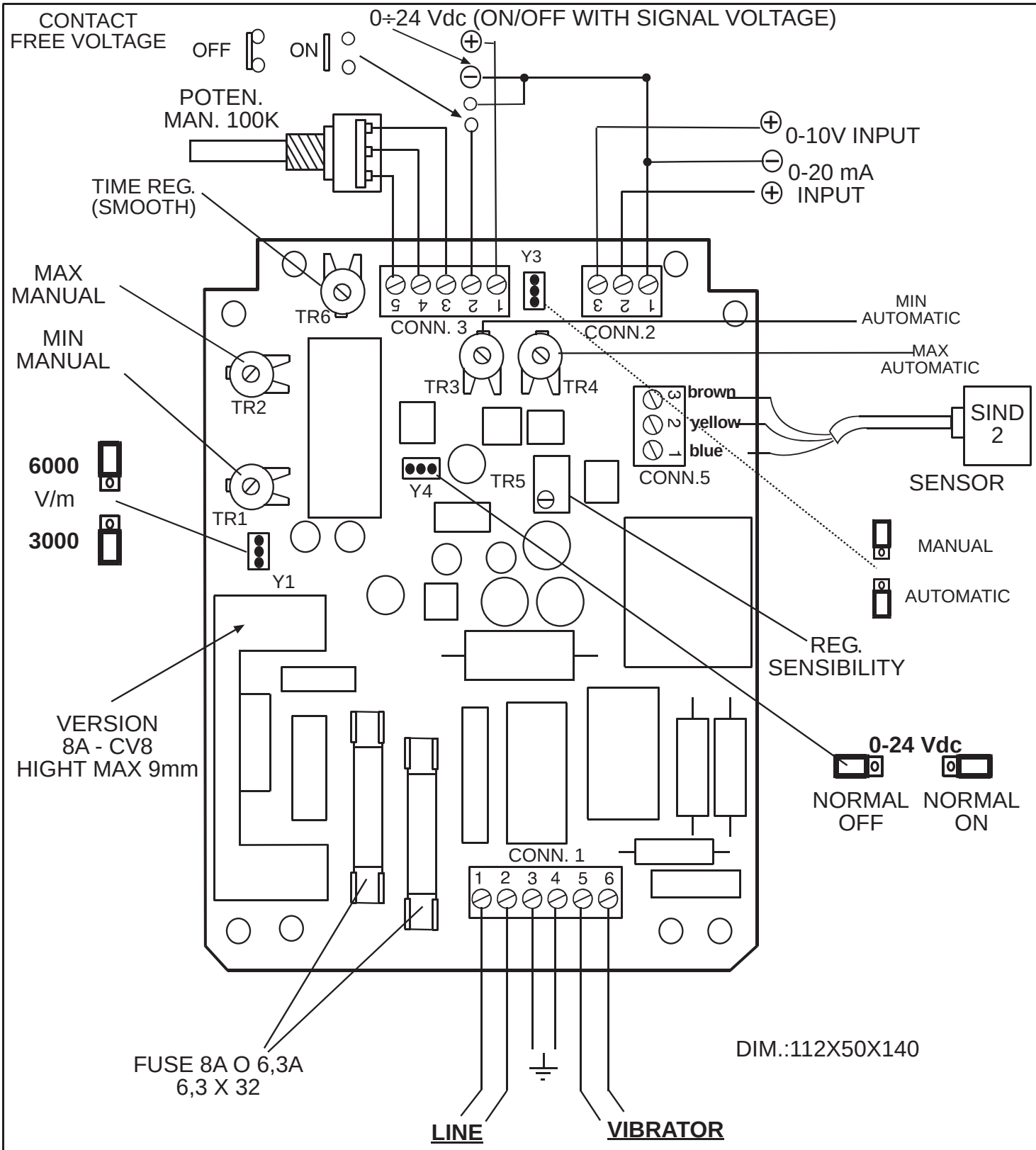
Note: Is possible to supply all versions with double speed n. 2 potentiometers, to add after the last figures the code **S2V**' or for the double output to add '**S2U**' (ex. **PV CV10F A4 SSD S2V)**.

Box CV6FS

Box CV10FS

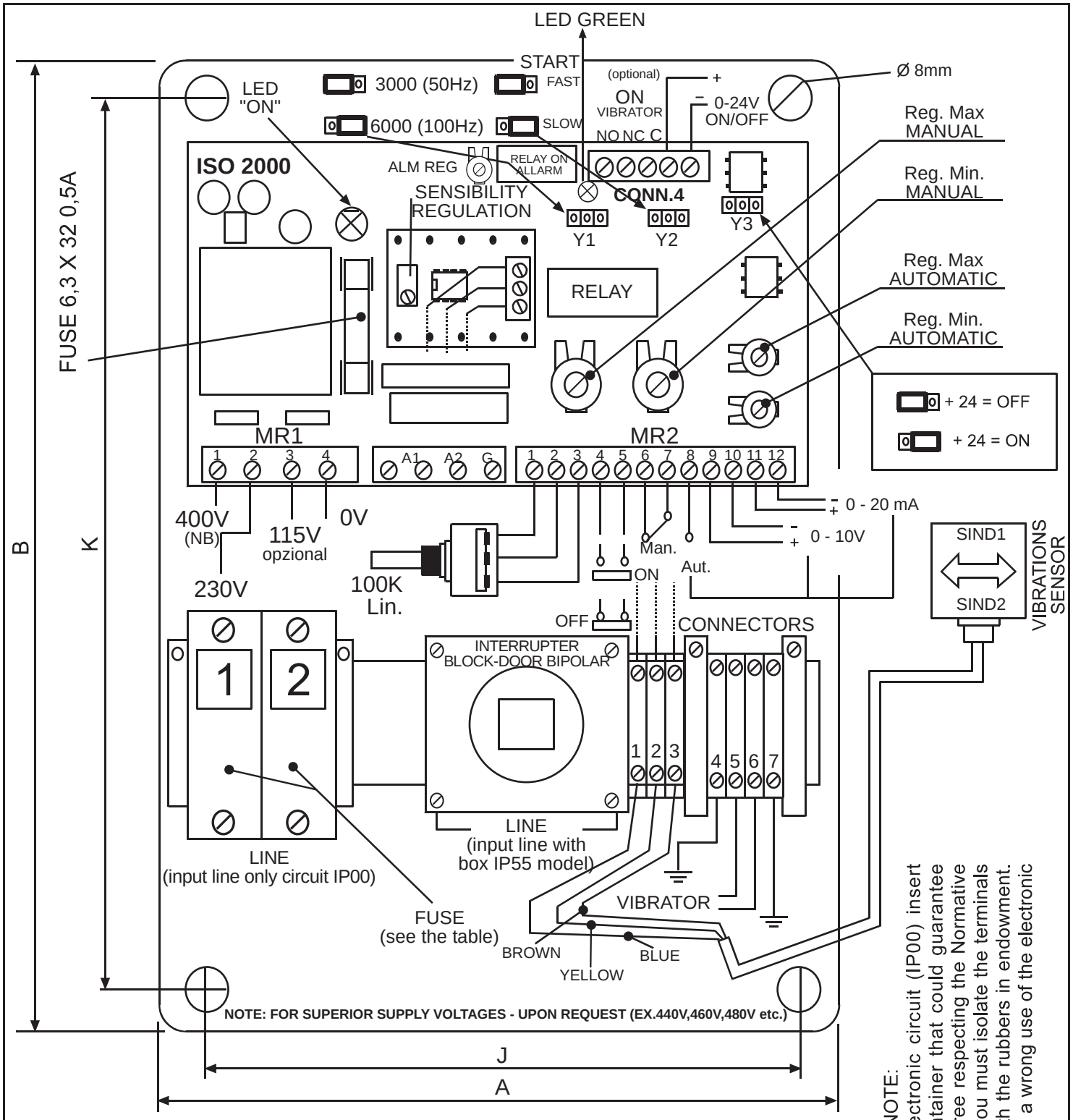


Circuit CV40FS



DIMENSIONS AND MEASURE BORING		
Circuit for DIN 35 Max Height = 55 mm DIM. Circuit= 140 x 145 mm	Circuit with base plate and cover Max Height = 60 mm DIM. Circuit= 115 x 145 mm Measure boring = 99 x 129 mm	Only Circuit Max Height = 45 mm DIM. Circuit= 145 x 112 mm Measure boring = 66,5 x 129 mm

MP ELETTRONICA	Description: CIRCUIT CV6FS- CV8/FS				
	CODE	REV	DATE	DRAFTSMAN	SHEET
	DT CV6FS-CV8FS	00	06/04	E. PEDRAZZI	1/1



MEASURE (mm) CIRCUITS FROM CV 10 TO CV 100 (IP00)								
Circuit IP00 (*)	DIMENSION			BORING MEASURE		DIM. CONNECTORS	FUSE DIM./AMPERE	
	A	B	h	J	K			
CV 10/F	170	230	100	145	205	4 mmq	10,3 x 38	10 A
CV 20/F	170	320	100	145	295	10 mmq	10,3 x 38	20 A
CV 40/F	243	320	100	219	295	16 mmq	14 x 51	40 A
CV 70/F	280	380	130	255	355	25 mmq	22 x 58	70 A
CV 100/F	280	380	130	255	355	25 mmq	22 x 58	100 A

NOTE:
If you use only the electronic circuit (IP00) insert it and cable it in a container that could guarantee an excellent safety degree respecting the Normative European in force and you must isolate the terminals of the potenziometer with the rubbers in endowment. Each responsability from a wrong use of the electronic circuit is declined.

SKETCH AND CHARACTERISTICS TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING.

M P
ELETTRONICA

Description: CONTROL CIRCUIT CVXYS HIGH STABILIZED (WITH AMPLITUDE SENSOR)

CODE	REV	DATE	DRAFTSMAN	SHEET
DTCVXYS	01	10/10/01	E. PEDRAZZI	1/1

The sensor is put in manner such that the sensitive part is disposed according to the sense of the vibration in such position from hear again totally of the vibration.
In compatible way with the demands constructive of each vibrator are in fact possible other solutions provided that satisfy the conditions in said precedence.

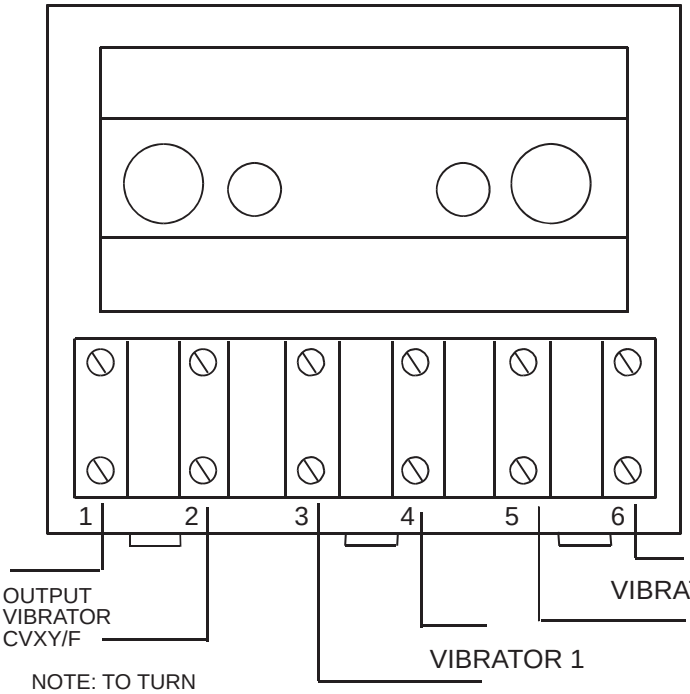
SKETCH AND CHARACTERISTIC TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING

ELETTRONICA

Description: VIBRATION SENSOR SIND1-SIND2

CODE	REV	DATE	DRAFTSMAN	SHEET
DTSINDYSTD	00	12/02	E. PEDRAZZI	1/1

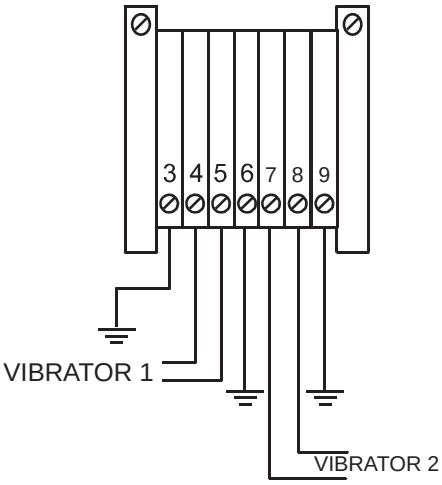
OPTIONAL MODULE FOR 1 VIBRATOR WITH 2 COILS



