



PRODUCT CATALOGUE

Compliant with Current OS Standards

dc.systems

Current  S



by Schneider Electric

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About DC Systems

DC Systems, headquartered in Netherlands, is a global company offering innovative smart systems on Direct Current (DC). We are the leader in innovations in the field of development of safety applications and controls for smart DC microgrids in public and commercial areas, and homes. In collaboration with our partners in the novel Current/OS foundation, we create systems that are the fundament of a sustainable energy transition.



In January 2021, DC Systems joined Schneider Electric, the global specialist for digital energy management and automation solutions with more than 137,000 employees in over 100 countries. The addition of DC Systems' expertise reinforces Schneider Electric's expertise to provide resilient and sustainable energy infrastructures for relevant applications such as building microgrids in unreliable public grid environments, or long-distance applications such as public lighting.

Our products are based on Current Open Standard system for Direct Current distribution known as [Current OS](#) protocol. The Current OS protocol sets guidelines for loads and sources such as voltage levels, protection, grounding, corrosion mitigation for DC microgrids.

Areas of Innovation

Our products work in parallel with the AC grid, serving in several applications.



PROTECTION

Protection devices against short circuit, RCD, overvoltage for DC electrical systems.



BATTERY INTEGRATION

Products that allow a safe coupling of battery systems from multiple vendors to a DC grid.



OFFICE BUILDINGS

Products that integrate a DC grid into an office environment.



HOMES

Products that integrate a DC grid into residential buildings.



COMPONENT INTEGRATION

Products that allow common off the shelf AC appliances a safe connection to a DC Grid.



PUBLIC LIGHTING

Products and devices that allow LED based lighting on public spaces such as streets, roads, and buildings.



PROTECTION

Current Router

The Current Router is the replacement of conventional mechanical breakers. With solid state protection, a current router can ensure fast fault clear and selectivity.

Features

- Bidirectional current limiting
- Short Circuit protection
- Earth fault protection
- Mechanical lockable separation switch
- Powerline communication
- Modbus on RS485
- DC Soft connection
- Internal power supply
- Backup fuse



Current Router 16A 700V

Logistical data

| Specification item | Value |
|----------------------------|--|
| Product name | CRN-700V-16A-1P-700V-OMO1PLC1R1RCD1SW6 |
| Minimal order quantity MOQ | 20 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------------|-------|------|----------------------|
| Nominal input voltage | 700 | V dc | |
| Maximal input voltage | 760 | V dc | |
| Minimal input voltage | 640 | V dc | |
| Nominal Current | 16 | A dc | |
| Overcurrent fast trip level | >32 | A dc | |
| Overcurrent shutdown time | <1 | µs | Direct short circuit |
| Overload capability | 32 | A | 1 second duration |
| | 17 | A | 16 seconds duration |
| Pre-charge current | 120 | mA | For 60ms |
| Earth leakage trip level | 30 | mA | |
| Earth leakage trip clear | 1 | mA | |
| Standby power consumption | 3,5 | W | Active, no current |
| Total losses | 15W | W | @15A 700V dc |

Electrical connections

| Specification item | Value | Unit | Condition |
|--------------------|----------------|-----------------|---------------------------|
| Incoming busbar | 12,15,20,25,30 | mm ² | |
| DC Outgoing cable | 1,5...4 | mm ² | 3 connections in parallel |
| Rs485 cable | 0.3-0.75 | mm ² | |

Mechanical data

| Specification item | Value | Unit | Condition |
|---------------------|-------|-------|-------------------|
| Height | 295 | mm | Separation Switch |
| Width | 63 | mm | |
| Depth | 156 | mm | |
| Weight | 1472 | grams | |
| IP rating enclosure | IP20 | | |

Environment conditionals

| Specification item | Value | Unit | Condition |
|------------------------------|---------|------|-------------------------|
| Max ambient temperature | 70 | °C | Standby |
| Max ambient temperature 100% | 40 | °C | Full power w/o derating |
| Min ambient temperature | -20 | °C | Standby |
| Ambient temperature (T-Life) | 35 | °C | |
| Storage temperature | 10...30 | °C | |
| Humidity operation | 95 | % | Non-condensing |
| Humidity storage | 80 | % | |

Current Router 16A 350V

Logistical data

| Specification item | Value |
|----------------------------|------------------------------------|
| Product name | CRN-350V-16A-1P-350V-OMO1PLC1R1SW6 |
| Minimal order quantity MOQ | 20 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------------|-------|------|----------------------|
| Nominal input voltage | 350 | V dc | |
| Maximal input voltage | 380 | V dc | |
| Minimal input voltage | 320 | V dc | |
| Nominal Current | 16 | A dc | |
| Overcurrent fast trip level | >32 | A dc | |
| Overcurrent shutdown time | <1 | µs | Direct short circuit |
| Overload capability | 32 | A | 1 second duration |
| | 17 | A | 16 seconds duration |
| Pre-charge current | 120 | mA | For 60ms |
| Earth leakage trip level | 30 | mA | |
| Earth leakage trip clear | 1 | mA | |
| Standby power consumption | 3,5 | W | Active, no current |
| Total losses | 9W | W | @15A 350V dc |

