GENIUS POWER 2 BASE

The GENIUS POWER 2 regulators are the first evolution of the GENIUS POWER range. Based on the same principle of the phase cut on II° and on IV° quadrants, these models maintain the same characteristics of efficiency above 99%, compactness and lightness. The logic of control of the power components is established by a microprocessor that grants to obtain the real effective value of the tension. Moreover it surveys the load current for the protection of the device from short circuits in output. Every model can operate in combination with the products of the GENIUS CONTROL range, or they can be controlled by digital signal RS232. Furthermore, also the stand-alone function has been implemented with two tension levels that can be set by a dip switch. They have been projected to be placed in switchboard panels. The GENIUS POWER 2 range consists of the models in the following table:

CODE	MODEL	I_{OUT}	P_{TOT}
100302	GENIUS POWER 2 **BASE** 18A	18A	4,14KVA
100303	GENIUS POWER 2 **BASE** 25A	25A	5,75KVA
100304	GENIUS POWER 2 **BASE** 35A	35A	8,05KVA
100305	GENIUS POWER 2 **BASE** 50A	50A	11,5KVA

FUNCTIONAL CHARACTERISTICS

Stabilization of the output tension
Thermal protection
Short circuit electronic protection
Over temperature signalling
Over load signalling
Signalling of the presence of input signal
Signalling of the presence of feed tension
Predisposition for quick fixing to DIN bar
Controllable by all models of GENIUS CONTROL
Controllable by external signal RS-232
Independent regulation in two phases with selectable tension level, temporized by external timer
Independent lamp lighting cycle
VBUS input self-powered in independent regulation option