NOTE: TO TURN
THE WIRES IF
THE VIBRATOR DO NOT WORK

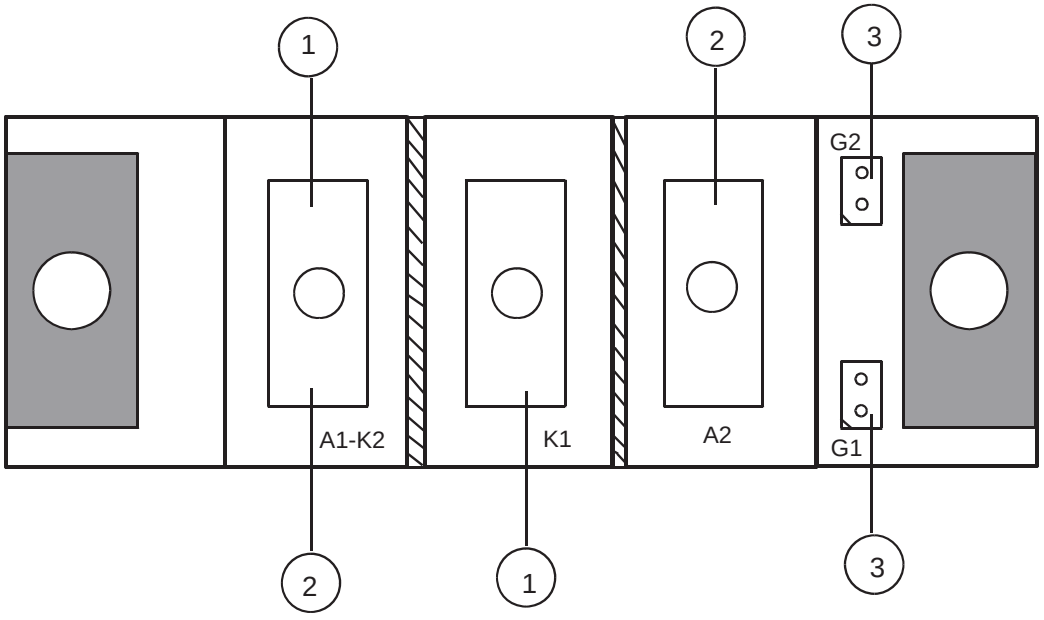
OPTIONAL OUTPUT
FOR DOUBLE VIBRATORS
(CIRCUIT CVXY)
TO USE WITH 2 VIBRATORS
(DOUBLE OUTPUT)

CONNECTORS



HOW TO UTILIZE THE SECOND SECTION OF
THE POWER MODULE IN THE CASE OF
BREAKAGE THE FIRST

Utilizzo normale : K2 - A2 - G2
(Normal Utilize)



In caso di rottura si utilizza : K1 - A1 - G1
In case of breakage to utilize : K1 - A1 - G1

- Spostare filo 1 da A1-K2 a K1
- Spostare filo 2 da A2 a A1-K2
- Spostare filo 3 da G2 a G1
- Move wire 1 from A1-K2 to K1
- Move wire 2 from A2 to A1-K2
- Move wire 3 from G2 to G1

NOTE : Validit... su CV20, CV40, CV70 e CV100
NOTE : (only CV20, CV40, CV70 and CV100)

M P
ELETTRONICA

Description: OPTIONAL MODULE FOR 2 VIBROTORS (CIRCUIT CVXY/F) AND SCR POWER MODULE

CODE	REV	DATE	DRAFTSMAN	SHEET
DTSCRMOD	00	12/97	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST VBS06
Rev. 00
Page 1/1

Stabilized Electronic Control Circuits For Electromagnetic Vibrator

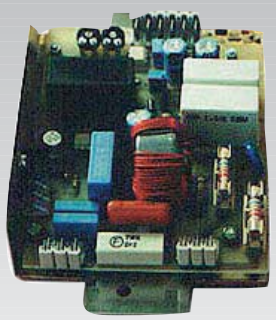
"VBS06" Circuit

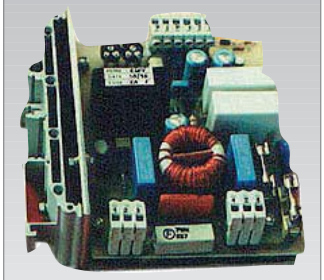
GENERAL

Stabilized circuit **VBS 06** has been especially designed for regulating the intensity of vibration in industrial vibratory feeders.
Of modern conception, the system uses an integrated module which guarantees **perfect synchronization** of the triac firing pulse with the wave form of the working voltage under all conditions.
The system is also includes a special circuit for soft start, with provision for selecting the ramp time by relative jumper (standard 1 sec.) as well as **temperature compensation** of the phase angle.
An appropriately over-dimensioned power stage is provided for handing any overloads without interruptions, whether operating at **50Hz** or **60Hz**.
A highly **linear** range of adjustment together with provision for setting the maximum and minimum vibration limits complete the list of main features offered by stabilized controller **VBS 06.**
Vibration regulation is through an external potentiometer. It is also possible to use two or more potentiometers and on ON-OFF type control either with external non-power contact or with the presence/absence of d.c. voltage (**0-30V**) for **weighing** and **batching systems**.
Upon request, the circuit can be arranged for mounting on **DIN35** guide (code PV VBS6D A2 STD).

Aluminum Box

Plastic Box


VBS06


VBS06/D

This is to optimize space requirements when the circuit is mounted in electrical cabinets.

ELECTRICAL CHARACTERISTICS

Supply Voltage: 230V +/- 5% 50/60Hz
Stabilization: +/-20%
Power Consumption: 2W max
Current Max: 6,3A (RMS)
Fuses: doppio 6,3A F 250V 5x20 H 1500 A (EN 627-2 CEI)
Min. Load: 100 mA (RMS)
Potentiometer of Reg. : 100K linear
Frequency of Vibration: 3000/6000 V/min. (50Hz)
Time of Ramp: 0,2 sec. or 2 sec. (modifiable)
Regolation Min.: 80V +/- 30%
Regolation Max: 200V - 30%

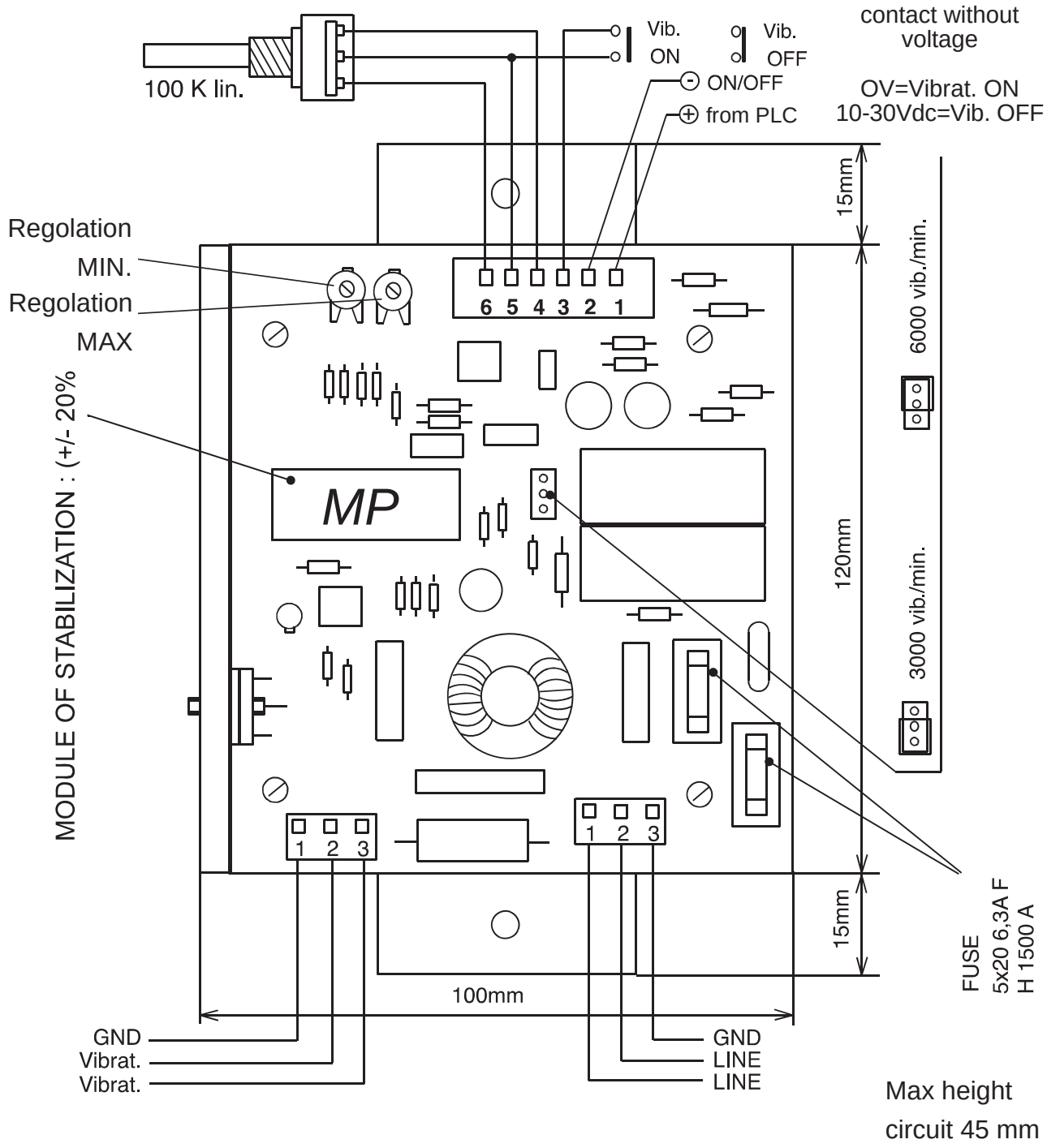
Input On-Off: contact without voltage/ 0-30V cc
Degree of pollution: 2
Position of Assemblage: horizontal or vertcal
Degree of Protection: IP54 in box (only circuit IP00)
Temperature of Storage: -15 °C / + 80 °C
Temperature of Operation: -5 °C / + 45 °C
Range of Relative humidity: 80% sino a 31°C
Installation Class: II
Altitude: till to 2000 meters
European Norms: EMC CE
Guarantee: 1 year (from date on circuit)

AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code
VBS06	Fire-retardant plastic	RAL 7035	165 x 130 x 70	PV VBS06 Z2 STD
VBS06	League aluminum	Light Grey	145 x 130 x 60	PV VBS06 Z2 STM

Type	Description	Dimensions	Code
VBS06	Control Circuit	150 x 100 x 45	PV VBS06 A2 STD
VBS06/D	Control Circuit	120 x 120 x 45	PV VBS6D A2 STD

NOTE: optoisolated and protect PLC contact against of polarity inversion



NOTE: The electronic circuit may be supply with code vbs06/d, also with support for assembly on the Omega DIN 35 bar.

if You are used only the electronic circuit (IP00) insert it and in a container that could guarantee an excellent safety degree respecting the Normative European in force and isolate the terminals of the potentiometer with the little rubbers in endowment. Each responsability from a wrong use of the electronic circuit is declined. Scketch and characteristics tecniques subject to modification without warning.

	Description: CONTROL CIRCUIT VBS06				
M P ELETTRONICA	CODE	REV	DATE	DRAFTSMAN	SHEET
	DTVBS06	00	12/97	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST CV99
Rev. 01
Page 1/1

Stabilized Electronic Control Circuits For Electromagnetic Vibrator

"CV99"

GENERAL

Stabilized circuit **CV99** has been especially designed for regulating the intensity of vibration and stabilized amplitude in industrial vibratory feeders.

Of modern conception, the system uses an integrated module which guarantees **perfect synchronization** of the triac firing pulse with the wave form of the working voltage under all conditions.

The system is also includes a special circuit for soft start, with provision for selecting the ramp time by relative jumper (standard 1 sec.) as well as **temperature compensation** of the phase angle.An appropriately over-dimensioned power stage is provided for handing any overloads without interruptions, whether operating at **50Hz** or **60Hz**.

All imput galvanically isolated from power supply, a highly **linear** range of adjustment, manual and automatic input (**0-10V/0-20mA** optional), together with provision for setting the maximum and minimum vibration limits with **professional trimmers** complete the list of main features offered by stabilized controller **CV99.**

Vibration regulation is through an external **professional** anti-vibration potentiometer with **micro-click.** It is also possible to use two or more potentiometers and on ON-OFF 3 type control either with external non-power contact or with the presence/absence of d.c. voltage (**0-30V**) for **weighing** and **batching systems**.