Electrical connections

| Specification item | Value | Unit | Condition |
|--------------------|----------------|-----------------|---------------------------|
| Incoming busbar | 12,15,20,25,30 | mm ² | |
| DC Outgoing cable | 1,5...4 | mm ² | 3 connections in parallel |
| Rs485 cable | 0.3-0.75 | mm ² | |

Mechanical data

| Specification item | Value | Unit | Condition |
|---------------------|-------|-------|-------------------|
| Height | 295 | mm | Separation Switch |
| Width | 63 | mm | |
| Depth | 156 | mm | |
| Weight | 1472 | grams | |
| IP rating enclosure | IP20 | | |

Environment conditionals

| Specification item | Value | Unit | Condition |
|------------------------------|---------|------|-------------------------|
| Max ambient temperature | 70 | °C | Standby |
| Max ambient temperature 100% | 40 | °C | Full power w/o derating |
| Min ambient temperature | -20 | °C | Standby |
| Ambient temperature (T-Life) | 35 | °C | |
| Storage temperature | 10...30 | °C | |
| Humidity operation | 95 | % | Noncondensing |
| Humidity storage | 80 | % | |



BATTERY INTEGRATION

DCM - BATTERY CHARGER

Our DCM Battery Charger, compatible with NiMH, Li-ion, Lead battery storage solution is suitable for applications such peak shaving, emergency system (UPS) and grid-congestion management. It ensures autonomous operation without the need for external control and protects against multiple type of fault such grid side Peak Current fault, overvoltage, battery overvoltage protection.

Features

- Galvanic isolation between DC input & output on standby
- Solid-state protection for shorts against the grid
- Droop control
- Bidirectional power flow
- Unipolar 350Vdc
- DC TCN Connection
- Efficiency > 98%
- Safety wire
- RS485 Modbus or USB-B for user configuration
- Current/OS compatible
- 100 % digital based on a DSP
- Firmware can be updated



350V Battery Charger

Logistics data

| Specification item | Value |
|--------------------|-------------------------------|
| Product name | DCM-300V-15A-1P-350V-OQ2R1SW1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|----------------------------|
| Nominal input voltage | 250 | Vdc | Battery Voltage |
| Min. input voltage | 180 | Vdc | Battery Voltage |
| Max. input voltage | 320 | Vdc | Battery Voltage |
| Max. input current | 15 | A | |
| Nominal power | 3.75 | kW | At Max. input current |
| Max. power | 4.8 | kW | At Max. input current |
| Emergency current | 7.5 | A | |
| Max. emergency power | 2.4 | kW | At emergency input current |
| Efficiency | >98.9 | % | At Max. output power |
| Isolation voltage | 3000 | Vdc | <1min |

Electrical output data

| Specification item | Value | Unit | Condition |
|------------------------|-------|------|-----------------------|
| Nominal output voltage | 350 | V dc | Line Voltage |
| Min. output voltage | 320 | V dc | Line Voltage |
| Max. output voltage | 400 | V dc | Line Voltage |
| Nominal output current | 10.83 | A | |
| Max. output current | 14.22 | A | |
| Nominal power | 3.79 | W | At full input current |
| Max. power | 4.55 | W | At full input current |
| Overcurrent protection | 28.5 | A dc | At full output power |

Safety Wire

| Specification item | Value | Unit |
|-----------------------------|-------|------|
| Min. operating voltage | 36 | V dc |
| Nominal operating voltage | 48 | V dc |
| Max. operating voltage | 60 | V dc |
| Nominal current consumption | 13 | mA |

Physical data

| Specification item | Value | Unit |
|--------------------|-------|------|
| Height | 350 | mm |
| Width | 75 | mm |
| Depth | 191 | mm |
| Weight | 4.2 | kg |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|---------------------|-------|------|---------------|
| Nominal temperature | 30 | °C | At full power |
| Min. temperature | -10 | °C | At full power |
| Max. temperature | +40 | °C | At full power |
| Nominal humidity | 70 | % | |
| Min. humidity | 20 | % | |
| Max. humidity | 92 | % | |

700V Battery Charger

Logistics data

| Specification item | Value |
|--------------------|-------------------------------|
| Product name | DCM-600V-15A-1P-350V-OQ2R1SW1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|----------------------------|
| Nominal input voltage | 500 | Vdc | Battery Voltage |
| Min. input voltage | 360 | Vdc | Battery Voltage |
| Max. input voltage | 640 | Vdc | Battery Voltage |
| Max. input current | 15 | A | |
| Nominal power | 7.5 | kW | At Max. input current |
| Max. power | 9.6 | kW | At Max. input current |
| Emergency current | 7.5 | A | |
| Max. emergency power | 4.8 | kW | At emergency input current |
| Efficiency | >98.9 | % | At Max. output power |
| Isolation voltage | 3000 | Vdc | <1min |