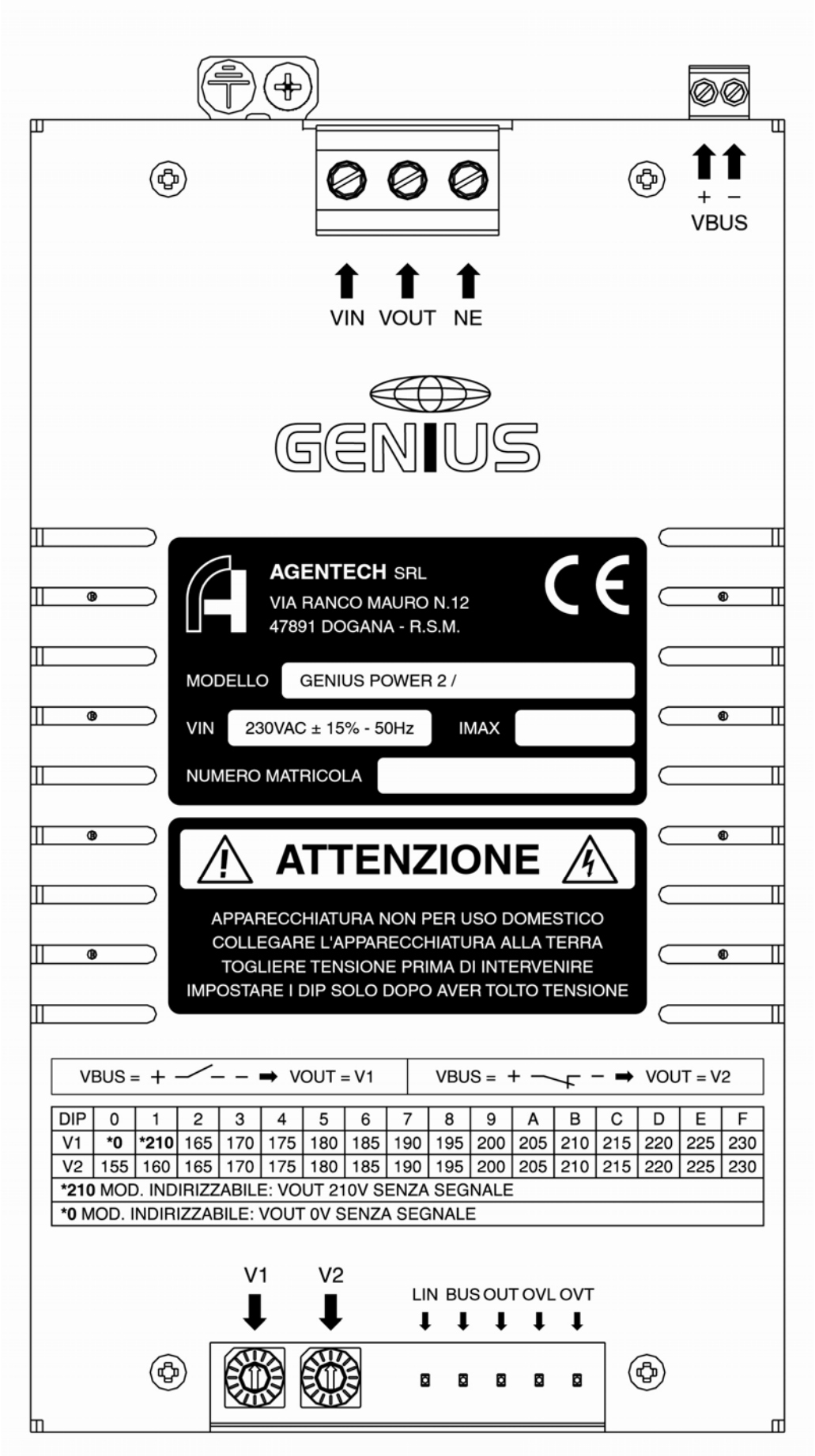
EQUIPMENT

Screw terminal board with 3 poles for 10mm^2 conductor for connection of VIN, VOUT, NEUTRAL
Red led signalling OVT (OVER TEMPERATURE)
Red led signalling OVL (OVER LOAD)
Stainless steel lid for protection against shocks
Screw terminal board with 2 poles for 1,5mm^2 conductor for connection of signals and external controls
Spring-system for quick fixing to Din bar
Cooling fan
2 rotating Dipswitches with 16 positions for the setting of the tension levels

TECHNICAL CHARACTERISTICS

PARAMETER	GENIUS POWER 18A	GENIUS POWER 25A	GENIUS POWER 35A	GENIUS POWER 50A
Power	230V ±15% - 50Hz			
Maximum output current	18ARMS	25ARMS	35ARMS	50ARMS
Thermal dissipation	36W @230V	57W @230V	80W @230V	115W @230V
Regulation range	From VMIN 170V to the power tension VIN			
Output voltage	Stabilized with a precision of 1,5%			
Stabilization speed	50V/Sec.			
Regulation minimum load	80W			
Performance	99%			
Class of isolation	Class I			
EMC Compliance	In accordance with EMC 89/336/CEE; 93/68/CEE; 98/79/CEE			
Operating temperature	From –10°C to +45°C			
Storage temperature	From –25°C to +75°C			
Humidity	Up to 90% without condensate			
Protection degree	IP20			
Weight	2,8Kg			
Dimension [mm]	126 x 220 x 15			