In the box **CV99** is possible to insert **PX99** circuit for electronic and mechanical sensor with **3 delay** (delay ON / delay OFF/ delay no flow ALLARM - 0/12 sec).The unit is supplied either in open version (without case, IP00) or in boxes version (IP54).

Box CV99

ELECTRICAL CHARACTERISTICS

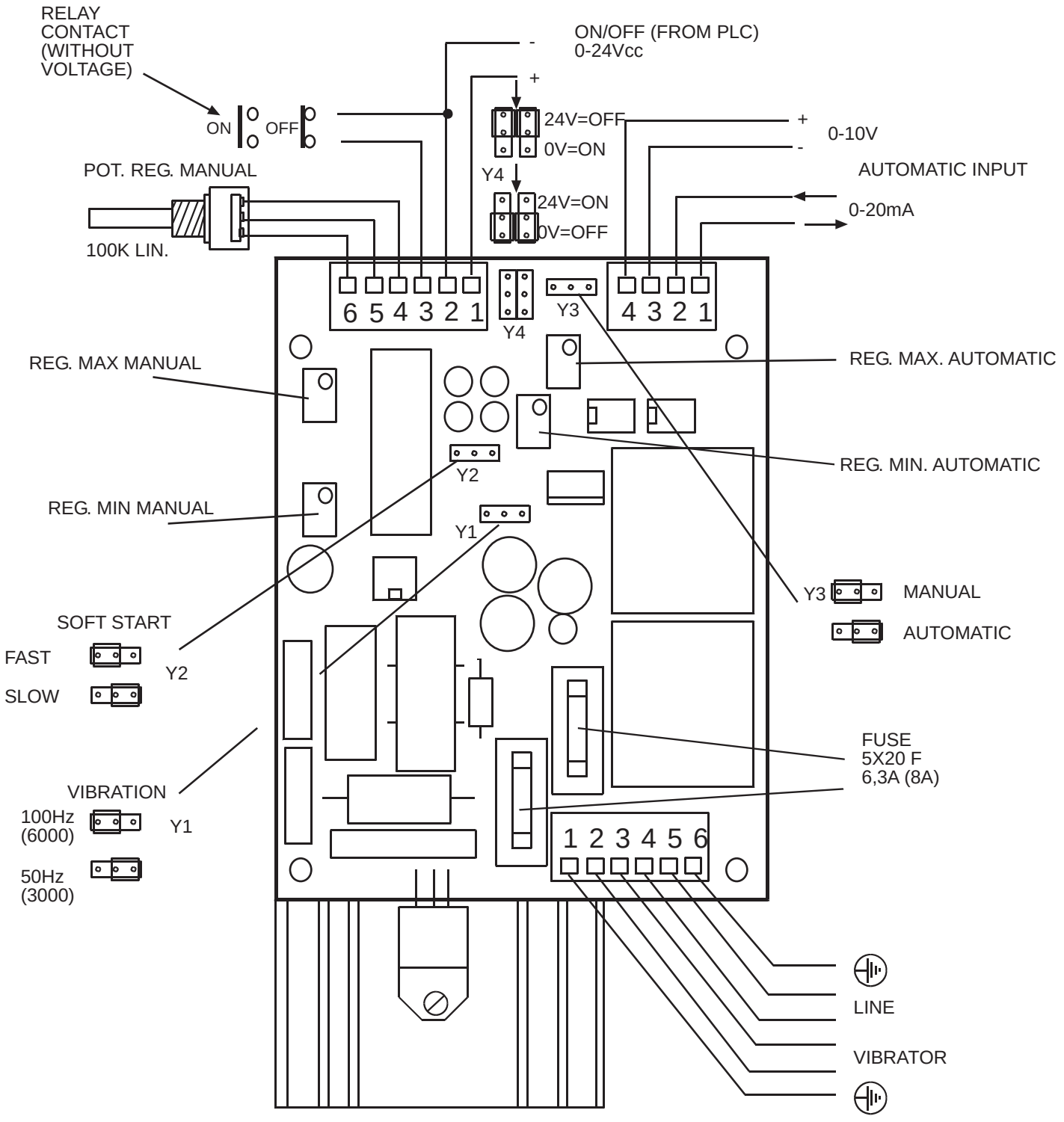
Tension of Feeding: 230V (115V) +/- 5% 50/60Hz
Stabilization: +/-20%
Consumption: 2W max
Current Max: 6,3 or 8A (RMS)
Fuses : double 6,3A F 250V 5X20 H1500A
Load Min.: 50 mA (RMS)
Potentiometer or reg.: 100Kohm linear
Frequency of Vibration: 3000/6000 V/m (50Hz)
Time of Ramp: 0,2 sec. or 2 sec. (modifiable)
Regolation Min. Man/Aut: 80V+/- 30%
Regolation Max. Man/Aut: 200V - 30%
Input ON-OFF: contact without voltage/10-30Vcc
Automatic Input: 0-10V/0-20mA
Automatic Input Consumption 0-10V: 1 mA max
Input Impedance 0-10V: 50Kohm
Input Impedance 4-20mA: 50ohm
Degree of pollution: 2
Position of Assemblage: horizontal or vertical
Degree of Protection: IP54 in box (IP00 only circuit)
Temperature of Storage: -15 °C / + 80 °C
Temperature of Operation: -5 °C / + 45 °C
Range of Relative Humidity: 80% till to 31°C
Installation Class: II
Altitude: till to 2000 meters
European Norms: EMC CE
Guarantee: 1 year (from date on circuit)

AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code
CV99	Alluminium	RAL 7035	200 x 100 x 90	PV CV99X Z2 STD
CV99+PRX99	Alluminium	RAL 7035	200 x 100 x 90	PV C99PX Z2 STD

Type	Description	Code
CV99	Control Circuit	PV CV99X A2 STD
PRX99	Control Circuit for sensor 3 delay	PV PRX99 A2 STD

SKETCH AND CHARACTERISTICS TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING.



NOTE :

If You are used only the electronic circuit (IP00) insert it and cable it in a container that could guarantee an excellent safety degree respecting the Normative European in force and isolate the terminals of the potenziometer with the little rubbers in endowment.

Each responsibility from a wrong use of the electronic circuit is declined.

M P
ELETTRONICA

Description: STABILIZED CONTROL CIRCUIT CV99

CODE	REV	DATE	DRFTSMAN	SHEET
DTCV99A2STD	00	12/99	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. **ST MDL**
Rev. **00**
Page **1/2**

Module for electromagnetic vibrators (linear - circular - hopper or elevator)

GENERAL

Is possible to use Module (controller in box with or without circuit **PRX99** for NPN/PNP sensor) for automatic driving of a system consisting of: a vibratory **hopper** or **three phase** motor-driven **elevator**, **cylindrical** vibratory feeder, **linear vibratory** feeder or conveyor belt.

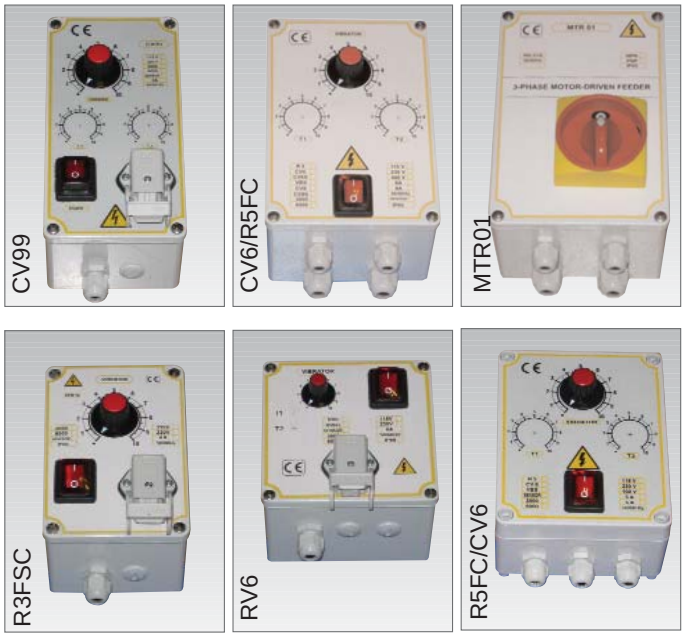
The system is based on the following main Modules:

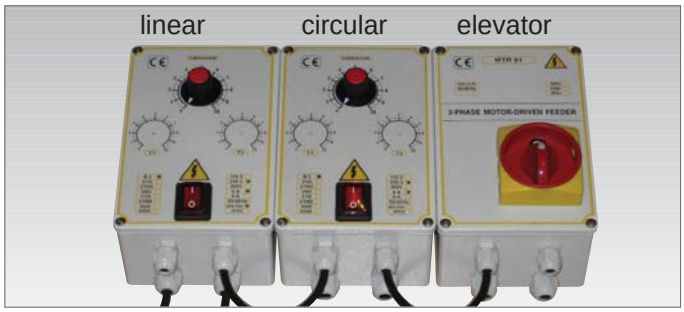
1) Two or more Modules type **R5FC/CV6/CV8/RV6** which serves for variation of the intensity in vibration of the linear and cylindrical vibratory feeders, plus the vibratory hopper. Are available the following predispositions:
regulation of the **MIN** and **MAX** **3000** or **6000** vib/min; ramp slow/fast ; supply voltage **115/230/400V** 50-60Hz.
The max current available is 6A RMS (8A with circuit CV8).

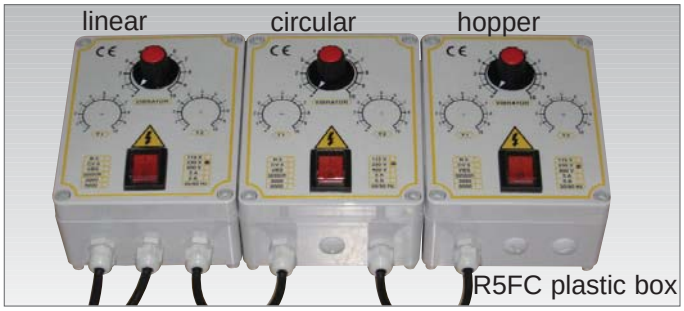
2) One or two circuits type **PRX99** (inside controller) which allow direct interfacing of photocells or mechanical level probes, with supply voltage of **10-30Vdc** and **PNP** or **NPN** output (NO or NC) or else a contact not under voltage.One of these circuits is normally installed on the linear vibratory feeder and controls the cylindrical vibratory feeder in order to avoid risk of overflow of the linear feeder.
The second circuit is installed in the bowl feeder in order to safeguard against loading too high a number of pieces in the loading hopper when the latter is commanded.
The sensor on the linear feeder also controls the hopper. Each **PRX99** circuit has provision for setting delay times regarding enabling of the output (**T1**) and disabling of the output (**T2**). It also supplies a "no piece present" Alarm signal upon elapsing of a certain time (likewise adjustable - **Tallarm** 0-15 sec.).
This **modular system** stands up again very economic in the his uses.

3) A Module **MTR01** 3 - phase motor - driven feeders, with circuit **PRX99** for NPN/PNP sensor and qualification input.

module example







ELECTRICAL CHARACTERISTICS

Supply Voltage: 230V +/- 5% 50/60Hz
Current Max: 6,3A (RMS) 8A (on request)
Fuses: 6,3A F 250V 5x20 H 1500 A (EN 627-2 CEI)
Min. Load: 50 mA (RMS)
Frequency of Vibration: 3000/6000 V/min. (50Hz)
Time of Ramp: 0,2 sec. or 2 sec. (modifiable)
Regolation Min.: 80V +/- 30%
Regolation Max: 200V - 30%
Delay T1/T2: 0-10 sec.
Alarm Time: 0-15 sec.