Electrical output data

| Specification item | Value | Unit | Condition |
|------------------------|-------|------|---------------------------|
| Nominal output voltage | 700 | V dc | Line Voltage |
| Min. output voltage | 640 | V dc | Line Voltage |
| Max. output voltage | 800 | V dc | Line Voltage |
| Nominal output current | 10.83 | A | |
| Max. output current | 14.22 | A | |
| Nominal power | 7.58 | W | At full input current |
| Max. power | 9.71 | W | At full input current |
| Max. emergency voltage | 640 | V | Emergency line voltage |
| Max. Emergency current | 9.6 | A | |
| Max. Emergency power | 4.86 | kW | At emergency line voltage |
| Overcurrent protection | 28.5 | A dc | At full output power |

Safety Wire

| Specification item | Value | Unit |
|-----------------------------|-------|------|
| Min. operating voltage | 36 | V dc |
| Nominal operating voltage | 48 | V dc |
| Max. operating voltage | 60 | V dc |
| Nominal current consumption | 13 | mA |

Physical data

| Specification item | Value | Unit |
|--------------------|-------|------|
| Height | 350 | mm |
| Width | 75 | mm |
| Depth | 191 | mm |
| Weight | 4.2 | kg |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|---------------------|-------|------|---------------|
| Nominal temperature | 30 | °C | At full power |
| Min. temperature | -10 | °C | At full power |
| Max. temperature | +40 | °C | At full power |
| Nominal humidity | 70 | % | |
| Min. humidity | 20 | % | |
| Max. humidity | 92 | % | |



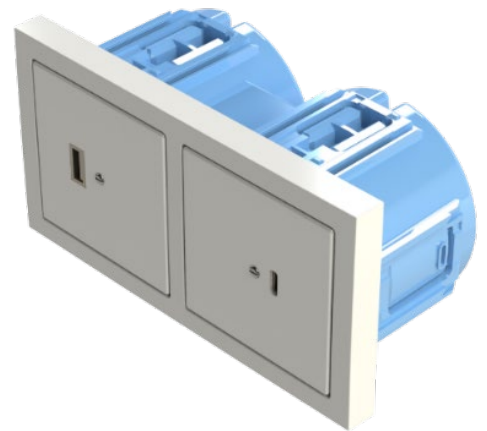
OFFICE BUILDINGS

USB-C/A 100W SOCKET

Suitable for home and office applications, our combined USB-C / USB-A socket is a unique solution of DC Systems BV. Current OS compatible, it is powered on 350V DC grid and combines electricity with communication thanks to Power Delivery (PD) Protocol.

Features

- Wall enclosure.
- Fully isolated from the DC grid.
- >91% efficiency.
- USB-C socket up to 20V 5A (100W).
- Full USB-PD power protocol. (5V, 9V, 15V, 20V)
- Fast output disconnect switch against short circuit.
- USB-A socket 5V 1.5A.
- 350V DC input voltage.
- Current/OS 350V compatible.
- Compatible with Current Routers as protection device.
- Internal power supply
- Standard wall mount socket format



USB-C/A 100W

Logistical data

| Specification item | Value |
|--------------------|--------------------------|
| Product reference | DCN-20V-5A-1P-350V-OUSB1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|-----------------|
| Nominal input voltage | 350 | V dc | |
| Maximal input voltage | 380 | V dc | Nominal working |
| Minimal input voltage | 320 | V dc | Nominal working |
| Maximal input current | 0.32 | A dc | |
| Max input power | 104 | W | @150W output |
| Efficiency | 91.5 | % | 100% output |
| Standby power | 0.5 | W | |

Electrical output data

| Specification item | Value | Unit |
|--------------------|-------|------|
| USB-C | | |
| Max output voltage | 20 | V dc |
| Max output current | 5 | A dc |
| Efficiency | > 91 | % |
| USB-A | | |
| Max output voltage | 5.5 | V dc |
| Max output current | 1.5 | A dc |
| Efficiency | 75 | % |

Electrical connections

| Specification item | Value | Unit |
|-----------------------------------|-------|-----------------|
| Incoming cable min. cross section | 1 | mm ² |
| Incoming cable max. cross section | 2.5 | mm ² |

Physical Data

| Specification item | Value | Unit |
|---------------------|-------|-------|
| Height | 175 | mm |
| Width | 80 | mm |
| Depth | 40 | mm |
| Weight | 200 | grams |
| IP rating enclosure | IP43 | |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|------------------------------|-----------|------|-------------------------|
| Max ambient temperature | 35 | °C | Standby |
| Max ambient temperature 100% | 35 | °C | Full power w/o derating |
| Min ambient temperature | -20 | °C | Standby |
| Case temperature (T-Life) | 75 | °C | |
| Maximal case temperature | 85 | °C | |
| Storage temperature | -10...+30 | °C | |
| Humidity operation | 90 | % | |
| Humidity storage | 80 | % | IEC 60068-2-78 |



OFFICE BUILDINGS

USB-C 3x100W CHARGER

Our 3 port USB-C charger, designed for office and home applications, is the compact solution to charge multiple devices such laptops, phones at 48V.