FRONTAL WIEV

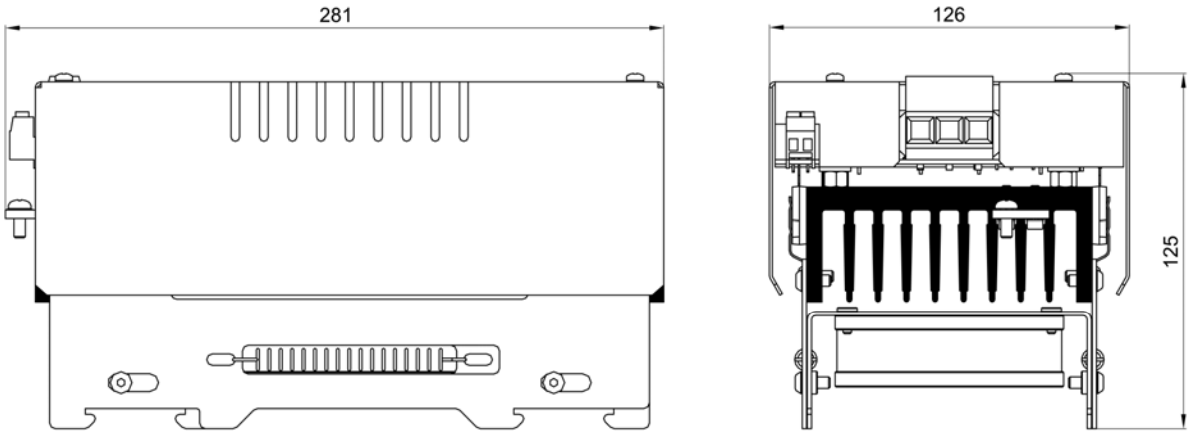


DIP	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
V1	***0**	***210**	165	170	175	180	185	190	195	200	205	210	215	220	225	230
V2	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230

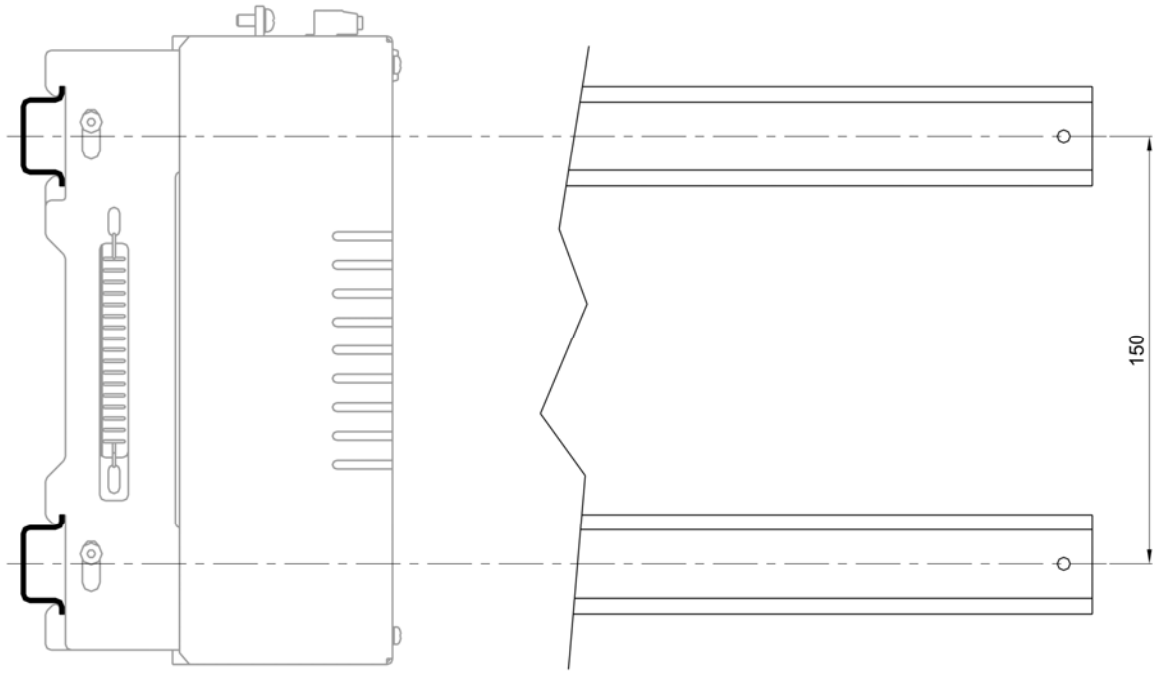
***210** MOD. INDIRIZZABILE: VOUT 210V SENZA SEGNALE