Sensor Input: optoisolated NPN/PNP
Degree of pollution: 2
Position of Assemblage: horizontal or vertcal
Degree of Protection: IP54 in box (only circuit IP00)
Temperature of Storage: -15 °C / + 80 °C
Temperature of Operation: -5 °C / + 45 °C
Range of Relative humidity: 80% sino a 31°C
Installation Class: II
Altitude: till to 2000 meters
European Norms: EMC CE

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

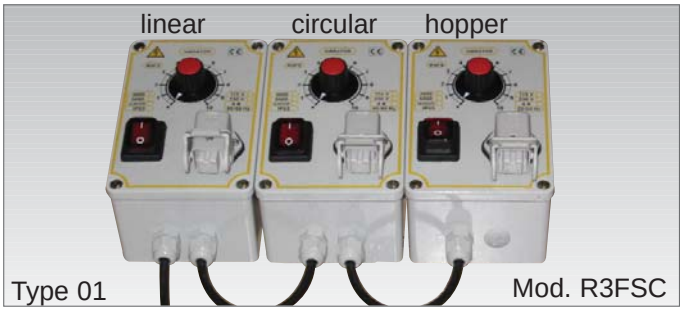
Cod. ST MDL
Rev. 00
Page 2/2

Module for electromagnetic vibrators (linear - circular - hopper or elevator)

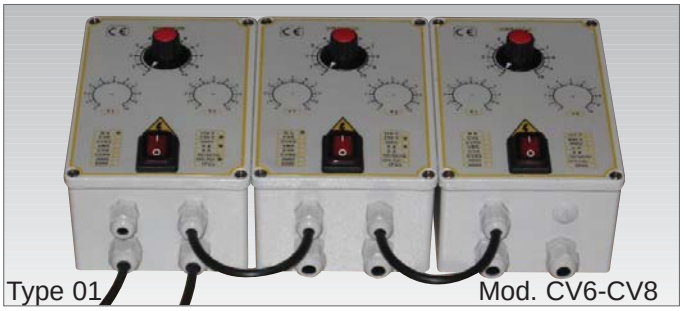
Versions (examples)

(can use circuits R5FC - R3FSC - CV99 - CV6 -CV8 - RV6 with circuit PRX99 for NPN/PNP sensor)

Type 01: Control circuit for vibratory Hopper, cylindrical vibratory feeder, Linear vibratory feeder with level sensor **NPN/PNP** in the Cylindrical vibratory feeder and overflow sensor **NPN/PNP** on the Linear vibratory feeder (both timed)
A Module for Linear feeder - un Module for Bowl feeder with circuit **PRX99** - a Module for hopper with circuit **PRX99**.



Type 02: Control circuit for Cylindrical and Linear vibratory feeders with overflow sensor **NPN/PNP** on the Linear vibratory feeder
A Module for Linear feeder - a Module for Bowl feeder with circuit **PRX99**.



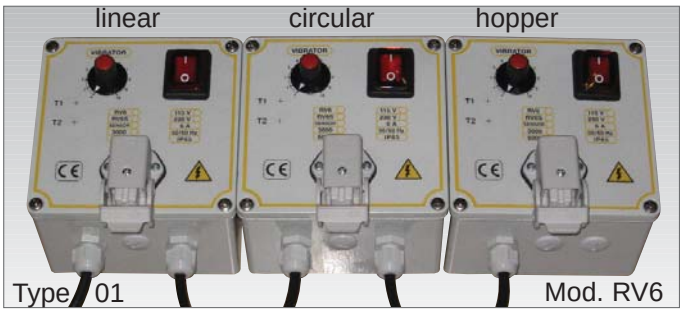
Type 03: Control circuit for three phase motor-driven Elevator (**MTR01**), Cylindrical vibratory feeder and Linear vibratory feeder with level and overflow sensors **NPN/PNP** (both timed)

A Module for Linear feeder - a Module for Bowl feeder with circuit **PRX99** - a Module (**MTR01**) for Elevator with circuit **PRX99**.

Type 04: Control circuit vibratory Hopper, Cylindrical vibratory feeder and belt conveyor (**MTR01**) with mechanical or electronic level sensor **NPN/PNP** on the Cylindrical vibratory and overflow sensor **NPN/PNP** on the belt conveyor (both timed)

A Module **MTR01** for belt conveyor - a Module for bowl feedr with **PRX99** circuit - a Module for hopper with **PRX99** circuit.

Type 05: Control circuit for two Cylindrical vibratory feeders that join in a Linear vibratory with double canal, with timed overflow sensors **NPN/PNP** on the Linear vibratory.
A Module for Linear - a Module for Bowl feeder 1 with **PRX99** circuit - a Module for Bowl feeder 2 with **PRX99** circuit.



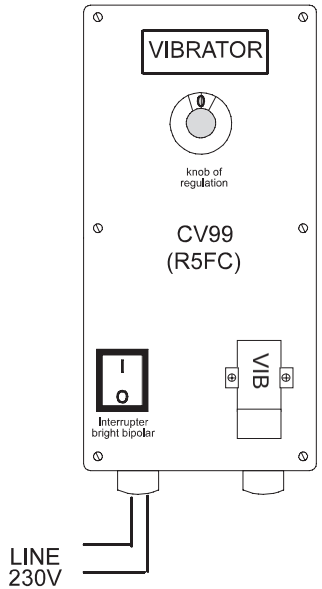
Type 06: Control circuit (**MTR01**) for three phase motor-driven Elevator, Cylindrical vibratory feeder with level sensor **NPN/PNP** on the Cylindrical vibratory.
A Module for Bowl feeder - a Module **MTR01** for Motor Elevator with **PRX99** circuit.

ELETTRONICA

Description: SYSTEM FOR LINEAR, BOWL FEEDER, HOPPER WITH ALARM		
CODE	REV	DATE	DRAFTSMAN	SHEET
DTCVXPRX99	00	12/04	E. PEDRAZZI	1/1

FOR SINGLE VIBRATOR

BOWL FEEDER OR LINEAR
or HOPPER



CIRCUIT PRX99
FOR SENSOR
NPN/PNP
FEATURES:

DELAY ON/OFF
VIBRATORE 0/10 SEC.

ALARM ABSENCE PIECES
(30 SEC.)

SUPPLY
ALARM LAMP

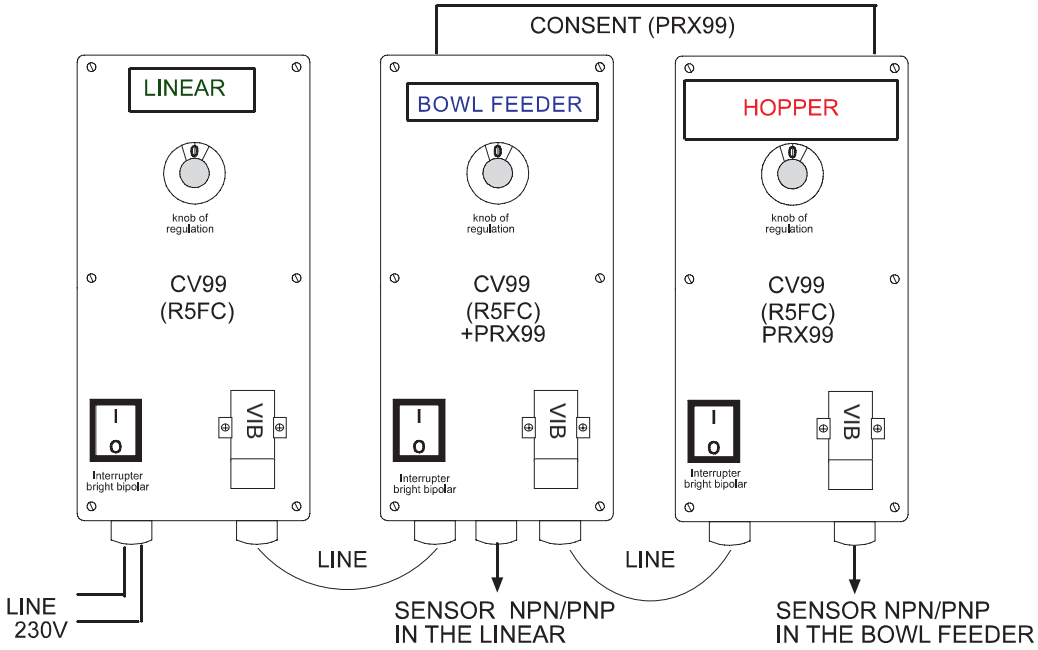
SUPPLY
NPN/PNP SENSOR

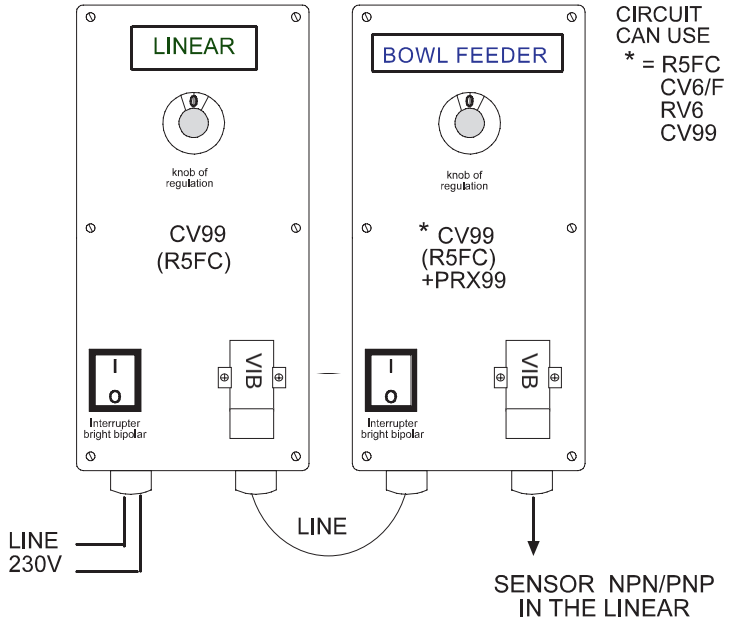
SUPPLY
ELECTRO-VALVE
AIR BLOW

DELAY EV AIR BLOW
2 SEC.