Features

- USB power delivery up to 100W per port.
- Fast data communication (1Gbps).
- Ethernet over USB-C connection
- Droop output power based on input voltage.
- Fast output disconnect switch against short circuit.
- Operation LED indicators.
- SELV System
- Mosaic format.



USB-C 3x100W

Logistics data

| Specification item | Value |
|--------------------|--------------------------------------|
| Product reference | DCN-20V-3x100W-1P-48V-OAUX2NET1USBC1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|--------------------|
| Nominal input voltage | 48 | Vdc | Nominal working |
| Max. input voltage | 54 | Vdc | Nominal working |
| Min. input voltage | 42 | Vdc | Nominal working |
| Nominal input power | 300 | W | @Full output power |
| Max input power | 300 | W | @Full output power |
| Efficiency | 97.3 | % | 100% output/port |
| Standby power | 0.12 | W | @ No output |

Electrical output data

| Specification item | Value | Unit | Condition |
|------------------------|-------|-------|--------------------|
| Min output voltage | 5 | V dc | |
| Nominal output voltage | 5 | V dc | |
| Max output voltage | 20 | V dc | |
| Nominal output current | 3 | A dc | @Total Load < 300W |
| Max output current | 5 | A dc | @Total Load < 300W |
| Ripple – Full Load | 150 | mV AC | |
| Ripple – No Load | 100 | mV AC | |
| Overcurrent Protection | 5.5 | A dc | |

Electrical connections

| Specification item | Value | Unit | Condition |
|------------------------|-----------|-----------------|------------|
| Output USB-C 1 | USB-C 3.2 | | USB-C port |
| Output USB-C 2 | USB-C 3.2 | | USB-C port |
| Output USB-C 3 | USB-C 3.2 | | USB-C port |
| Ethernet | RJ45 | | Fast Data |
| Power Cable Dimensions | 1.5 | mm ² | |

Physical Data

| Specification item | Value | Unit |
|--------------------|-------|-------|
| Height | 42.8 | mm |
| Width | 45 | mm |
| Depth | 90 | mm |
| Weight | 210 | grams |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|------------------------------|------------|------|-------------------------|
| Max ambient temperature | 45 | °C | Standby |
| Max ambient temperature 100% | 30 | °C | Full power w/o derating |
| Min ambient temperature | -10 | °C | Standby |
| Case temperature (T-Life) | | °C | |
| Maximal case temperature | | °C | |
| Storage temperature | -10 to +60 | °C | |
| Max Humidity | 92 | % | |
| Nominal Humidity | 70 | % | |
| Min Humidity | 20 | % | |



COMPONENT INTEGRATION

ACTIVE FRONT END [AFE]

Active Front End (AFE) bidirectional AC/DC converter for DC microgrids applications. It combines electrical power with grid interactive system for load-supply balancing. A unique solution of DC Systems based on Current OS protocol, which makes it the first innovation in the field of DC applications. By adding the communication to the system, the behaviour of each device can be individually controlled and regulated, from the Current OS system.

Features

- Isolated DC output for 350V or 700V Systems
- Bidirectional power flow
- Suitable for PV applications and DC loads
- 700V or 350V grids with COS compatibility
- Current OS Protocol compliant
- Ease of maintenance
- Communication ports
 - RS485 MODBUS AC Side for AC parameters and grid operator functionality.
 - RS485 MODBUS DC Side for DC parameters and Current/OS functionality
- Can be combined with:
 - FG-SPO-xxx PV solar micro converters for 350V systems
 - AMPT PV string optimizer for 700V systems
 - Solid-state Current Routers
 - Hybrid Current Routers
 - DC/DC Battery converters



AFE 350V-50kW

Logistics Data

| Specification item | Value |
|--------------------|-------------------------------------|
| Product Reference | AFEF-350V-50kW-3-400V-IAC2EIWISA1R1 |

Absolute limit values

| Specification item | Value | Unit | Condition |
|--------------------|-------|------|--|
| Input voltage | 440 | V ac | 3 phase Line to Line 4 Cond. No Neutral |
| DC voltage | 380 | V dc | Droop Curve |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|-----------------|
| Nominal input voltage | 400 | V ac | Between phases |
| Maximal input voltage | 440 | V ac | Nominal working |
| Min. input voltage | 360 | V ac | Nominal working |
| Max. input current | 180 | A ac | RMS |
| Efficiency | >93 | % | 100% output |

Electrical output data

| Specification item | Value | Unit | Condition |
|------------------------|-------|------|--------------|
| Nominal output voltage | 350 | V dc | No Load |
| Nominal output current | 157 | A dc | Droop Curves |
| Max output voltage | 380 | V dc | Droop Curves |
| Min output voltage | 320 | V dc | Droop Curves |

Electrical connections

| Specification item | Value | Unit | Condition |
|--|-------|-----------------|--------------------|
| Incoming cable minimum cross section. | 35 | mm ² | 4 Cond. No neutral |
| Recommended DC output connection cross sectional area. | 70 | mm ² | Individual cable |

Cooling

| Specification item | Value | Unit | Condition |
|--------------------|-------|-------------------|--|
| Volumetric Flow | 650 | m ³ /h | The Converter is active cooled by a long-life low-noise centrifugal fan with ball bearings. The design is optimized for efficient cooling. |

