

Constant Current Regulator (SCR)



30kVA
up to



**SCR REGULATOR
LOW MAINTENANCE
DIGITAL TECHNOLOGY
ADAPTABLE TO THE LOAD**

The CCRs DIAM4100 are optimized static power supplies, controlled by SCR (Thyristors), designed to maintain a constant output current, independent of load or supply power fluctuations.

These devices are specially designed for supplying airport visual aids, in compliance with all international standards.

Equipped with great flexibility, they may be adapted to different types of load, LED signals, halogen signals, electronic converters or combined systems.

Compliance:

Aerodrome design manual, part 5 **ICAO**

AC150/5345-10H, L828-L829 **FAA**

61820-3-2 **IEC**

DIN/DNYM/PPT/002-05/13 **AENA**

ocem



GENERALITY - DIAM4100

The single-phase/two-phase constant current regulator units of the DIAM4100 series are optimized static power supplies, whose control is ensured by thyristors (SCR), capable of maintaining constant the output step current independently from the load fluctuations and the supply voltage.

The DIAM4100 power supplies can supply different nominal output power levels, from a minimum of 2,5 kVA to a maximum of 30 kVA, depending on the model. The frame, dimensioned to host all the equipment provided, is unique and does not vary in size and shape depending on the configuration.

CONSTRUCTION DETAIL

The DIAM4100 power supplies are characterized by an innovative electronic architecture. The system is built around electronic boards using a powerful DSP processor, associated with a CAN bus connecting sub-assembly and boards, allowing fast and efficient computing and processing capabilities.

A front panel USB socket allows connection to laptop computer used for setup. The operation is possible even when the device is powered off.

Remote control interface supports all network connections (with or without redundancy), and complies with all market standards. The power transformer is equipped with a series of taps that allow adapting the output power from the regulator unit to the real load, with consecutive reductions amounting to 1/8 of the nominal power.

The HMI user interface is composed by a polyester membrane keyboard equipped with buttons and a dot-matrix display screens to display messages, alarms and parameters.

The DIAM4100 power supplies can be remote controlled and monitored through electromechanical interface (multiwire): through contacts or with an auxiliary power supply (from 20 to 60 V_{DC} or 120 V_{AC}).



FEATURES

- Degree of mechanical protection: IP21
- Operational temperature: IEC/AENA -20° - +55°C (version FAA: -40° - +55° C [-40° - +131°F])
- Tropicalized components (cards and transformers)
- Supply: IEC 220 V - 240 V or 380 V - 415 V $\pm 10\%$, FAA 208 V - 277 V or 380 V - 480 V -5/+10%
- Frequency: 45 - 66 Hz
- Performance: >90% nominal
- Power factor: >90% nominal
- Surge protective device (3 levels)
- Open circuit protection
- Identification of capacitive loads
- Burnt lamps detection (compatible with each way of the integrated circuit selector)
- Time meters

- USB interface connection for configuration and maintenance through the software ALIZE (supplied)
- Swivel castors and lifting rings

OPTIONAL DEVICES

- Earth fault detector, two thresholds
- Electromechanical interface for power and control: IEC, FAA, AENA (rectangular connectors 2x16), circular connectors SORIAU
- Power and control bus (single or double): ModBus RS485, Ethernet, LonWorks
- 4 - 20 mA Current Loop remote control (to send output current, output power and insulation values).
- LV circuit breaker
- LV lightning arrester
- CUT-OUT output disconnecter
- Integrated circuit selector (from 2 to 6 ways)

example:

D41 -IEC5-4005-E65A-ICS2-DTxxxx

Reference standards¹:

IEC = IEC (61820-3-2) (IEC)

AEN = AENA (DIN/DNYM/PPT/002-05/13) (AEN)

FAA = FAA (AC150/5345-10H, L828&L829) (FAA)

(*) The highlighted options are not included in the FAA certifications, but may be included on request

Nb. of steps (brightness - from 1,5 to 6,6 A):

from 1 = 1 nb. of steps

to 8 = 8 nb. of steps

Supply voltage¹:

22 = 220 V_{AC} (IEC AEN FAA)