OUTPUT 24VCA-5VA

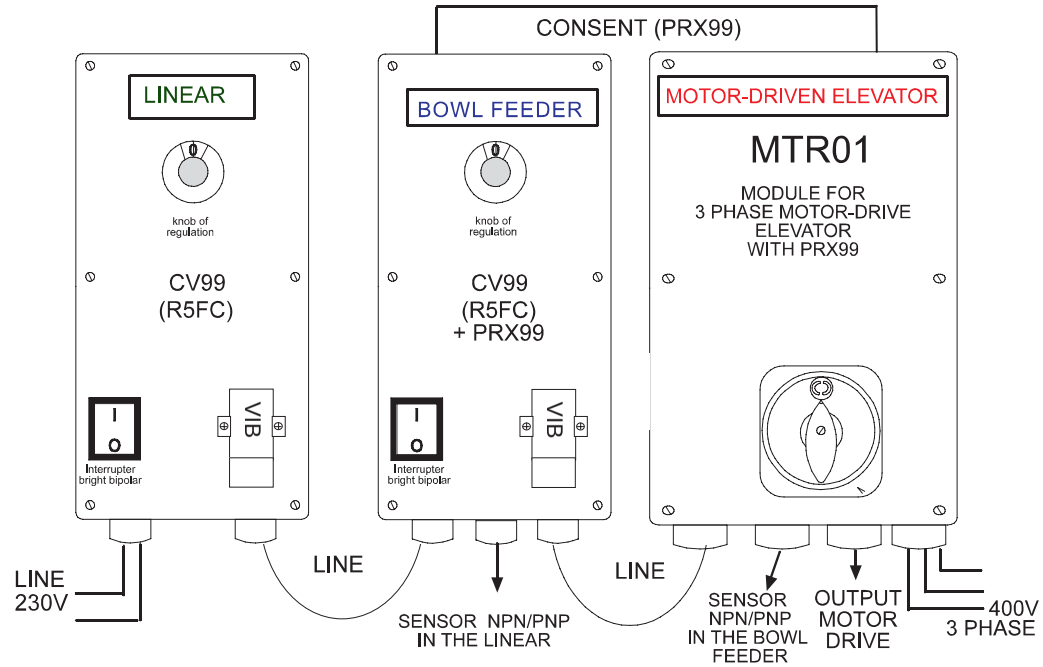
FOR LINEAR/ BOWL FEEDER/HOPPER WITH 2 SENSORS NPN/PNP AND ALARMS



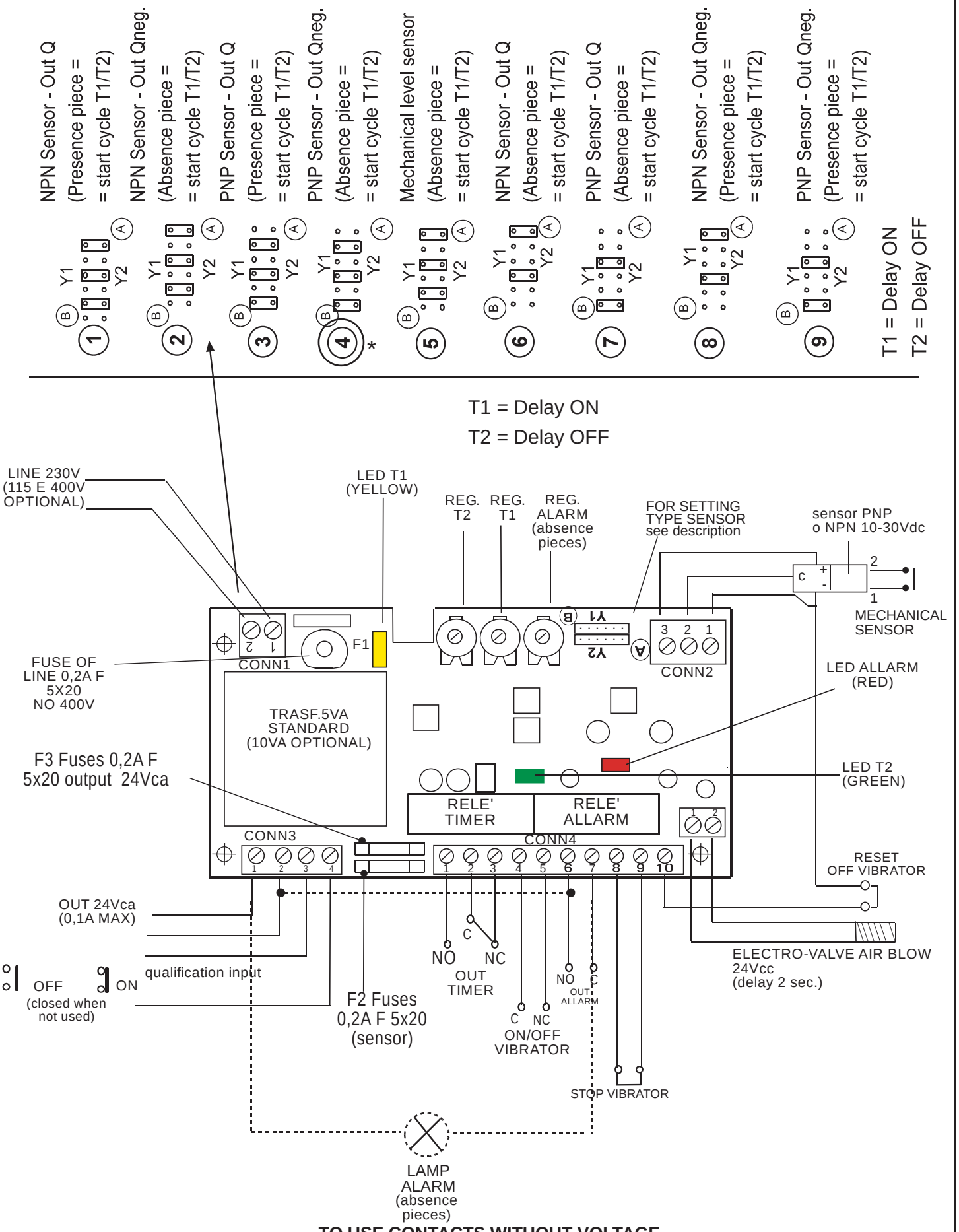


CIRCUIT
CAN USE
* = R5FC
CV6/F
RV6
CV99

FOR LINEAR/BOWL FEEDER WITH SENSOR NPN/PNP AND ALARM



FOR LINEAR/BOWL FEEDER/MOTOR DIVE ELEVATOR WITH 2 SENSORS NPN/PNP AND ALARMS



TO USE CONTACTS WITHOUT VOLTAGE

MP ELETTRONICA	Description: INTERFACE CIRCUIT FOR SENSOR PRX99 WITH ALLARMS			
CODE	REV	DATE	DRAFTSMAN	SHEET
DTPRX99	00	12/02	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9001:2000
CERT. 9105 MPEL

Cod. ST MTR01
Rev. 00
Page 1/1

3 - PHASE MOTOR-DRIVEN FEEDER

"MTR01"

GENERAL

3 PHASE MOTOR-DRIVEN FEEDER AND INPUT SENSOR NPN/PNP 3 DELAY (ON/OFF - ALLARM ABSENCE PIECES). QUALIFICATION INPUT FOR MULTIPLE ELECTROMAGNETIC SYSTEM (LINEAR-BOWL FEEDER HOPPER)

CASSETTA MTR01
PV MTR01 Z6 STD

GENERAL CHARACTERISTICS

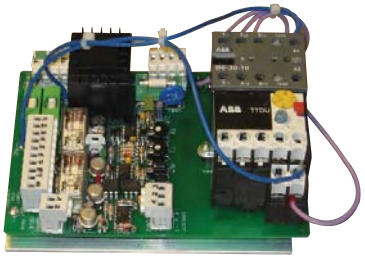
VOLTAGE 400V 3 PHASE - INPUT SENSOR NPN/PNP - DELAY ON/OFF MAX 10 SEC. - DELAY AND ALLARM ABSENCE PIECES (RED LED) - SUPPLY EV AIR BLOW (24VCC) WITH DELAY (2 SEC.)
POVER SUPPLY 24VCA - 0.1A MAX. - MOTOR-THERMAL OVERLOAD RELAY 1-1,6A - IP65

APPLICATIONS

3 PHASE MOTOR-DRIVEN FEEDER WITH NPN/PNP SENSOR ON/OFF DELAY AND ALLARM DELAY

OPTIONS

LABEL CUSTOM - DIN35 VERSION



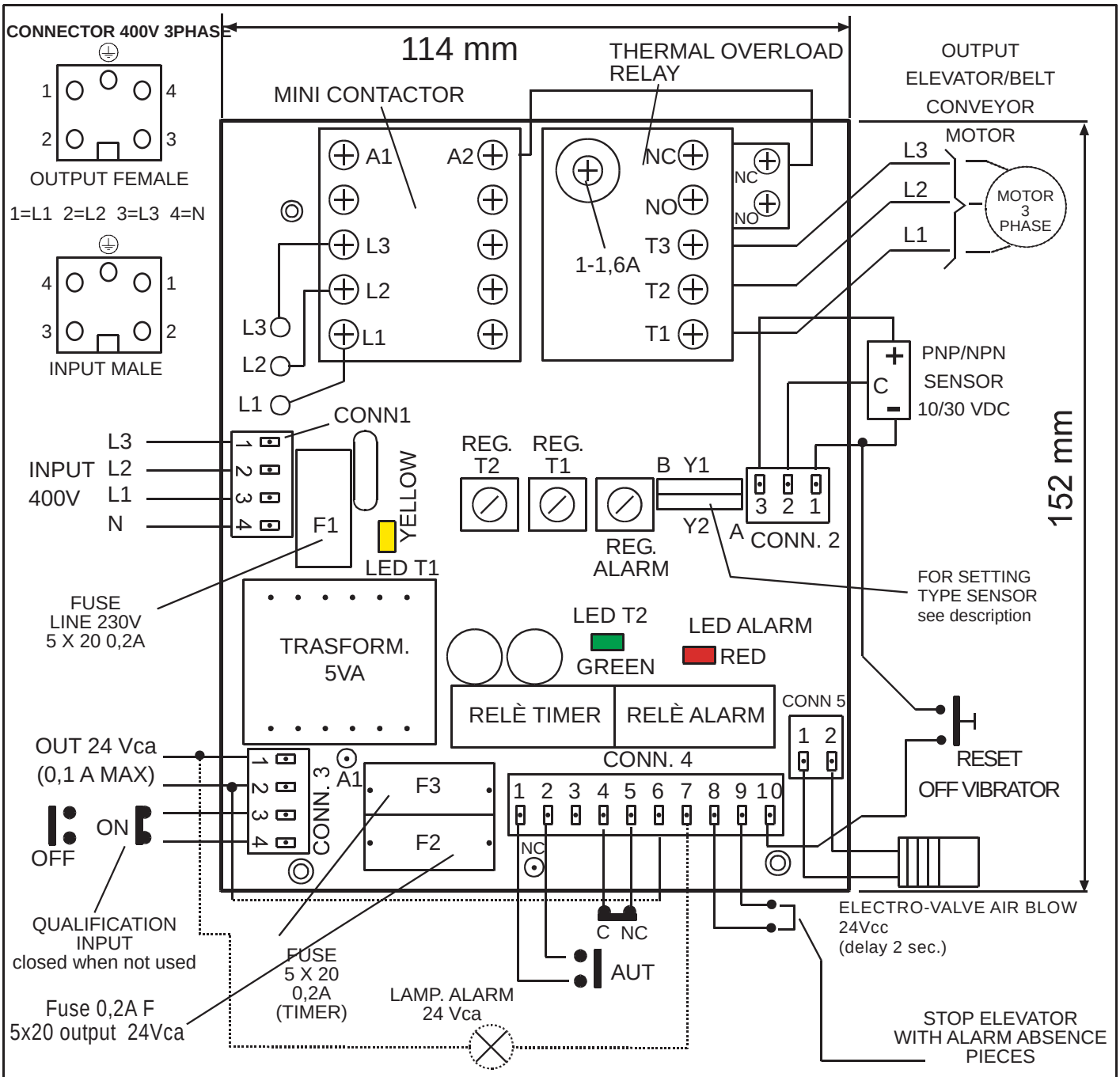
CIRCUIT MTR01
PV MTR01 A6 STD

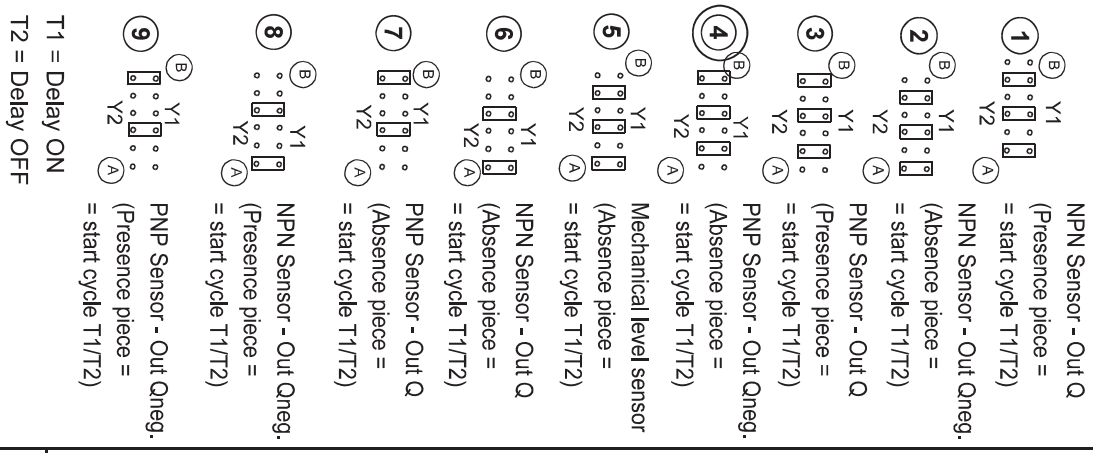
ELECTRICAL CHARACTERISTICS

SUPPLY VOLTAGE: 3x400V +/-10% 50/60 Hz
CONSUMPTION: 1,5W MAX
FUSES: 0,2A F 250V 5X20 H1500A
VOLTAGE MOTOR: 3X400V
PROTECTION MOTOR: THERMAL OVERLOAD RELAY 1/1,6A
INPUTS FOR SENSORS: OPTOISOLATED NO/NC NPN/PNP
TYPE OF SENSORS: MECHAN.INDUCTIVE.CAPACITIVE OR OPTICAL
SUPPLY VOLTAGE FOR SENSORS: 12 VCC
ENERGIZATION DELAY (T1): 0-12 SEC.REG.
DE-ENERGIZATION DELAY (T2): 0-12 SEC.REG.
OUTPUT FOR VIBRATOR STOP: 2 NO/NC 10A 250Vca Max
TEMPERATURE OF STORAGE: -10 °C /+80 °C
TEMPERATURE OF OPERATION: 0 °C /+ 45 °C
DELAY ALARM: 0-30 SEC
SUPPLY VOLTAGE EV AIR BLOW: 24VCC
DELAY VOLTAGE EV AIR BLOW: : 2 SEC.
DEGREE OF PROTECTION: IP65 IN BOX
RANGE OF RELATIVE HUMIDITY: 80%TILL TO 31 °C
ALTITUDE: TILL TO 2000 METERS
GUARANTEE: 1 YEAR (FROM DATE ON CIRCUIT)

AVAILABLE VERSIONS

Type	Box	Dimensions	Code	Price €
MTR01	Aluminum Box	195 x 130 x 91	PV MTR01 Z6 STD	
MTR01	Circuit	152 x 114 x 50	PV MTR01 A6 STD	
MTR01/DIN35	Circuit Din35	152 x 130 x 50	PV MTR01 A6 DIN	





M P
ELETTRONICA

Description: 3 - PHASE MOTOR -DRIVEN FEEDER

CODE	REV	DATE	DRAFTSMAN	SHEET
DT MTR01	00	10/07	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST FQ1/2
Rev. 01
Page 1/1

Variable Frequency/Amplitude Control Circuit

FQ1/FQ2

GENERAL

The variable frequency control stabilized circuit **FQ1 (6,3A RMS) and FQ2 (3,15A RMS)**, unique of its kind, allows optimizing operation of the vibratory feeder by searching for its resonance frequency (**maximum performance**), thereby eliminating its lengthy and difficult mechanical calibration.
In fact, each vibratory feeder exhibits mechanical properties such that, above all when the required performance levels are at the limit, it is only necessary to shift the frequency of the supply voltage by even just a few **fractions of hertz** to modify the intensity of vibration by an appreciable amount. Furthermore it is possible for the mechanical properties to undergo a **drift phenomenon** due either to ageing of the materials or to raising of the temperature.
Thanks to the **FQ1** and **FQ2** circuit it is possible to follow these variations manually and therefore obtain **maximum performance** at any moment **(to use for vibratory feeder coil at 200V max**).
Another field of application of the **FQ1** and **FQ2** circuit concerns vibratory feeders targeted towards the American market running on **60** Hz or European market **50** Hz.
By using this circuit, this customer need only stock vibratory feeders designed for a frequency of **50** Hz or **60** Hz. For the purpose of operation of circuit **FQ1** and **FQ2**, it does not matter whether the line voltage has a frequency of **50** or **60** Hz, because only the frequency set by potentiometer **PT1** will reach the vibratory feeder.
Potentiometer **PT2**, instead, serves for varying the **amplitude** of vibration by acting on the output voltage.
Yet a further field of application of circuit **FQ1** and **FQ2** could be that of handling very small or very large parts, of limited weight, for which suitable vibratory feeders have to be developed with higher or very low frequencies. An important feature of this control is its **easy use** with high technical performance levels and an optimum **quality-price ratio**.