Physical data

| Specification item | Value | Unit |
|---------------------|-------|------|
| Height | 2000 | mm |
| Width | 650 | mm |
| Depth | 600 | mm |
| Weight | 750 | Kg |
| IP rating enclosure | IP2XD | |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|------------------------------|-----------|------|-------------------------|
| Max ambient temperature | 50 | °C | @50kW |
| Max ambient temperature 100% | 35 | °C | Full power w/o derating |
| Min ambient temperature | -5 | °C | Standby |
| Case temperature (T-Life) | 35 | °C | |
| Maximal case temperature | 60 | °C | |
| Storage temperature | -10 to 60 | °C | |
| Humidity operation | 90 | % | Non-condensing |
| Humidity storage | 80 | % | |

AFE 700V-100kW

Logistics data

| Specification item | Value |
|--------------------|--------------------------------------|
| Product reference | AFEF-700V-100kW-3-400V-IAC2EIWISA1R1 |

Absolute limit values

| Specification item | Value | Unit | Condition |
|--------------------|-------|------|--|
| Input voltage | 440 | V ac | 3 phase Line to Line 4 Cond. No Neutral |
| DC voltage | 780 | V dc | Droop Curve |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|-----------------|
| Nominal input voltage | 400 | V ac | Between phases |
| Max. input voltage | 440 | V ac | Nominal working |
| Min. input voltage | 360 | V ac | Nominal working |
| Max. input current | 180 | A ac | RMS |
| Efficiency | >96 | % | 100% output |

Electrical output data

| Specification item | Value | Unit | Condition |
|------------------------|-------|------|--------------|
| Nominal output voltage | 700 | V dc | No Load |
| Nominal output current | 157 | A dc | Droop Curves |
| Max output voltage | 760 | V dc | Droop Curves |
| Min output voltage | 640 | V dc | Droop Curves |

Electrical connections

| Specification item | Value | Unit | Condition |
|--|-------|-----------------|--------------------|
| Incoming cable minimum cross section. | 35 | mm ² | 4 Cond. No neutral |
| Recommended DC output connection cross sectional area. | 70 | mm ² | Individual cable |

Cooling

| Specification item | Value | Unit | Condition |
|--------------------|-------|-------------------|--|
| Volumetric Flow | 650 | m ³ /h | The Converter is active cooled by a long-life low-noise centrifugal fan with ball bearings. The design is optimized for efficient cooling. |

Physical Data

| Specification item | Value | Unit |
|---------------------|-------|------|
| Height | 2000 | mm |
| Width | 650 | mm |
| Depth | 600 | mm |
| Weight | 750 | Kg |
| IP rating enclosure | IP2XD | |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|------------------------------|-----------|------|-------------------------|
| Max ambient temperature | 50 | °C | @50kW |
| Max ambient temperature 100% | 35 | °C | Full power w/o derating |
| Min ambient temperature | -5 | °C | Standby |
| Case temperature (T-Life) | 35 | °C | |
| Maximal case temperature | 60 | °C | |
| Storage temperature | -10 to 60 | °C | |
| Humidity operation | 90 | % | Non-condensing |
| Humidity storage | 80 | % | |



COMPONENT INTEGRATION

Pre-charger Module

This device is designed for integration in a complete DC system and can only be used behind a Current Router, for:

- Pre-charging an AC/DC converter for LED lighting
- Pre-charging a frequency converter

Features

This device contains the following types of protection for use in the DC Grid:

- Average overcurrent protection
- Short Circuit protected in the pre-charge phase of the grid
- Over-temperature Protection
- Extra output contacts to enable load



CAUTION: It is difficult to predict the overall capacitance of a system due to the various system topologies and distribution arrangements. As a result, pre-charged converters may not always work with this device. In this case, please contact us to discuss your options.

350V Pre-Charger

Logistics data

| Specification item | Value |
|--------------------|--------------------------|
| Product reference | IRN-350V-6A-1P-350V-OCC1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|-----------------|
| Nominal input voltage | 350 | V dc | Between phases |
| Max input voltage | 400 | V dc | Nominal working |
| Min input voltage | 320 | V dc | Nominal working |
| Max input current | 6 | A dc | |

Electrical output data

| Specification item | Value | Unit | Condition |
|------------------------|-------|------|-----------|
| Nominal output voltage | 350 | V dc | No Load |
| Max output voltage | 400 | V dc | |
| Min output voltage | 320 | V dc | |
| Max output current | 6 | A dc | |

Electrical connections

| Specification item | Value | Unit | Condition |
|-----------------------------|----------|-----------------|-------------------|
| Incoming wire cross section | 1 to 2.5 | mm ² | Stranded or solid |

Physical Data

| Specification item | Value | Unit |
|---------------------|-------|------|
| Height | 42.10 | mm |
| Width | 119.2 | mm |
| Depth | 100 | mm |
| Weight | 250 | g |
| IP rating enclosure | IP2XD | * |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|---------------------|------------|------|-----------|
| Storage temperature | -10 to +60 | °C | |