***0** MOD. INDIRIZZABILE: VOUT 0V SENZA SEGNALE

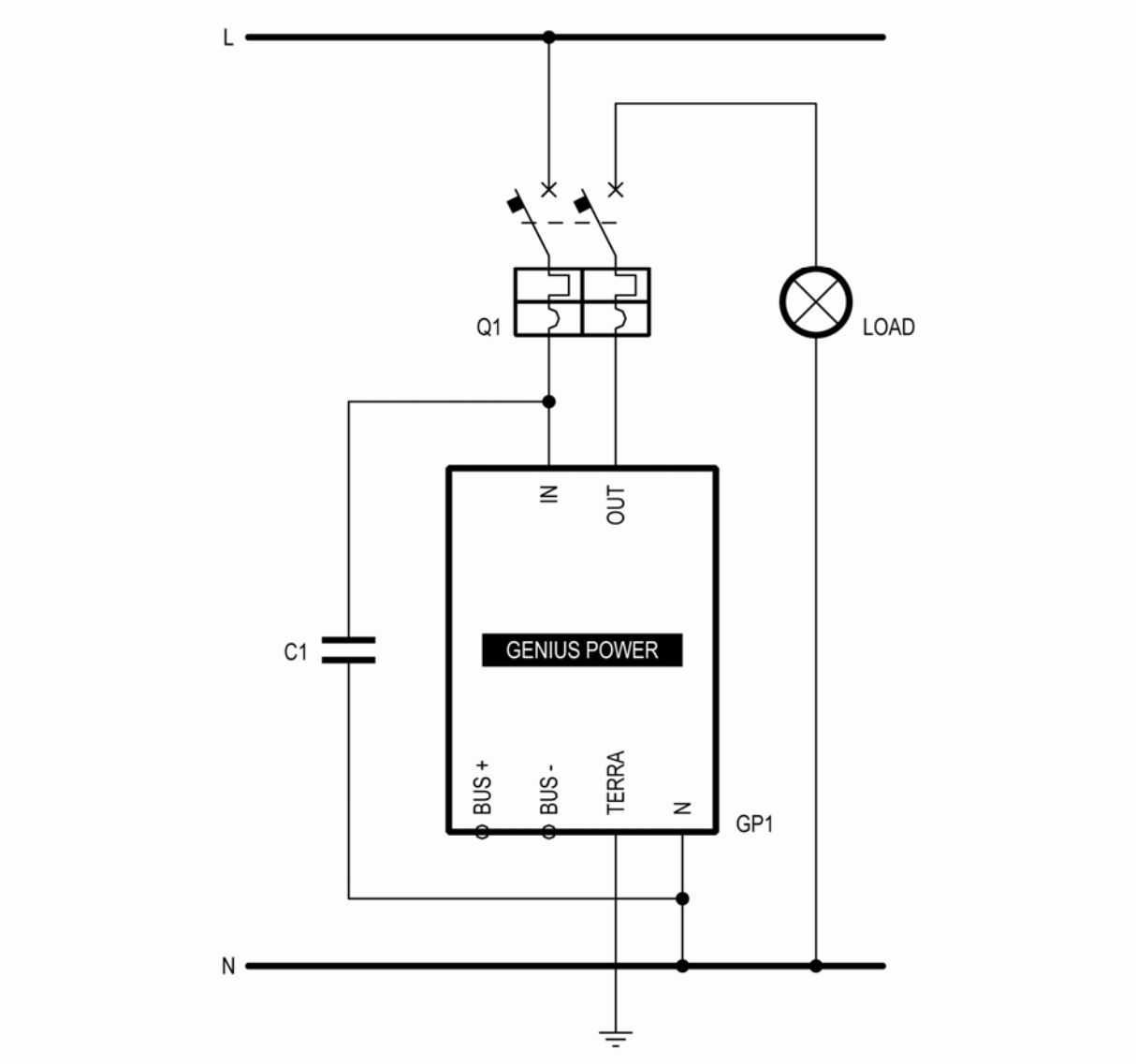
MECHANICAL DIMENSIONS



MOUNTING DETAILS

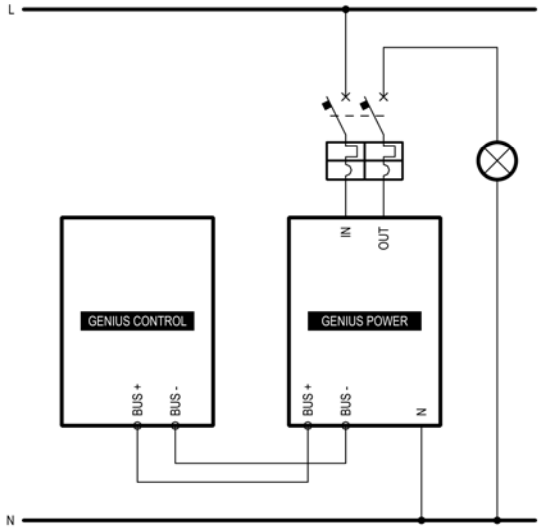


BASIC CONNECTION DIAGRAM



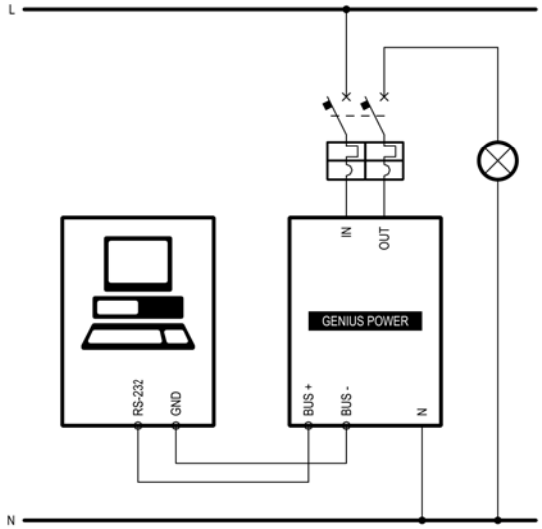
GP1 MODEL OF REGULATOR	**LOAD** MAX LOAD CURRENT	**Q1** THERMAL MAGNETIC CIRCUIT BREAKER	**C1** POWER FACTOR CORRECTION CAPACITOR
GENIUS POWER 2 BASE 15A	18A MAX	20A CURVA C	-
GENIUS POWER 2 BASE 25A	25A MAX	32A CURVA C	-
GENIUS POWER 2 BASE 35A	35A MAX	40A CURVA C	20µF 400VAC
GENIUS POWER 2 BASE 50A	50A MAX	50A CURVA C	40µF 400VAC

BASIC CONNECTION DIAGRAM



DRAWING 1

Connection of the GENIUS POWER 2 BASE with the controls of the GENIUS CONTROL range



