



Power Cube[®] System

Precision Induction Heating Generator & Controller



- ▶ POWER CUBE SYSTEM 400 series
- ▶ POWER CUBE SYSTEM 900 series

- HIGH POWER OUTPUT / HIGH EFFICIENCY
- VERY COMPACT DESIGN
- CONTINUOUS SINGLE OUTPUT or ALTERNATE DOUBLE OUTPUT
- AUTOMATIC TUNING
- FRIENDLY USER INTERFACE
- EMBEDDED TEMPERATURE CONTROL with 3 control modes
- MANAGEMENT of TWO OPTICAL PYROMETERS for heating temperature control
- FIELD BUS INTERFACE
- WIDE RANGE OF ANALOG-DIGITAL I/O SIGNALS
- INTERNAL MEMORY to store up to 50 working recipes
- STABLE and ACCURATE OUTPUT POWER even with variable load conditions
- HIGH SAFETY: output isolated from the mains. An emergency input is available to disconnect power unit through relay. Power relay contact status can be monitored externally
- BUILT-IN SELF-DIAGNOSIS
- Supplied with CALIBRATION CERTIFICATE



www.ceia.net



Microcomputer controlled advanced solid-state Generator

Power Cube System is a high power, high frequency, induction **900** and **400 series Generator** in a very compact size with an **integrated Controller** and a **graphic TFT display for programming**.

Power Cube System provides all the features of the Power Cube 900 and 400 generators along with embedded thermal cycle control, pyrometric temperature measurement and sophisticated interfaces with external logic controllers.

Fully integrated Heating System



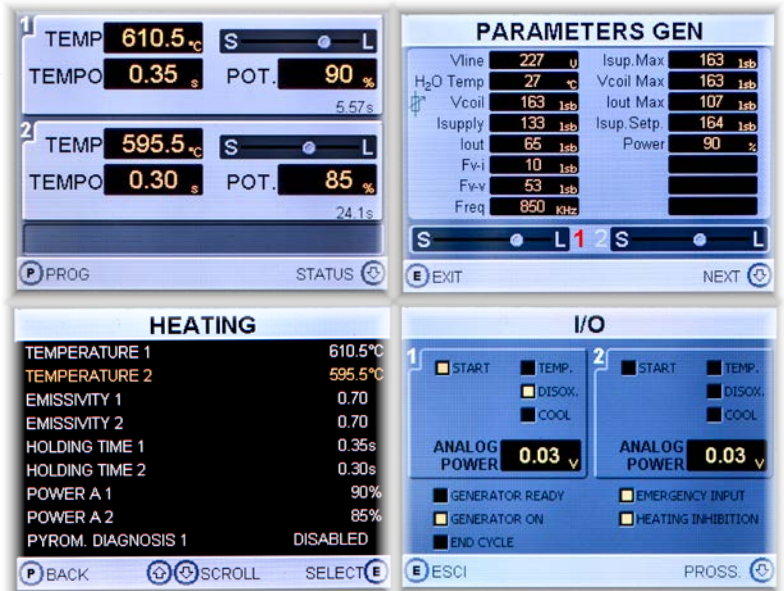
- 1 Precision programmable GENERATOR, controlled by microcomputer
- 2 One or two miniaturized HEATING HEADS, applicable on special adjustable supports
- 3 One or two ANTIOXIDANT GAS DIFFUSERS
- 4 One or two SLE OPTICAL PYROMETERS
- 5 FIELDBUS interface
- 3 One or two COOLING GAS DIFFUSERS

Main specifications	System 400/32	System 400/45	System 900/32	System 900/45
POWER SUPPLY	Supply voltage 180 ÷ 260 Vac, 1ph - 50/60 Hz			
	Maximum absorbed power 2.8 kW	3.5 kW	2.8 kW	3.5 kW
DIMENSIONS	Generator (W x D x H) 275 mm x 265 mm x 140 mm			
	Heating head HH10 (W x D x H) 62.5 mm x 123 mm x 95 mm - cable length from 1.5 to 6 m			
	Heating head HH15 (W x D x H) 52 x mm 75.5 mm x 77 mm - cable length from 1.5 to 6 m			
WEIGHT	Generator 10 kg			
	Heating head HH10: 1.6 kg / HH15: 1.3 kg			
OPERATING CONDITIONS	Working temperature +5° ÷ +55°C			
	Storage temperature -25° ÷ +70°C			
	Relative humidity 20-95% (without condensation)			
FREQUENCY RANGE	325 kHz... 625 kHz		700 kHz... 1150 kHz	
CONFORMITY	Complies with applicable international standards for Electrical Safety and Electromagnetic Compatibility [EMC]			

The functions managed by the Generator include the temperature reading by means of CEIA optical pyrometers of the SLE series, the related power regulation and the activation (by means of relays) of antioxidant/cooling gas diffusers. A wide 3.5" high-resolution colour display allows the operator to access all programming function parameters quickly.