700V Pre-Charger

Logistics data

| Specification item | Value |
|--------------------|--------------------------|
| Product reference | IRN-700V-6A-1P-700V-OCC1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|-----------------|
| Nominal input voltage | 700 | V dc | Between + and - |
| Max input voltage | 760 | V dc | Nominal working |
| Min input voltage | 640 | V dc | Nominal working |
| Max input current | 6 | A ac | |

Electrical output data

| Specification item | Value | Unit |
|------------------------|-------|------|
| Nominal output voltage | 700 | V dc |
| Max output current | 6 | A dc |
| Max output voltage | 760 | V dc |
| Min output voltage | 640 | V dc |

Electrical connections

| Specification item | Value | Unit | Condition |
|-----------------------------|----------|-----------------|-------------------|
| Incoming wire cross section | 1 to 2.5 | mm ² | Stranded or solid |

Physical Characteristics

| Specification item | Value | Unit |
|---------------------|-------|------|
| Height | 42.10 | mm |
| Width | 119.2 | mm |
| Depth | 100 | mm |
| Weight | 250 | g |
| IP rating enclosure | IP2XD | * |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|---------------------|------------|------|-----------|
| Storage temperature | -10 to +60 | °C | |



COMPONENT INTEGRATION

DCN - DC/DC Converter 700/350V

The DCN is a DC-DC converter naturally cooled that is used to distribute power to devices working under 700V or 350V while also providing solid state protection.

Features

- Natural Cooling (no fan)
- Output solid-state protection
- Galvanic isolation between DC input & output
- Bipolar or Single +/-350Vdc
- DC TCN Connection
- RCD functionality <0.1sec @1..50mA fault current
- Efficiency > 95%
- Control by Power Line Communication (PLC) protocol
- Usage for Mesh, Star, or point-to-point PLC network topology
- RS485 Modbus or USB-B for user configuration
- Current/OS compatible
- Long lines application up to 3.5km cable length
- 100 % digital based on a DSP



DCN

Logistics data

| Specification item | Value |
|--------------------|-------------------------------------|
| Product reference | DCN-350V-1kW-1P-700V-LCR1PLC1R1RCD1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|---------------------------------|
| Nominal input voltage | 700 | V dc | |
| Max input voltage | 760 | V dc | Normal working |
| Min input voltage | 600 | V dc | Normal working |
| Max input power | 1045 | W | @1000W output |
| Input current | 1.5 | A dc | @1000W output, 700V input |
| Efficiency | >96 | % | 100% output |
| Standby power | <8 | W | Power Line Communication active |

Electrical output data

| Specification item | Value | Unit | Condition |
|--|--------|------|------------------------------------|
| Nominal output voltage | 350 | V dc | Droop not active |
| Max output current | 3 | A dc | |
| Overload current | 3.1 | A dc | 60 sec |
| | 3.3 | A dc | 15 sec |
| Short circuit current at the terminals | 15 | A dc | Excluding pulse system capacitance |
| Turn off delay short circuit | <1 | µs | |
| Residual current detection RCD | 1...50 | mA | Configuration 1..100ms |

Physical data

| Specification item | Value | Unit | Condition |
|--------------------|-------|------|----------------------|
| Height | 300 | mm | Excluding connectors |
| Width | 75 | mm | |
| Depth | 191 | mm | |
| Weight | 2275 | gr | Excluding connectors |
| IP rating | IP20 | | |

Electrical connections

| Specification item | Value | Unit | Condition |
|----------------------------------|-------|-----------------|---------------------------|
| Incoming cable minimal | 0.75 | mm ² | Solid/stranded w. ferrule |
| Incoming cable maximal | 4 | mm ² | Solid/stranded w. ferrule |
| Luminaire outgoing cable minimal | 1 | mm ² | Solid/stranded w. ferrule |
| Luminaire outgoing cable maximal | 4 | mm ² | Solid/stranded w. ferrule |
| Communication / IO cable minimal | 0.25 | mm ² | Stranded w. ferrule |
| Communication / IO cable maximal | 1.5 | mm ² | Stranded w. ferrule |

Surge protection DC input

| Specification item | Value | Unit | Condition |
|--------------------------------------|-------|------|-----------|
| Peak Current Rating per 8/20 μ s | 3 | kA | 25 °C |
| Clamp voltage | 1040 | V | @10kA |

Note: DC output must be protected externally

Environmental conditions

| Specification item | Value | Unit | Condition |
|------------------------------|---------|------|--|
| Max ambient temperature | 70 | °C | Standby |
| Max ambient temperature 100% | 50 | °C | Full power w/o derating, depending on position and airflow |
| Min ambient temperature | -20 | °C | Standby |
| Ambient temperature (T-Life) | 40 | °C | |
| Maximal case temperature | 70 | °C | |
| Storage temperature | 10...30 | °C | |
| Humidity operation | 95 | % | Non-condensing |
| Humidity storage | 80 | % | IEC 60068-2-78 |
| Operating altitude | <2000 | m | |



PUBLIC LIGHTING

AM1L – AC/DC POWER SUPPLY

We developed AM1L AC/DC power supply with solid-state protection for DC public lighting applications. It provides up to 91% system efficiency including cable losses and communication, with lines up to 3.5km. Measured from AC to LED. It can also be used for Smart Grids based on DC² ±350Vdc application.

