Control Panel Model

Blackfire CST-2-T

INSTALLATION MANUAL

Installation and start-up manual Control Panel Model CST-2-T_V8 ed.1 20-12-2023

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1. Presentation

Blackfire as the manufacturer of the product only supply the systems reflected in this manual. These systems have been subjected to rigorous quality controls and are fully verified, ready for assembly and commissioning.

Blackfire is not responsible for risk situations, accidents, damages, and injuries in the following cases:

- The warnings or indications reflected in this manual are not respected.
- Inadequate maintenance.
- Replacements of system elements made by third parties or personnel not authorized by Blackfire.
- Installation or improper use of the system.
- Improper manipulation.

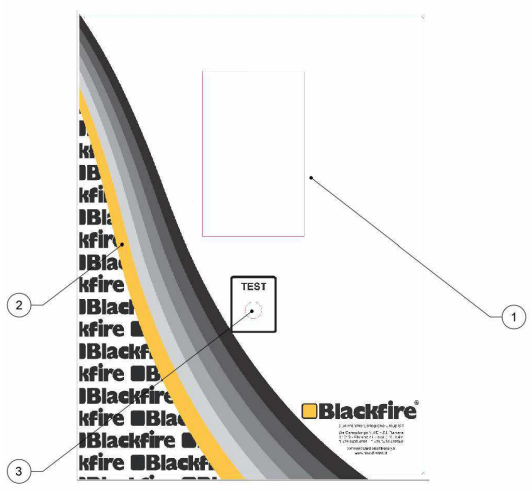
The installation company and the end user of the system must follow the instructions reflected in this document.
If you have any questions, please contact your dealer.

2. Introduction to the system

The CST-2-T control panels are programmable modules for the control of Blackfire MFB & MSB textile fire protection systems. They are used for the management and activation of the systems and are responsible for the real time control and manage of the motors.

Upon receiving a fire alarm signal or in case of general failure, the control panel will send an order to drop the curtains, closing the gap to be sectorized or compartmented

CST-2-T are autonomous systems by means of an integrated UPS module that guarantees an autonomy of 4-6 hours of operation in case of main power supply failure.

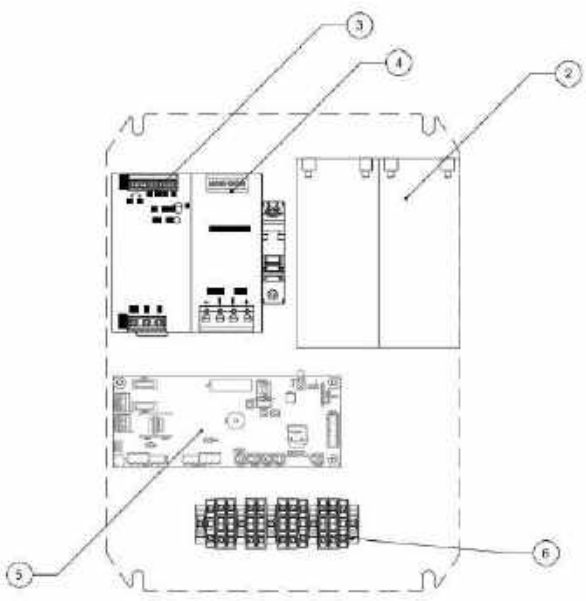


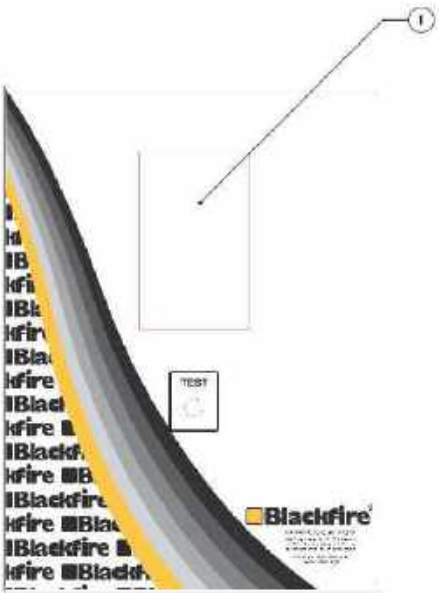
1. Touch Screen.
2. Control panel door key.
3. Test Key.