DRAWING 2

Control of the GENIUS POWER 2 BASE with RS232 signal originated by a PC

DATA PACKAGE FORMAT (WITHOUT ADDRESS)

SPEED : **2400 baud**
BIT : **8**
PARITY : **NONE**
STOP BITS : **1**

SYNC 55h	**DATA**	**CHK**

SYNC	**DATA**	**CHK**
Fixed value 55h Shows the start of the package.	Directly indicates the voltage in Vrms to be implemented to the gate. Value 0 indicates that it is off.	Indicated the package validity. It is calculated carrying out XOR operation on the BTh fixed value and on package data. CHK=BTh XOR SYNC XOR DATA

DATA PACKAGE FORMAT (WITH ADDRESS)

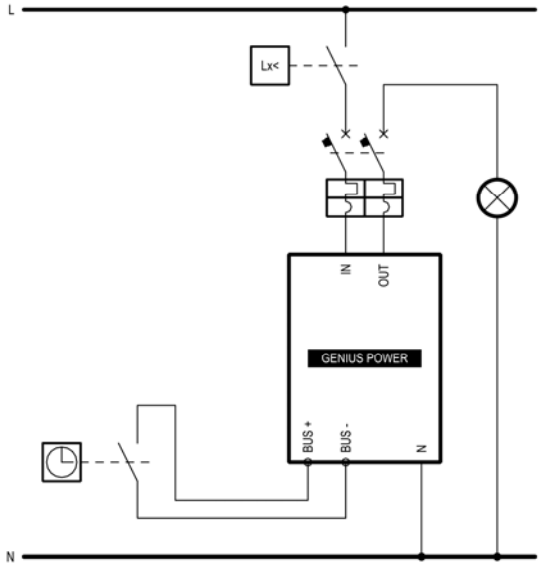
SPEED : **2400 baud**
BIT : **8**
PARITY : **NONE**
STOP BITS : **1**