Features

- Full DC protection
- Natural cooling (no fans)
- Soft inrush on the AC grid Type B 6A breaker can be used
- DC galvanic separation from the AC grid
- DC TCN connection
- Digital I/O: 2x User input and 2x User output
- No breaking current
- Fully DC RCD functionality <0.1sec @1...50mA fault current
- Full control by Power Line Communication
- PLC CENELEC A Band G3
- PLC Mesh, star, or point-to-point network topology
- Electrical Mesh, star, or point-to-point
- Superior AC/DC efficiency >95% including housekeeping, management, communication, and Power Line communication.
- Bipolar ±350Vdc or single 350Vdc grids
- RS485 MODBUS for user configuration or by USB-B
- Current/OS server v1.0
- 100% digital based on a DSP
- Firmware can be updated
- Long lines up to 3.5km cable length



AM1L

Logistic data

| Specification item | Value |
|--------------------|----------------------------------|
| Product reference | AM1LN-350V-1kW-2-400V-LCR1PLC1R1 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|---|
| Nominal input voltage | 400 | V ac | |
| Max. input voltage | 440 | V ac | Nominal working |
| Min. input voltage | 380 | V ac | Nominal working |
| | 230 | | 50% output |
| Max input power | 1045 | W | @1000W output |
| Max input current | 2.5 | A | @1000W output |
| Efficiency | >95 | % | 100% output |
| Standby power | 8 | W | Power Line Communication (PLC) Active |
| Power Factor | >0.98 | | |

Electrical output data

| Specification item | Value | Unit | Condition |
|--|--------|------|--|
| Nominal output voltage | 350 | V dc | |
| Max output voltage | 380 | V dc | |
| Min output voltage | 320 | V dc | |
| Max output current | 3 | A dc | |
| Overload current | 3.1 | A dc | 60sec |
| | 3.3 | A dc | 15sec |
| Short circuit current at output | 15 | A dc | Excluding pulse system capacitance |
| Turn-off delay short circuit | <1 | us | Electronic delay for short- circuit detection and short clear. |
| Fault leakage current detection RCD | 1...50 | mA | Configuration 1...100ms |

Electrical connections

| Specification item | Value | Unit |
|-----------------------------------|-------|-----------------|
| Incoming cable min. cross section | 0.75 | mm ² |
| Incoming cable max. cross section | 4 | mm ² |
| Outgoing cable min. cross section | 1 | mm ² |
| Outgoing cable max. cross section | 4 | mm ² |

Surge protection AC

| Specification item | Value | Unit | Condition |
|--------------------------------|-------|------|-----------|
| Peak current Rating per 8/20us | 6 | kA | 25 °C |
| Absolute clamp voltage | 1240 | V | @50A |

Note: DC output must be protected externally

Physical data

| Specification item | Value | Unit |
|--------------------|-------|-------|
| Height | 300 | mm |
| Width | 75 | mm |
| Depth | 191 | mm |
| Weight | 2000 | grams |
| IP rating | IP20 | |

Environmental Conditions

| Specification item | Value | Unit | Condition |
|------------------------------|---------|------|--|
| Max ambient temperature | 70 | °C | Standby |
| Max ambient temperature 100% | 50 | °C | Full power w/o derating, depending on position and airflow |
| Min ambient temperature | -20 | °C | Standby |
| Ambient temperature (T-Life) | 40 | °C | |
| Maximal case temperature | 70 | °C | |
| Storage temperature | 10...30 | °C | |
| Humidity operation | 95 | % | Non-condensing |
| Humidity storage | 80 | % | |



PUBLIC LIGHTING

LED Driver

This device is intended for DC Public lighting. LED Drivers are combined with AM1L. LED Drivers can also be integrated and directly connected to DC grid with Current Router- DC Protection device.

Features

- Full control by Power line communication
- Setting parameters by IRDA communication
- PLC Mesh, star, or point-to-point network topology
- Electrical Mesh, star, or point-to-point
- Peak efficiency >90%
- Bipolar $\pm 350\text{Vdc}$ or single 350Vdc grids
- LED panel ELVDC <60V / <120V
- Monitoring
- Solid filled epoxy enclosure
- 10...100% dimming range
- No inrush current
- 3kA Lighting protection
- Current/OS client v1.0
- 100% digital based on a DSP
- Firmware can be updated
- Source must have a Zone 4 protection
- Communication 1.3km with direct communication



LED Driver 60V/60W

Logistical data

| Specification item | Value |
|----------------------------|---------------------------|
| Product name | LDC-60V-60W-1P-350V-LOVP1 |
| Minimal order quantity MOQ | 20 |
| Pieces per box | 20 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|--------------------|
| Nominal input voltage | 350 | V dc | |
| Maximal input voltage | 380 | V dc | Nominal working |
| Minimal input voltage | 320 | V dc | Nominal working |
| Max input power | 60 | W | @1.2A / 50V output |
| Efficiency | >90 | % | 100% output |
| Standby power | <2.5 | W | PLC Active |