3. Technical specifications

The following is a list of the technical specifications for the system:

Envelope:	Made of sheet steel thickness 1.2 mm with an antistatic powder coating.
Batteries (6):	*12V 7.2A/h batteries with a range of up to 5 hours of operation. It is necessary to calculate autonomy according to the number of motors connected.
Power Supply (7):	AC/DC power supply with an output of 27.6 Vdc and power according to model, up to 960W.
Battery Charger (8):	Battery Charger with output of 27.6 Vdc 40A.
Controller card (9):	COLECT controller card for the management and activation of Blackfire MSB & MFB systems.
Main's terminal block (10):	Isolated terminal block.
Optional:	
Scape Buttons:	For automatic opening and closing in case of emergency.
Infrared band:	For automatic opening and closing in case of emergency.
NETWORK Connection (RS485):	BUS link for communication protocols.





*** If a prolonged time (more than 2 hours) is expected without main power supply (220Vac) the batteries must be disconnected. In the case of a time greater than 10 min place the control panel in alarm position. The total discharge of the batteries can cause mechanical anomalies due to an uncontrolled descent of the curtains.**

4. Security of system use

The CST-2-T control switchboards must be installed in visible areas due the signals and indicators located on the front of the panel and in accessible places to be able to perform maintenance tasks such as battery replacement, operation tests, etc.

The system has terminals for the connection of mechanical masses (Earth or PE) in the chassis and in the control panel door avoiding possible derivations that can damage the electronic components.

The critical elements, power supply and electronic card, are protected by safety fuses preventing a possible overcurrent from damaging the equipment.

5. Product Description

The system is a control panel completely assembled and ready for assembly which has the following accessories or main elements:

Article	Description / Detail	You
Cabinet	300 x 400 mm (Width/Height)	1
Test key	Metal keys for performance testing.	2
Cabinet key	Cabinet opening key.	1
Batteries	12Vdc	2
Manuals	N/A	1

The installer must ensure that he has received all the items described.

6. Version

MODEL	CAPACITY	
CST-2-T 5A	- OP1: - OP2:	2 CMT-20 3A 1 CMT-20 5A
CST-2-T 10A	- OP1: - OP2: - OP3:	6 CMT-20 3A 2 CMT-20 5A 2 CM-20 3A + 1 CMT-20 5A
CST-2-T 20A	- OP1: - OP2: - OP3: - OP4: - OP4:	12 CMT-20 3A 4 CMT-20 5A 2 CMT-20 3A + 3 CMT-20 5A 4 CMT-20 31 + 2 CMT-20 5A 5 CMT-20 3ª + 1 CMT-20 5A
CST-2-T 30A	- OP1:	20 CMT-20 3A