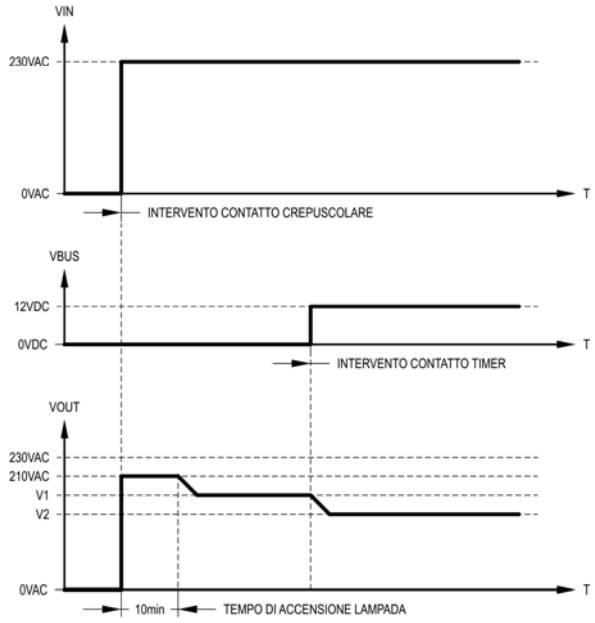
SYNC 56h	**DATA**	**CHK**

SYNC	**ADDR**	**DATA**	**CHK**
Fixed value 56h Shows the start of the package.	Device address. Value from 0 to 15.	Directly indicates voltage value in Vrms to be applied to the gate. Value 0 indicates that it is off.	Indicates the package validity. It is calculated carrying out XOR operation on the BEh fixed value and on package data. CHK=BEh XOR SYNC XOR DATA

Time span between one character and the following one should not exceed 100ms, otherwise the package is rejected.Time span between a valid package and the following one should not exceed 3s, otherwise the regulator detects the lack of serial communication and starts autonomous mode.

STAND ALONE FUNCTIONING AND DIPSWITCH SETTING





DRAWING 5

Typical situation of the GENIUS POWER 2 BASE in independent mode in the road application

DRAWING 6

VOUT variation in time related to the intervention of the external devices

When the crepuscular sensor closes the power contact, the GENIUS POWER DIP starts the lighting cycle of the lamp that keeps the output tension at 210V for 10 minutes (adjustable). Afterwards the output tension turns to the level selected on the DIP SWITCH V1. When the timer closes the contact putting in short circuit the ± VBUS, the output tension is brought to the level selected by the DIP SWITCH V2. On the contrary of the GENIUS POWER DIP, the VBUS is self-powered and does not require any external power.

DIP-SW V1

The value of output voltage in autonomous mode when serial communication is absent with open gate. Data package with address is accepted only if V1 is in position 0 or 1, thus V2 acts as device address and the output value in autonomous mode is the same in case of both open and closed gate. If the autonomous mode starts when the gate is closed and value V1 is different from 0 or 1, the regulator runs a pre-heating cycle at 210V for 10 minutes. In autonomous mode output voltage variation is equal to 12s/V (5V/min)