Electrical output data

| Specification item | Value | Unit | Condition |
|--------------------|-------|------|---|
| Max output voltage | 60 | V dc | |
| Min output voltage | 10 | V dc | |
| Max output current | 1.2 | A dc | |
| Min output current | 100 | mA | Not advised to operate LED below 100mA |
| Max output power | 60 | W | Power is depended on the voltage of the LED fixture and the maximum allowable current trough the LED's. |

Electrical connections

| Specification item | Value | Unit | Condition |
|------------------------------|-------|-----------------|-----------|
| Incoming cable minimal | 2.5 | mm ² | LS-99 DC |
| Incoming cable maximum | 16 | mm ² | LS-99 DC |
| Luminaire outgoing cable min | 0.4 | mm ² | |
| Luminaire outgoing cable max | 1.5 | mm ² | |

Surge protection

| Specification item | Value | Unit | Condition |
|--------------------------------|-------|------|-----------|
| Peak current Rating per 8/20us | 3 | kA | 25 °C |
| Absolute clamp voltage | 540 | Vdc | @3kA |

Mechanical data

| Specification item | Value | Unit | Condition |
|---------------------|-------|-------|--|
| Height | 148 | mm | |
| Width | 74 | mm | |
| Depth | 40.5 | mm | Excluding PLC module add 19mm |
| Weight | 460 | grams | Excluding PLC module, PLC module add extra 270gr |
| IP rating driver | IP67 | | Electronics IP67 but connector limits. |
| IP rating enclosure | IP23 | | LS-99 DC |

Environment conditionals

| Specification item | Value | Unit | Condition |
|------------------------------|---------|------|-------------------------|
| Max ambient temperature | 70 | °C | Standby |
| Max ambient temperature 100% | 40 | °C | Full power w/o derating |
| Min ambient temperature | -20 | °C | Standby |
| Ambient temperature (T-Life) | 75 | °C | |
| Storage temperature | 10...30 | °C | |
| Humidity operation | 95 | % | Noncondensing |
| Humidity storage | 80 | % | |

LED Driver 120V/120W

Logistical data

| Specification item | Value |
|----------------------------|-----------------------------|
| Product name | LDC-120V-120W-1P-350V-LOVP1 |
| Minimal order quantity MOQ | 20 |
| Pieces per box | 20 |

Electrical input data

| Specification item | Value | Unit | Condition |
|-----------------------|-------|------|---------------------|
| Nominal input voltage | 350 | V dc | |
| Maximal input voltage | 380 | V dc | Nominal working |
| Minimal input voltage | 320 | V dc | Nominal working |
| Max input power | 60 | W | @1.2A / 50V output |
| | 120 | W | @1.2A / 100V output |
| Efficiency | >90 | % | 100% output |
| Standby power | <2.5 | W | PLC Active |

Electrical output data

| Specification item | Value | Unit | Condition |
|--------------------|-------|------|---|
| Max output voltage | 120 | V dc | |
| Min output voltage | 50 | V dc | |
| Max output current | 1.2 | A dc | |
| Min output current | 100 | mA | Not advised to operate LED below 100mA |
| Max output power | 120 | W | Power is depended on the voltage of the LED fixture and the maximum allowable current trough the LED's. |

Electrical connections

| Specification item | Value | Unit | Condition |
|------------------------------|-------|-----------------|-----------|
| Incoming cable minimal | 2.5 | mm ² | LS-99 DC |
| Incoming cable maximum | 16 | mm ² | LS-99 DC |
| Luminaire outgoing cable min | 0.4 | mm ² | |
| Luminaire outgoing cable max | 1.5 | mm ² | |

Surge protection

| Specification item | Value | Unit | Condition |
|--------------------------------|-------|------|-----------|
| Peak current Rating per 8/20us | 3 | kA | 25 °C |
| Absolute clamp voltage | 540 | Vdc | @3kA |

Mechanical data

| Specification item | Value | Unit | Condition |
|---------------------|-------|-------|--|
| Height | 148 | mm | |
| Width | 74 | mm | |
| Depth | 40.5 | mm | Excluding PLC module add 19mm |
| Weight | 460 | grams | Excluding PLC module, PLC module add extra 270gr |
| IP rating driver | IP67 | | Electronics IP67 but connector limits. |
| IP rating enclosure | IP23 | | LS-99 DC |

Environment conditionals

| Specification item | Value | Unit | Condition |
|------------------------------|---------|------|-------------------------|
| Max ambient temperature | 70 | °C | Standby |
| Max ambient temperature 100% | 40 | °C | Full power w/o derating |
| Min ambient temperature | -20 | °C | Standby |
| Ambient temperature (T-Life) | 75 | °C | |
| Storage temperature | 10...30 | °C | |
| Humidity operation | 95 | % | Noncondensing |
| Humidity storage | 80 | % | |



by **Schneider** Electric

For more information, visit
www.dc.systems/applications/products

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