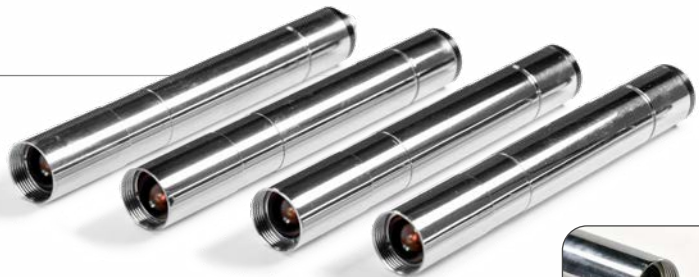
Integrated advanced Controller

- Digital and analog control of the power
- 3 programmable control modes
- Piece temperature managed by one or two optical infrared sensors
- Extremely fast closed-loop control algorithm (0.5ms feedback control time) for the most accurate power and temperature regulation
- Constant and repeatable power generation via microprocessor control
- Independent programming for each heating head
- Internal memory with 50 sets of working parameters



SH/SLE Compact Optical Pyrometers

- Adjustable emissivity from 0.1 to 1
- High accuracy & high measurement speed
- Very compact design with stainless steel case
- Available with different focus distance and aiming spot size
- LED aiming light
- Supplied with Calibration Report traceable to Certified International Standards



Additional close-up lens

SH15/SLE specifications

	D1	D2	D3	D4
TEMPERATURE RANGE	80... 700°C (minimum 100°C with emissivity <0.5)	120... 900°C	200... 1600°C	500... 2000°C
TEMPERATURE RESOLUTION	0.1 °C		0.1 °C (up to 999.9 °C) 1 °C (above 1000 °C)	
SPOT RANGE [mm]*	0.5÷12.5	0.4 ÷4.5	0.4÷2	0.4÷2
EMISSIVITY RANGE	0.1-1.0			
RESPONSE TIME	100 uS Time Constant			
PROTECTION CLASS	IP54 (IP65 upon request)			
OPERATING TEMPERATURE	0 °C to + 65 °C			
CONFORMITY	Complies with applicable international standards for Electrical Safety and Electromagnetic Compatibility (EMC)			

* In function of close-up lens mounted.

Interface Functions

The **Field Bus and RS-232 interfaces** allow connection to a PLC or custom external logic for remote programming, activation and control of the output power, of the temperature, of the operational status of the generator and any working parameter.

Equipment Connection

OUTPUT [RELAYS]

Antioxidant gas diffuser #1/2	Generator ready
Workpiece at target temperature #1/2	Generator running
Gas diffuser #1/2	Emergency output
End of heating cycle	

FieldBus Interface

Pyrometer 2

Pyrometer 1

RS-232

INPUT

Analog Power Setting #1
Analog Power Setting #2
Heating Inhibition [Reset]
Activation #1
Activation #2
Emergency input

Water Cooling Circuit

Field Bus management (optional)



- Management and control of the heating process via Field Bus protocol:

- ▶ Profinet
- ▶ EtherCAT
- ▶ EtherNet / IP
- ▶ Profibus
- ▶ Modbus TCP



Model Configuration



BASE UNIT	code
INDUCTIVE HEATER AND CONTROLLER	SYSTEM 400/32
	SYSTEM 400/45
	SYSTEM 900/32
	SYSTEM 900/45
SYSTEM UPGRADE X00/32 IN SYSTEM X00/45	SYSTEM UP 32 - 45

FIELD BUS OPTION*		code
FIELD BUS INTERFACE	ETHERCAT	SYSTEM-ETHERCAT
	ETHERNET/IP	SYSTEM-ETHERNET/IP
	MODBUS	SYSTEM-MODBUS-1
	PROFIBUS	SYSTEM-PROFIBUS-1
	PROFINET	SYSTEM-PROFINET

HEATING HEADS		code
COMPACT HEATING HEAD HH10		
CABLE LENGTH	1.5 m	PWH-10-XX*-15/900
	3.0 m	PWH-10-XX*-30/900
	4.0 m	PWH-10-XX*-40/900
MINIATURIZED HEATING HEAD HH15 [SYSTEM 900 only]		
CABLE LENGTH	1.5 m	PWH-15-XX*-15/900
	3.0 m	PWH-15-XX*-30/900
	4.0 m	PWH-15-XX*-40/900