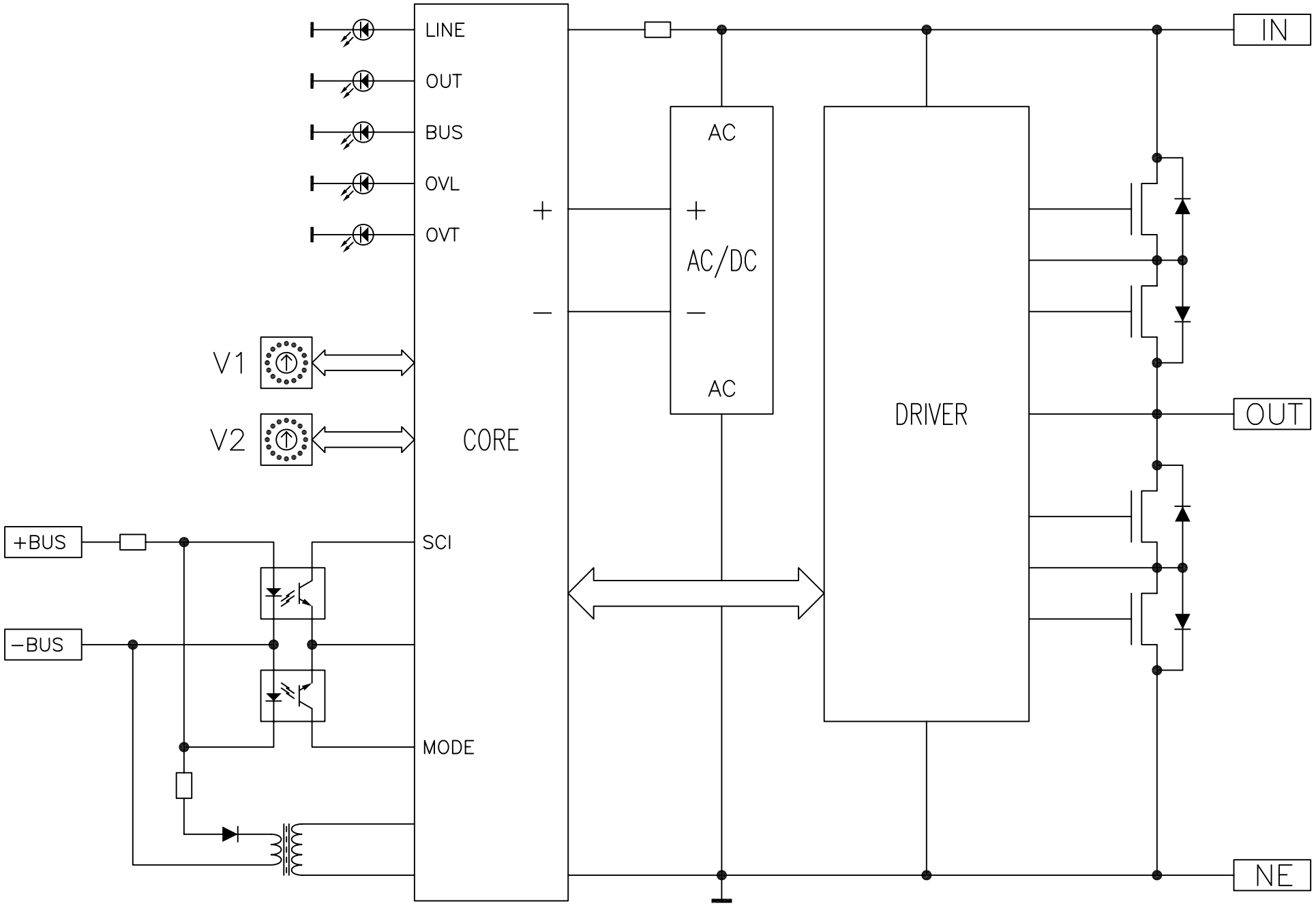
DIP	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	**D**	**E**	**F**
V2	*0	*210	165	170	175	180	185	190	195	200	205	210	215	220	225	230

***0** MODE CAN BE SET WITH ADDRESS FROM V2. OUTPUT VOLTAGE FROM 0V WITHOUT SIGNAL
***210** MODE CAN BE SET WITH ADDRESS FROM V2. OUTPUT VOLTAGE FROM 210V WITHOUT SIGNAL

DIP-SW V2

Value of the output voltage in autonomous mode when serial communication is absent and gate is closed. Device address with V1 in position 0 or 1.

DIP	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	**D**	**E**	**F**
V2	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230



GENIUS POWER 2 *Schematic block diagram*