NOTE: The circuit exhibits peak voltage exceeding **300V**, therefore it is **compulsory** to discharge the voltage each time it is necessary to adjust the circuit by opening the casing. The circuit is provided with an automatic **system** which, after de-energizing, discharges the capacitors so that after 5 seconds, there is a residual voltage less than **60V** (in accordance with CEI regulations). The regulation section, including the calibration trimmers, adjustment potentiometers, the **ON/OFF** contact and electronics connected to these items, is **isolated galvanically** from the high voltage power stage. When PINS 3 and 5 of Conn. 2 are short circuited through a contact not under voltage, the **circuit annuls** the voltage on the vibratory feeder. The **FQ1** and **FQ2** circuit is provided with an interference filter conforming to " CE" standards. After making the connections and energizing the circuit, it is recommended to search for the **resonance frequency** of the vibratory feeder before bringing the vibratory feeder up to maximum amplitude. The frequency of vibration can be measured through appropriate terminals of CONN.2. Bear in mind that the waveform ranges from **0** to **12 Vcc** while the frequency meter should have an input impedance of at least **10 Kohm**. The cased version has a **plexiglas** guard on the **amplitude/frequency** control to avoid risk of undesirable variations by unauthorized personnel.

Box FQ1

Box FQ2

ELECTRICAL CHARACTERISTICS

TENSION OF FEEDING: **230V**(**115** on request) +/- 5% 50/60Hz
CONSUMPTION: 2,5W max
CURRENT MAX: 6,3A (RMS) - FQ1/3,15A (RMS)-FQ2
FUSES: double 3,15/6,3A F 250V 5x20 H 1500 A
LOAD MIN.: 50 mA (RMS)
POTENTIOMETERS OF REG.: 10K/22K linear
FREQUENCY OF VIBRATION: 3000/6000 V/min. (50-100Hz)
TIME OF RAMP: 1 sec.
REGOLATION VOLTAGE.: 50-200V 50 Hz (60 Hz on request)
FREQ. OF REG. 100 +/- 20Hz (6000V/m)-50 +/- 20Hz (3000V/m)

DEGREE OF POLLUTION: 2
AUTOMATIC INPUT: 0/10V
DEGREE OF PROTECTION: IP54 in box (only circuit IP00)
TEMPERATURE OF STORAGE: -15 °C / + 80 °C
TEMPERATURE OF OPERATION: -5 °C / + 45 °C
RANGE OF RELATIVE HUMIDITY: 80% till to 31°C
Installation Class: II
Altitude: till to 2000 meters
European Norms: EMC CE
Guarantee: 1 year (from date on circuit)

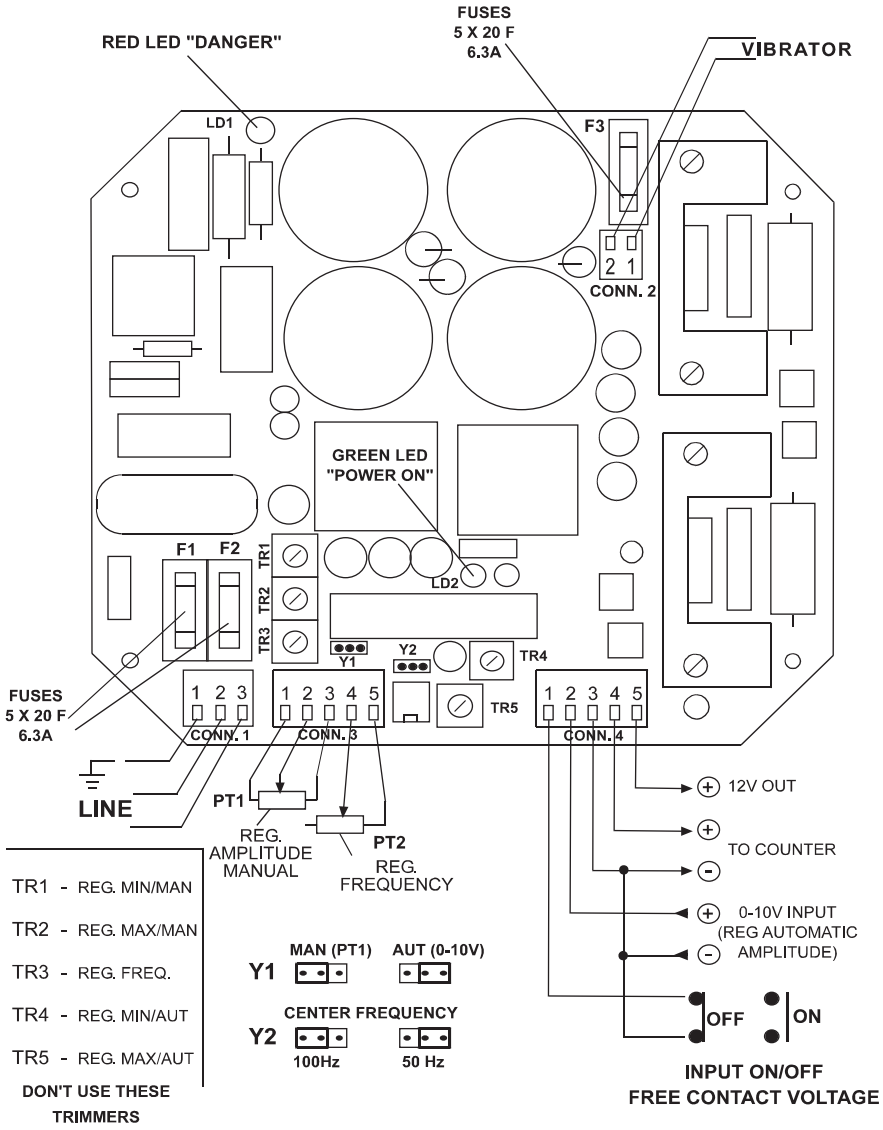
AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code
FQ1	League aluminium	Light grey	185 x 160 x 80	PV FQ1XX Z2 STD
FQ1/V	League aluminium	Light grey	185 x 160 x 80	PV FQ1VX Z2 STD
FQ2	League aluminium	Light grey	165 x 140 x 80	PV FQ2XX Z2 STD

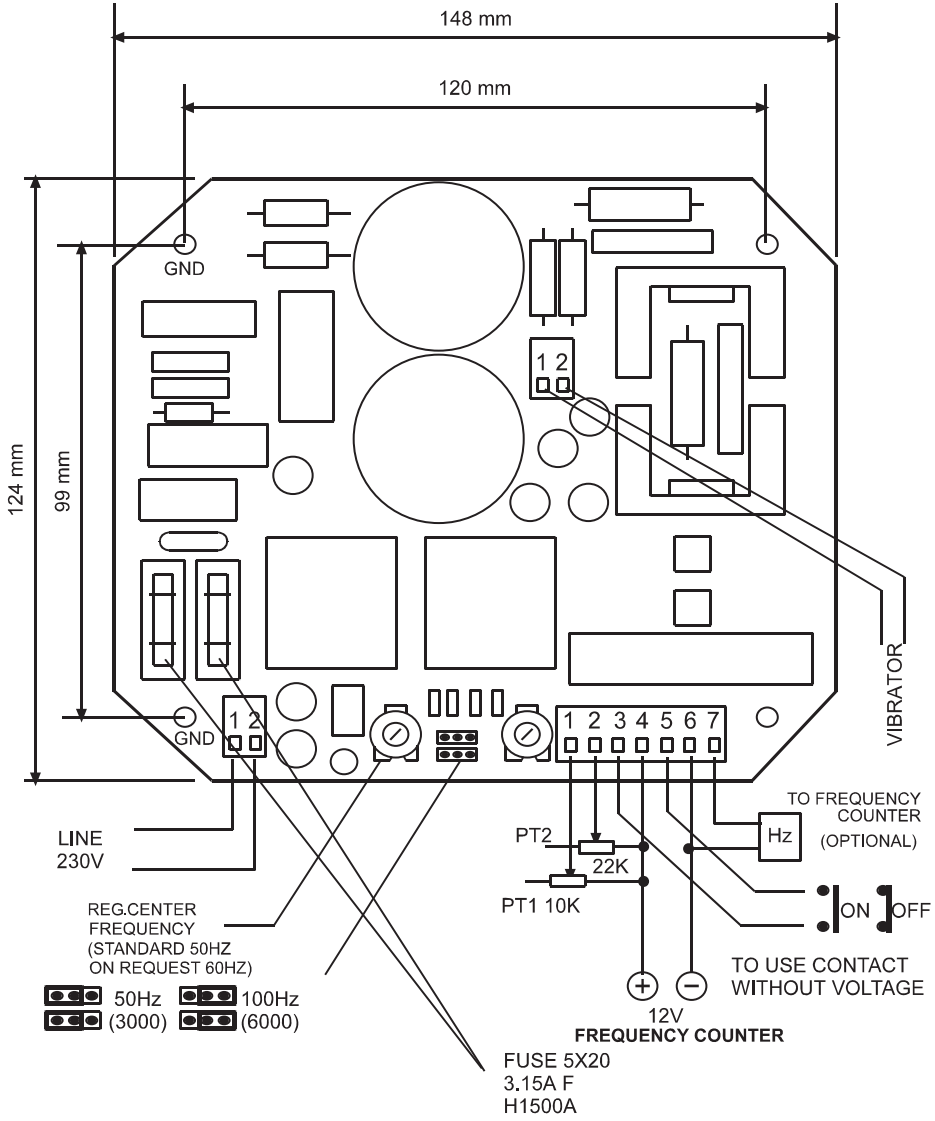
ELETTRONICA

COD	REV	DATE	DRAFTSMAN	SHEET
DTFQ1	00	11/01	E. PEDRAZZI	1/1

Description: CIRCUIT REGULATION AMPLITUDE/FREQUENCY FQ1



NOTE: MAXIMUM PERFORMANCE:TO USE FOR VIBRATOR COIL AT 200V MAX.



PT1 > POTENTIOMETER 10K FREQUENCY PT2 > POTENTIOMETER 22K AMPLITUDE

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9001:2000
CERT. 9105 MPEL

Cod. ST FQ1DIG/LCD
Rev. 01
Page 1/1

Electronic Controller for Electromagnetic Vibrator

"FQ1-DIG/FQ1-LCD"

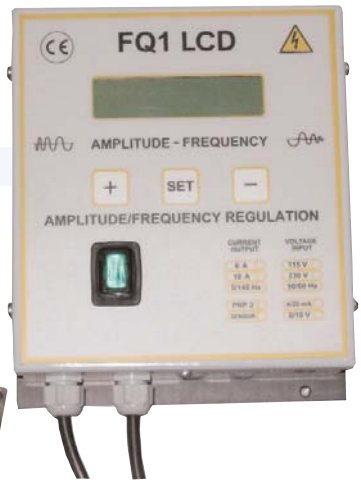
CONTROLLER FQ1 DIG
PV FQ1DG Z2 STD

GENERAL

MICROPROCESSOR DIGITAL PROFESSIONAL CONTROLLER WITH VISUALIZED FREQUENCY AND AMPLITUDE - DELAY 10 SEC MAX ON/OFF VIBRATOR WITH SENSOR PNP OR RELAY CONTACT.