23 = 230 V_{AC} (IEC AEN FAA)

24 = 240 V_{AC} (IEC AEN FAA)

38 = 380 V_{AC} (IEC AEN FAA)

40 = 400 V_{AC} (IEC AEN FAA)

41 = 415 V_{AC} (IEC AEN FAA)

20 = 208 V_{AC} (FAA)

48 = 480 V_{AC} (FAA)

Nominal power:

02 = 2,5 kVA

05 = 5,0 kVA

07 = 7,5 kVA

10 = 10 kVA

15 = 15 kVA

20 = 20 kVA

25 = 25 kVA

30 = 30 kVA

Remote control (multiwire)¹:

0 = not present (IEC)

A(*) = Dry contacts FAA std (auxiliary internal supply V_{DC}) (FAA)

B(*) = Dry contacts FAA std (auxiliary external supply V_{DC}) (FAA)

E = Dry contacts IEC std (auxiliary internal supply V_{DC}) (IEC)

F = Dry contacts IEC std (auxiliary external supply V_{DC}) (IEC)

G(*) = Dry contacts FAA 120 V_{AC} (auxiliary internal supply) (FAA)

H = Dry contacts FAA 120 V_{AC} (auxiliary external supply) (FAA)

I = 32 Pins terminal (IEC AEN)

Communication network (default: 1):

1(*) = RS485 (x1)

2(*) = RS485 (x2)

3(*) = LonTalk (x1)

4(*) = Ethernet (x1)

5(*) = RS485 + Ethernet

6(*) = Ethernet (x2)

7(*) = RS485 + LonTalk

8(*) = LonTalk + Ethernet

Protection systems¹ (sum of the figures):

0 = None (IEC)

1 = Input discharger ILA (IEC FAA) - mandatory for FAA

2(*) = LV Circuit breaker CB (IEC AEN FAA)

4(*) = Earth fault detector EFD (IEC AEN FAA)

CUT-OUT output disconnecter¹:

0 = None (IEC FAA)

A(*) = Disconnector SIMALT1 (with jumper, 3 positions) (IEC FAA)

C(*) = Disconnector SEB (removable handle) (FAA)

D = Disconnector SCC (with handle, 3 positions) (IEC AEN)

E(*) = Disconnector SEB (removable handle) with position microswitch (FAA)

Options²:

FRD(*) = Front door (IEC AEN FAA) - mandatory for AENA

ICSx(*) = Selector ICS wit x output (max. 6 IEC Style|IEC AEN| (max. 2 FAA Style|FAA|)

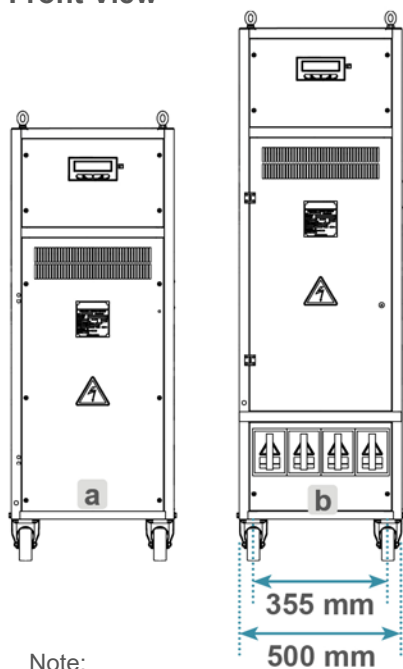
Particular equipments³:

DTxxxx = Specifications project identification code

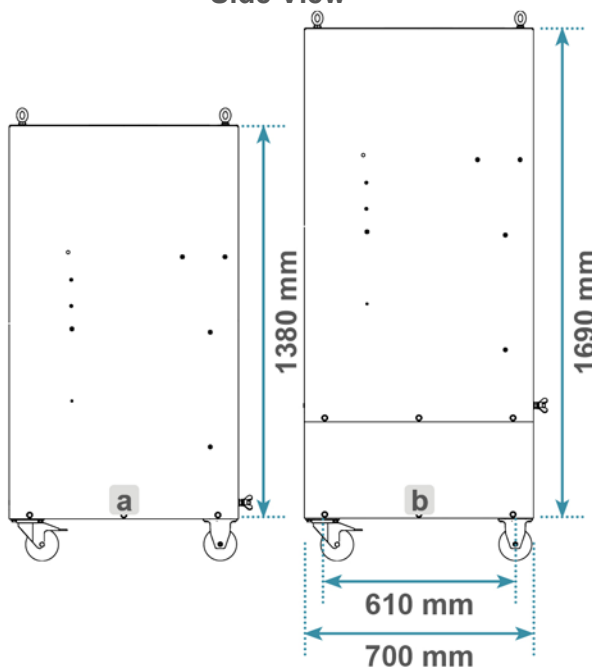
In the example **D41 -IEC5-4005-E65A-ICS2**: Regulator model DIAM4100, compliant IEC 61820-3-2, 5 steps. Supply voltage 400 V_{AC}, nominal power 5.0 kVA. Remote control multiwire through standard dry contacts (with auxiliary internal supply V_{DC}). Ethernet communication network (2 doors). Equipped with input dischargers (ILA) and earth fault detector (EFD). CUT-OUT disconnecter SIMALT1 type with 3 positions jumper. 2 ways integrated circuit selector.

Included options: Tropicalization of electronic cards and of magnetic components; Output dischargers; Hour counter; Burnt lamps detection; Swivel castors; Lifting rings.

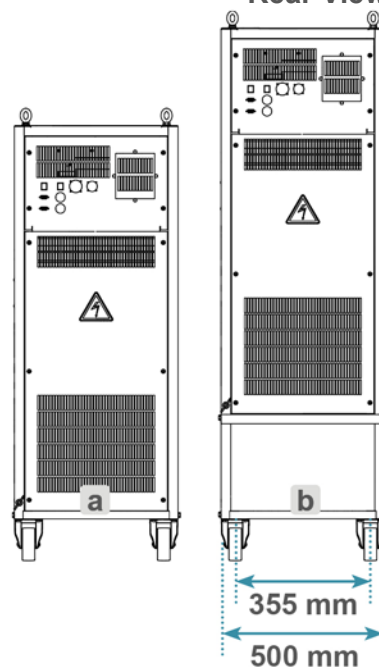
Front View



Side View



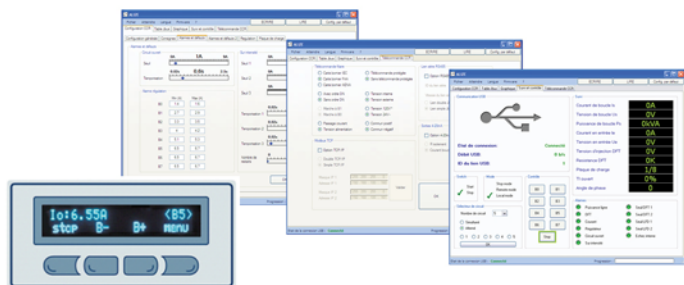
Rear View



Note:

- a** standard setting up
- b** setting up with 4 way integrated circuit selector CUT-OUT SEB (one for each way)

INTERFACE AND SOFTWARE ALIZE



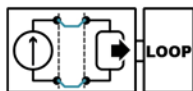
Note:

The user-friendly Windows-compatible diagnostic software allows viewing all parameters and waveforms from the CCR. It allows any modifications, software releases, complete operation tests, etc...

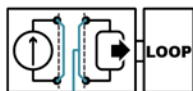


CUT-OUT DISCONNECTORS

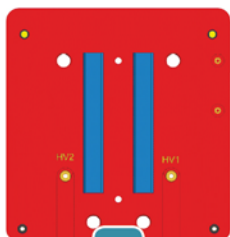
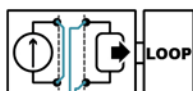
IN SERVICE



IN MAINTENANCE/SAFE CONDITION



ON MEASUREMENT



A
SIMALT1



C/E
SEB



D
SCC

The Manufacturer reserves the right to modify or update the technical parameters at any time without prior notice to Customer.