* XX: Head capacitance [please contact the Sales Office]

INDUCTOR HOLDER KIT		code
COMPLETE INDUCTOR HOLDER KIT [1 PIECE]		
TOTAL LENGTH	150 mm	32836
	100 mm	32837
	65 mm	32838

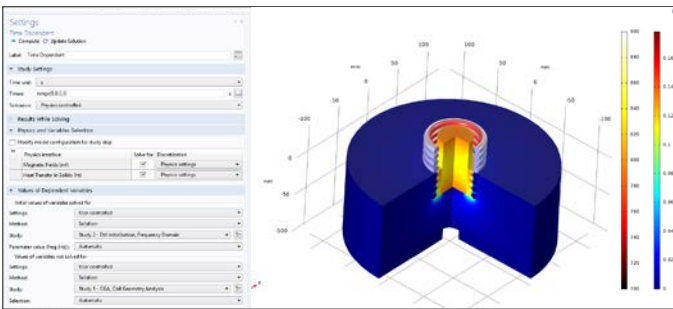
ACCESSORIES		code
SH/SLE COMPACT OPTICAL PYROMETERS TEMPERATURE RANGE	80... 700°C	SH15/SLE-550-D1
	120... 900°C	SH15/SLE-550-D2
	200... 1600°C	SH15/SLE-550-D3
	500... 2000°C	SH15/SLE-550-D4
OPTICAL PYROMETERS CONNECTION CABLE LENGTH	1.5 m	49438
	4 m	49439
	6 m	66685
CLOSE-UP LENS FOCAL DISTANCE	60 mm	CL60/SH15
	120 mm	CL120/SH15
	240 mm	CL240/SH15
LENS CLEANING ACCESSORIES	for SLE Optical Pyrometers	SLE-PURGE
COOLING JACKET	for SLE Optical Pyrometers [complete with lens cleaning accessories]	SLE-PURGE-COOL
90° MIRROR READING ACCESSORY	for SLE Optical Pyrometers	SLE-90D-BD
SH23 SUPPORTING BASE	for SLE Optical Pyrometers	21871
ACTIVATION PEDAL CABLE LENGTH	1,5 m	3457
	4 m	46059
ES35 MICROMETRIC SUPPORT	for Heating Heads	9252
ES35B BALANCING MICROMETRIC SUPPORT	for Heating Heads	79900
ES35P PNEUMATIC SUPPORT	for Heating Heads	30313
ES35PS PNEUMATIC SUPPORT	for Heating Heads complete with position sensors	31166
GAS DIFFUSERS [Includes gas diffusers, flow regulators, electric valves and adjustable supports]	Anti-Oxidizing gas diffusion system	SG100
	Cooling and Anti-oxidizing gas diffusion system	SG101
POWER SUPPLY KIT	for Gas Diffusers	106134



CEIA Headquarters (Italy)

The CEIA Difference

▶ Constant market share growth thanks to the recognized outstanding quality and reliability of the installed equipment



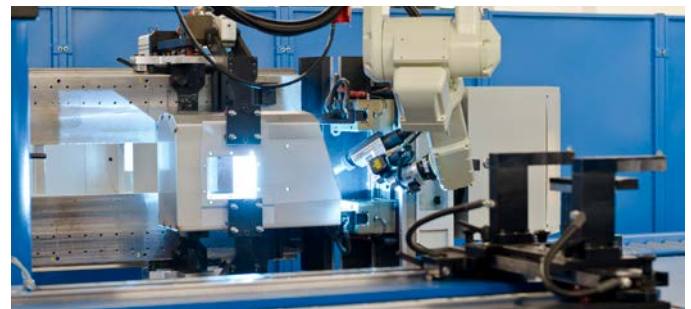
▶ Consolidated electromagnetic coil design and engineering capability



▶ ISO 17025 accreditation on Electromagnetic Testing



▶ Complete control and execution of the electronics manufacturing



▶ Highly automated and repeatable mechanical manufacturing processes



▶ Digital Factory Testing, accurate automated calibration and final individual certification of the delivered equipment



CEIA - Zona Ind.le 54, 52041 Vicinaggio - Arezzo (ITALY)

+39 0575-4181 • powercube@ceia-spa.com

www.ceia.net



CEIA reserves the right to make changes, at any moment and without notice, to the models (including programming), their accessories and options, to the prices and conditions of sale. DP040K0018u4001hUK - 110080 (2023)