GENERAL CHARACTERISTICS

VOLTAGE (110V) 230V, 50-60 HZ - 3000/6000 VIB/MIN - INPUT ON/OFF - SOFT/FAST RAMP - DIGITAL REGULATION AMPLITUDE/FREQUENCY MIN/MAX - DIGITAL MENU - LINE INPUT WITH SCHUKO PLUG - VIBRATOR OUTPUT WITH CONNECTOR.



CONTROLLER FQ1 LCD
PV FQ1LC Z2 STD

APPLICATIONS

DIGITAL REGULATION OF LINEAR AND BOWL FEEDER TILL 6,3 AMPS - THE FQ1 DIG ALLOWS OPTIMIZING OPERATION OF THE VIBRATORY FEEDER BY SEARCHING FOR ITS RESONANCE FREQUENCY (MAX PERFORMANCE) THEREBY ELIMINATING ITS LENGTHY AND DIFFICULT MECHANICAL CALIBRATION.

SENSOR SIND3

OPTIONS

PERSONALIZED LABEL - CONNECTOR FOR VIBRATOR.

ELECTRICAL CHARACTERISTICS

TENSION OF FEEDING: 115/230V +/- 5% 50/60Hz

CONSUMPTION: 2,5W max

CURRENT MAX: 6,3A (RMS)

LOAD MIN: 50 mA (RMS)

FREQUENCY OF VIBRATION: 3000/6000 cycles to minute (50Hz)

TIME OF RAMP: 1 sec.

REGOLATION MIN.: 80V +/- 30%

REGOLATION MAX: 200V - 30%

ON/OFF: free contact

DEGREE OF PROTECTION: IP55 in box (IP65-NEMA4-4X)

ADJUST FREQUENCY:30 Hz/120 Hz

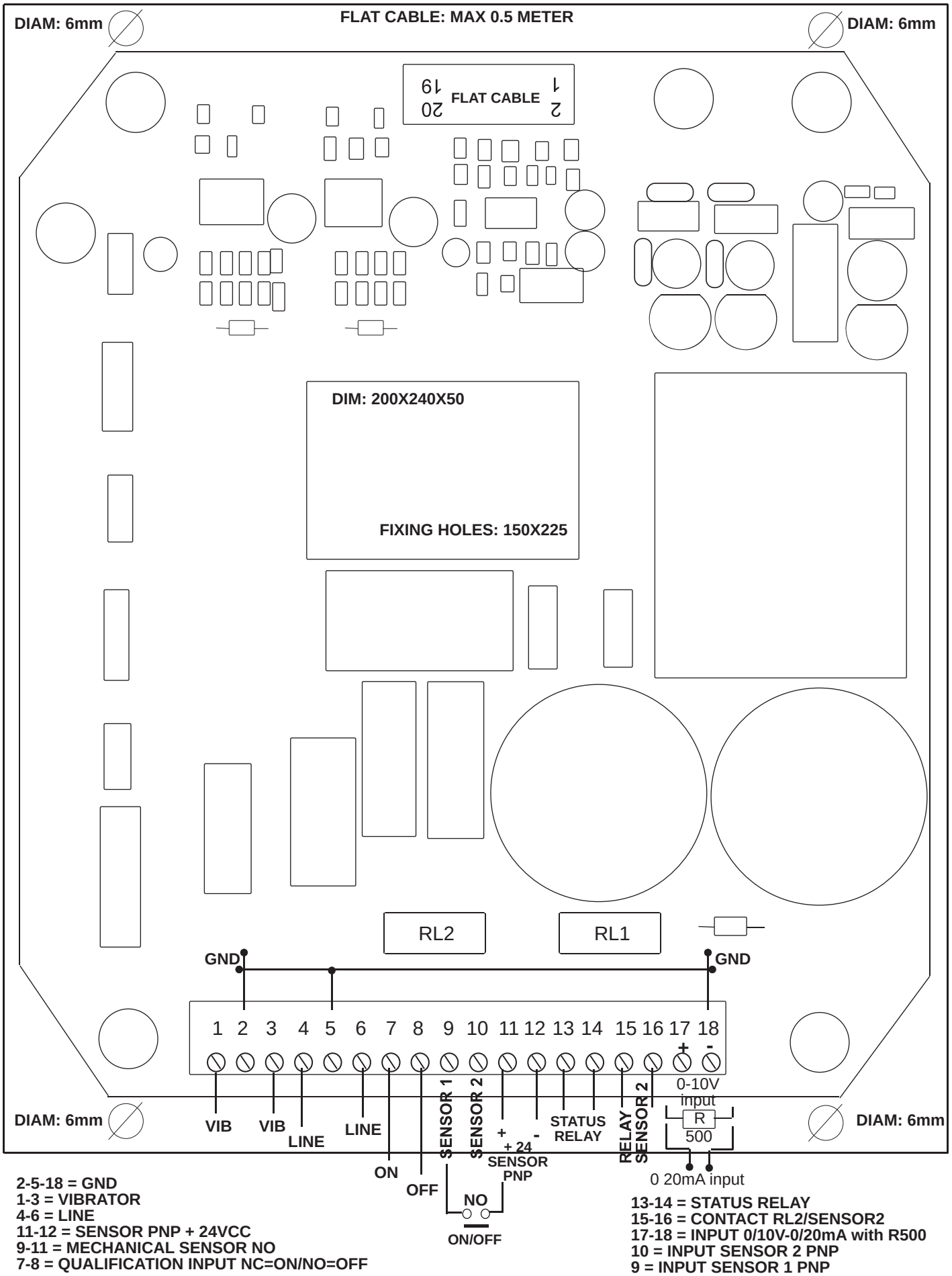
TEMPERATURE OF OPERATION: -5 °C / + 45 °C

EUROPEAN NORMS: EMC CE

GUARANTEE: 1 year (from date on circuit)

AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code	Price €
FQ1DIG	Metallic	RAL 7035	240 x 200 x 120	PV FQ1DG Z2 STD	
FQ1LCD	Metallic	RAL 7035	240 x 200 x 120	PV FQ1LC Z2 STD	



2-5-18 = GND
1-3 = VIBRATOR
4-6 = LINE
11-12 = SENSOR PNP + 24VCC
9-11 = MECHANICAL SENSOR NO
7-8 = QUALIFICATION INPUT NC=ON/NO=OFF

13-14 = STATUS RELAY
15-16 = CONTACT RL2/SENSOR2
17-18 = INPUT 0/10V-0/20mA with R500
10 = INPUT SENSOR 2 PNP
9 = INPUT SENSOR 1 PNP

ELETTRONICA

Description: ELECTRONIC CIRCUIT FQ1 DIG MAIN BOARD

CODE	REV	DATE	DRAFTSMAN	SHEET
DTFQ1 MAINBOARD	01	04/06	E. PEDRAZZI	1/1

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9001:2000
CERT. 9105 MPEL

Cod. ST FQ1-PWM
Rev. 01
Page 1/1

Electronic Controller for Electromagnetic Vibrator

"FQ1-PWM"

GENERAL

MICROPROCESSOR DIGITAL PROFESSIONAL CONTROLLER WITH VISUALIZED FREQUENCY AND AMPLITUDE - DELAY 8 SEC MAX ON/OFF VIBRATOR WITH SENSOR NPN/PNP OR RELAY CONTACT.
AUTOMATIC INPUT FROM PLC 0/10V-0/20MA.

CONTROLLER FQ1 PWM
PV FQ1PW Z2 STD

GENERAL CHARACTERISTICS

VOLTAGE (110V) 230V, 50-60 HZ - 3000/6000 VIB/MIN - DOUBLE INPUT ON/OFF - SOFT/FAST RAMP - MANUAL REGULATION AMPLITUDE/FREQUENCY (39/70Hz - 90/130Hz) MIN/MAX - LIMITATION MAX OUTPUT LINE INPUT WITH SCHUKO PLUG - VIBRATOR OUTPUT WITH CONNECTOR.

APPLICATIONS

DIGITAL REGULATION OF LINEAR AND BOWL FEEDER TILL 6,3 AMPS - THE FQ1 DIG ALLOWS OPTIMIZING OPERATION OF THE VIBRATORY FEEDER BY SEARCHING FOR ITS RESONANCE FREQUENCY (MAX PERFORMANCE) THEREBY ELIMINATING ITS LENGTHY AND DIFFICULT MECHANICAL CALIBRATION.

OPTIONS

PERSONALIZED LABEL - CONNECTOR FOR VIBRATOR - FREQUENCY METER

ELECTRICAL CHARACTERISTICS

TENSION OF FEEDING: **115/230V** +/- 5% 50/60Hz

CONSUMPTION: 2,5W max

CURRENT MAX: 6,3A (RMS)

LOAD MIN: 50 mA (RMS)

FREQUENCY OF VIBRATION: 39/70Hz - 90/130Hz

TIME OF RAMP: 1 sec.

INPUT SENSOR: NPN/PNP OR FREE VOLTAGE CONTACT

AUTOMATIC INPUT: 0-10V/0-20MA (WITH 470 OHM)

ON/OFF: FREE CONTACT

DELAY ON/OFF: 0/8 SEC

DEGREE OF PROTECTION: IP65 in box (NEMA4-4X)

TEMPERATURE OF STORAGE: -15°C./ + 80°C.

TEMPERATURE OF OPERATION: -5 °C / + 45 °C

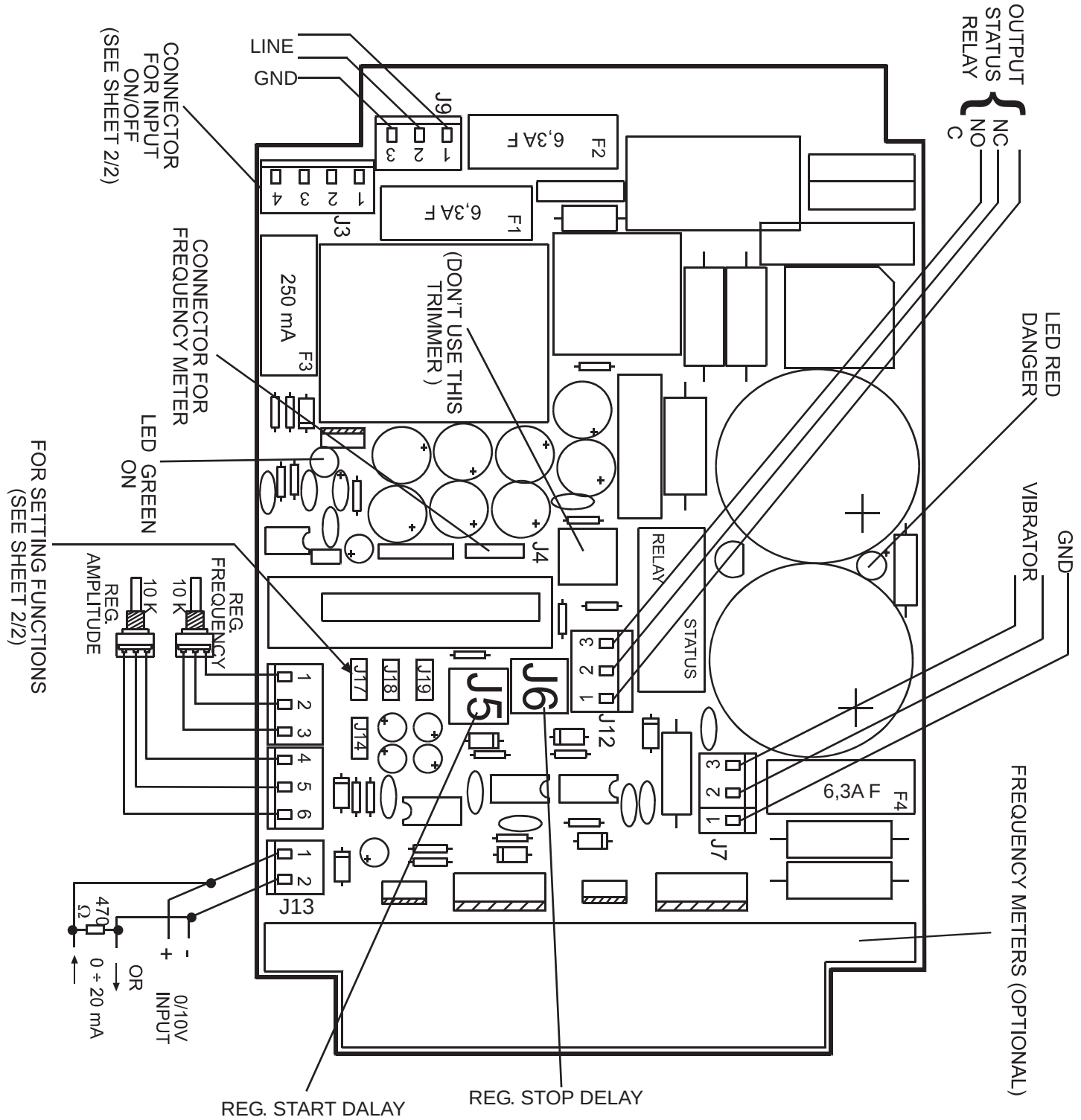
Altitude: TILL TO 2000 METERS

EUROPEAN NORMS: EMC CE

GUARANTEE: 1 year (from date on circuit)

AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code	Price €
FQ1PWM	Metallic	RAL 7035	200 x 130 x 90	PV FQ1PW Z2 STD	
FQ1PWM	Circuit		200 x 120 x 40	PV FQ1PW A2 STD	
FQ1PWM	Circuit Din		200 x 120 x 50	PV FQ1PW A2 DIN	



M P ELETTRONICA	Description: FQ1-PWM DIGITAL PWM AMPLITUDE/FREQUENCY CIRCUIT				
	CODE	REV	DATE	DRAFTSMAN	SHEET
	DTFQ1PWM	00	05/08	E. PEDRAZZI	1/2
	MUMFQ1PWM	00	05/08	E. PEDRAZZI	2/3

MP Elettronica srl
Elettronica Industriale - Sistemi Elettronici
Sesto S. Giovanni MI - Tel. 02 2403864 - Fax 02 2400643
Albizzate VA - Tel. 0331 985210 - Fax 0331 985210
Internet: www.mpelettronica.com - e-mail: mp@mpelettronica.com

UNI EN ISO 9002
CERT. 9105 MPEL

Cod. ST ALIM 01
Rev. 00
Page 1/1

Electronic monitoring circuit for electromagnetic and mechanical vibrators with amplitude sensor

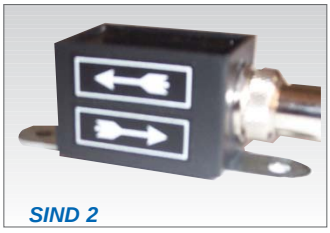
ALIM 01

GENERAL INFORMATION

The **ALM01** circuit feeds the amplitude sensor **SIND1** or **SIND2** and makes it therefore possible to manage its reaction to the **vibration** so that any anomalousfunctioning can be detected (a too **high** or **insufficient** vibration).It is possible to regulate the level where the intervention will be required through a trimmer (**T1** and **T3**).Moreover, thanks to the T1 trimmer it is possible to adapt the circuit to different types of vibrations.When the maximum vibration level is exceeded,the red Led indicator switches itself on (**LD1**) and the relay **RL1** also goes off (such alarm can be kept in auto retention by closing the contacts number **4** and **5** of the connector number **3**; the system is reset by opening said contacts again).When the vibration is too low the green Led (**LD2**) switches itself off and the **RL2** net stops being excited. The circuit is designed to function with tensions of **230V**; if required, however, it can also be designed for tensions of **400V/115V**. The whole of the control section is isolated from the electrical network. An (optional) instrument capable of indicating vibrations can be connected to contacts **4** and **5** of the connector. This output V **0-10** can also be used for other purposes.

Box ALIM 01


Sensor SIND1


SIND 2

USAGE INSTRUCTIONS

Connect the amplitude sensor **SIND1** to terminal **1** (+/green cable) and **2** (S/ yellow cable) and **3** (-/brown cable) of connector **2**. Feed the circuit and bring the vibrator up to the maximum level of vibrations.Adjust trimmer **T1** until the tension at terminal **4** and **5** of connector number **2**, as measured with the voltmeter, reaches **10V+/-100mV** (should the maximum vibration of 10V not be achievable, move bridge **Y1** on High Gain), and check again that the tension is **10V+/-100mV**. By adjusting trimmer **T2**, you should notice that, at a certain point, led **LD1** (red) either switches itself on or turns itself off, if it was already on. Position the trimmer so that the led is swit ched off but near enough to the ignition level.Bring the vibrator at the minimum vibration level. By adjusting trimmer **T3** you will find an area where, by rotating in both directions, the green led **LD2** will switch on and off. Position the trimmer so that the green led is switched on but near enough to the area where it switches itself off. Connect the (optional) indicating instrument, respecting the **+/-** priorities, to be able to visualise the width of the **vibrations** in **%**.

ELECTRICAL CHARACTERISTICS

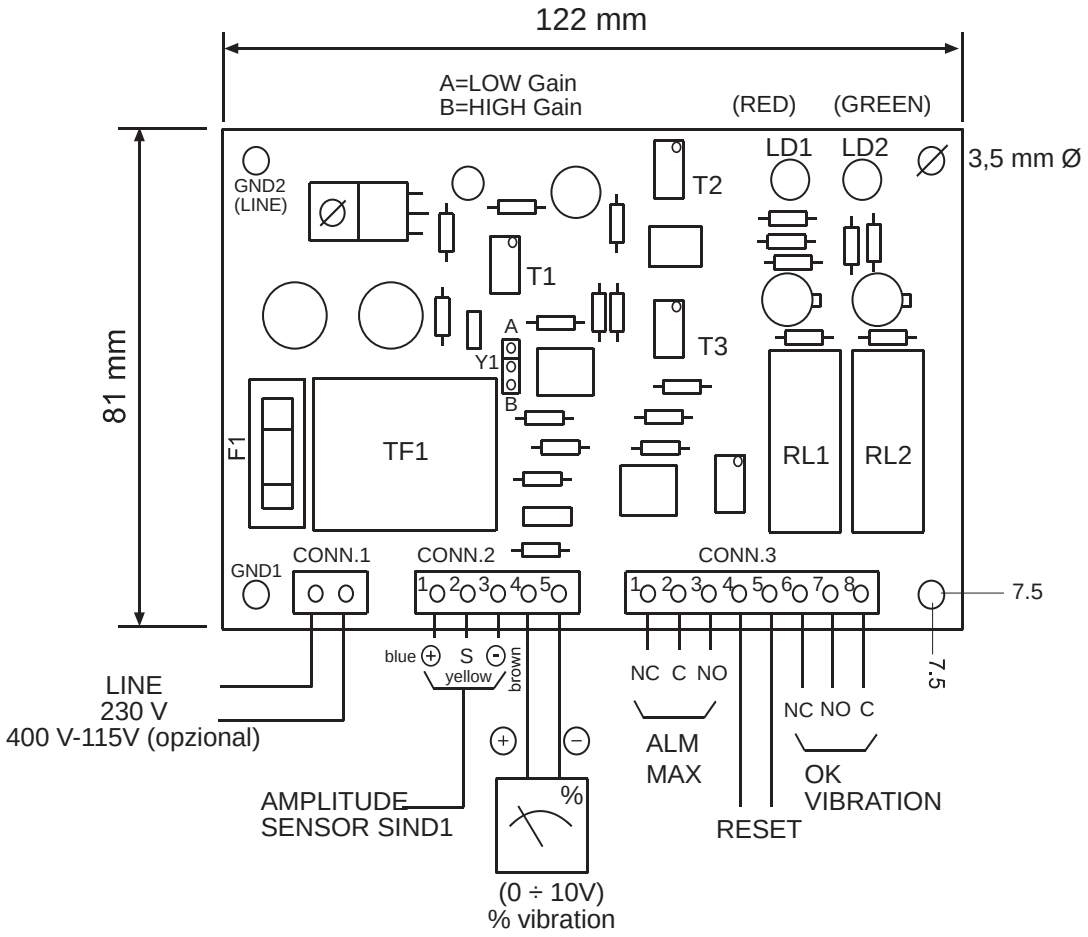
SUPPLY VOLTAGE:	230V (400V opzional) 50/60 Hz
POWER CONSUMPTION:	1 watt
FUSES:	1A F 250V 5x20 H 1500A
ALLARM MAX (RL1):	contact NO/NC 10A 250Vca max
ALLARM OK VIB:	contact NO/NC 10A 250Vca max
ALTITUDE:	till to 2000 meters.
DEGREE OF POLLUTION:	2
RANGE OF RELAT.HUMID.:	80% till to 31 °C

INSTALLATION CLASS:	II
DEGREE PROTECTION:	IP 54
TEMP. OF OPERATION:	-5 °C / + 45 °C
TEMP. OF STORAGE:	-15 °C / + 80 °C
EUROPEAN NORMS:	EMC CE
GUARANTEE:	1 year (from date on circuit)
VIBRAZION MAX:	Led red ON
VIBRAZION MIN:	Led green OFF

AVAILABLE VERSIONS

Type	Box	Colour	Dimensions	Code
ALIM01	Aluminium	RAL 7035	164 x 100 x 67	PV ALIM1 Z2 STD
SIND1	Aluminium	Gray	45 x 45 x 35	PV SIND1ZX STD
SIND2	Resinated	Black	60 x 25 x 15	PV SIND2ZX STD

Each responsability from a wrong use of the eletronic circuit is declined

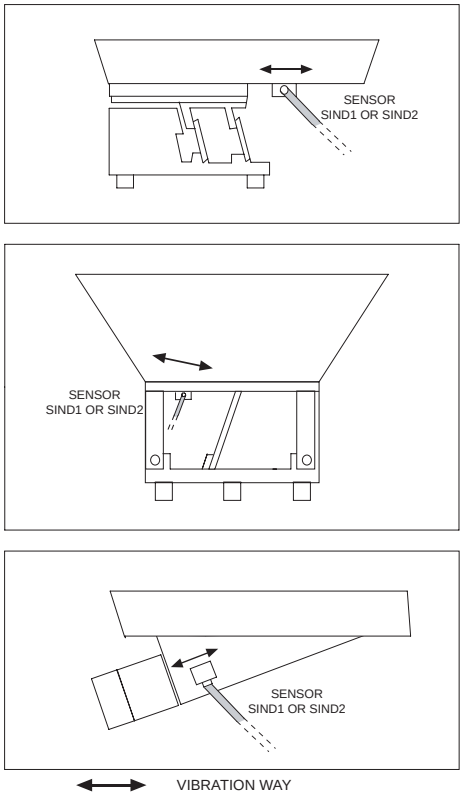


Description: Electronic assembling circuit for electromagnetic and mechanical vibrators with amplitude sensor				
CODE	REV	DATE	DRAFTSMAN	SHEET
DTALIM01	00	12/00	E. PEDRAZZI	1/1

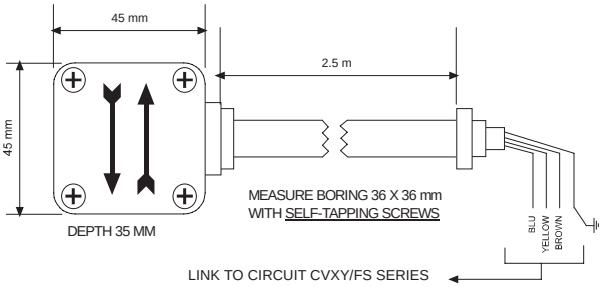
M P ELETTRONICA

The sensor is put in manner such that the sensitive part is disposed according to the sense of the vibration in such position from hear again totally of the vibration.
In compatible way with the demands constructive of each vibrator are in fact possible other solutions provided that satisfy the conditions in said precedence.

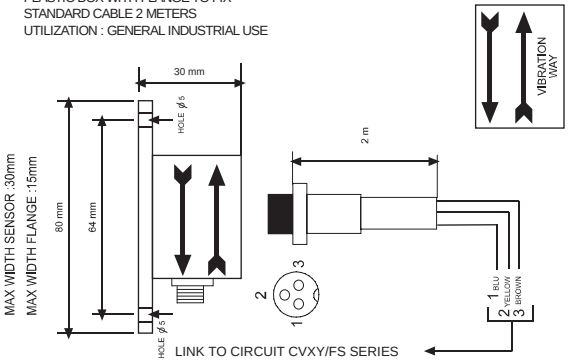
SKETCH AND CHARACTERISTIC TECHNIQUES SUBJECT TO MODIFICATIONS WITHOUT WARNING



SENSOR MOD. SIND1
BOX LEAGUE ALUMINIUM
SHIELD CABLE WITH METALIC PROTECTION
STANDARD CABLE 2.5 METERS
UTILIZATION: HEAVY USE
CODE : PV SIND1 ZX STD



SENSOR MOD. SIND2 CODE: PV SIND2 ZX STD
PLASTIC BOX WITH FLANGE TO FIX
STANDARD CABLE 2 METERS
UTILIZATION : GENERAL INDUSTRIAL USE



Description: VIBRATION SENSOR SIND1-SIND2				
CODE	REV	DATE	DRAFTSMAN	SHEET
DTSINDYSTD	00	12/02	E. PEDRAZZI	1/1

M P ELETTRONICA