PROTECTION
FUSIBLE 7,5 A
FUSIBLE 15 A
FUSIBLE 25 A
CONTACTOR & FUSIBLE 35 A

7. System installation

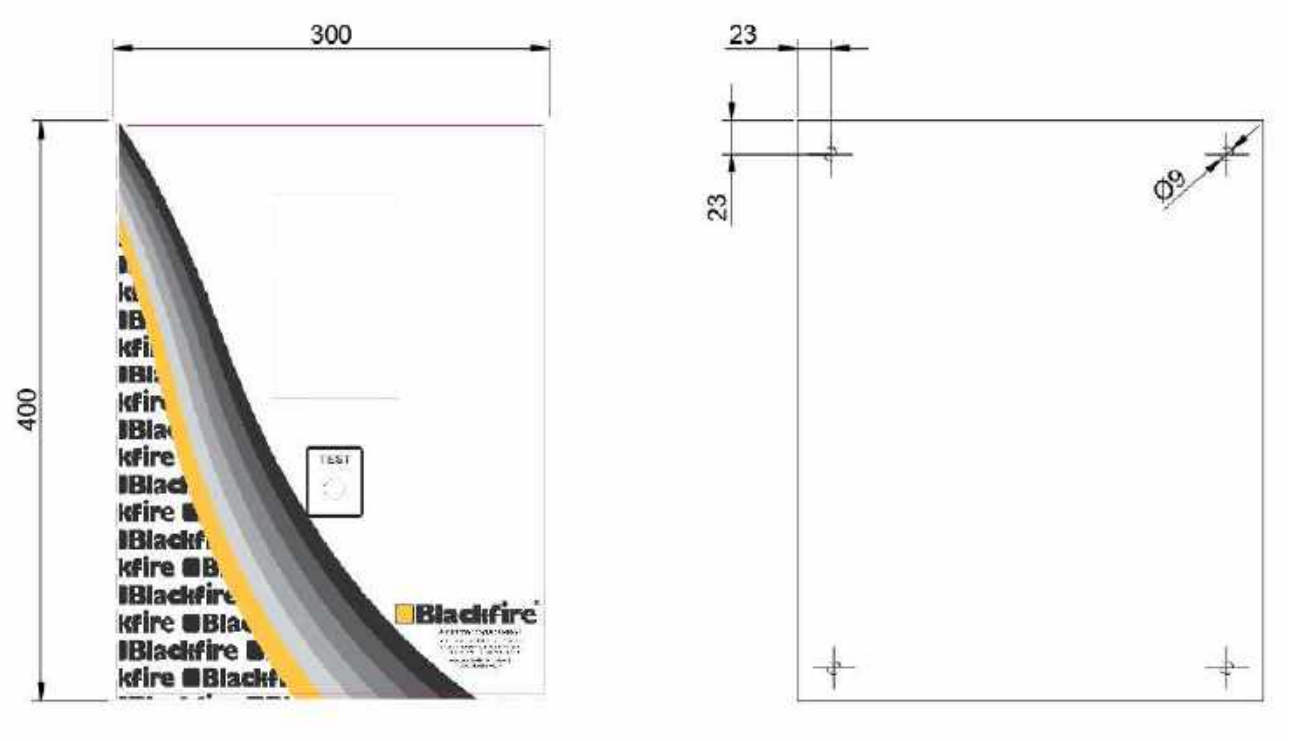
The installation of the system must be carried out by qualified personnel, in case of doubt before performing any operation the installer must contact this manual and failing that to the technical department of Blackfire. The installer must be aware of the application of the system, being a security system will be considered that in case of a malfunction of this could cause serious damage to materials or people.

The correct installation of the system will extend the life of this and guarantee its correct application in case of fire.

We will divide the system installation process into several stages:

7.1. Fixing the chassis

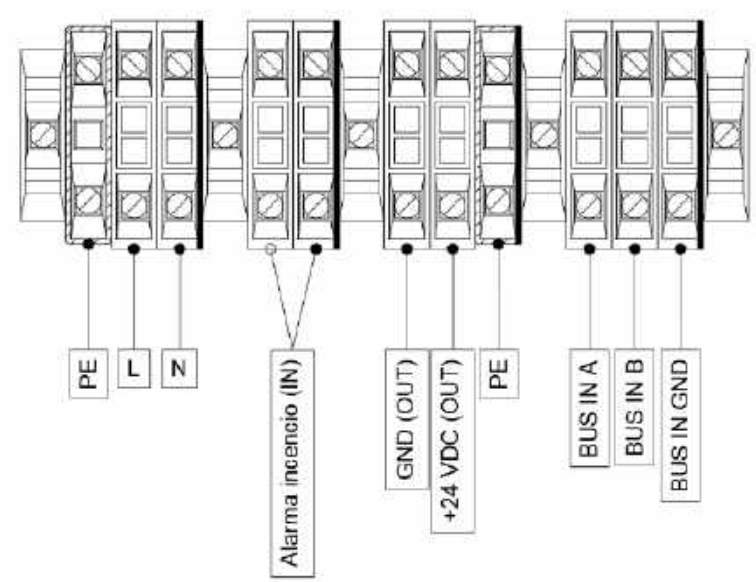
The control panel shall be fixed considering its dimensions and, by means of the attachment points described in the following figure, shall be installed in an accessible place for subsequent maintenance:



Special care must be taken not to damage electronic components or wiring when introducing mechanical tools (drills, screwdrivers, etc.). The control panel once installed must be free of dust, metal particles, etc.

7.2. Wiring Installation (Connection).

The installation of the wiring or connection shall be carried out at the main connecting terminal. The terminal is divided into 3 sections according to the element to be related:



- **Input 220 Vac:** Conductors with minimum gauge AWG 15 (1.5 mm2) Neutral, Phase and Ground shall be used according to the description of the terminal.
- **Alarm Input:** Conductors with minimum gauge AWG 20 (0.5 mm2) Positive and Negative according to the description of the terminal will be used.
- **Output 24 Vdc:** The polarity indicated in the connection terminal must be respected in addition to performing wiring section calculations according to the separation distance from the control panel to the CMT-20 motor module. We will take as a reference the following table:

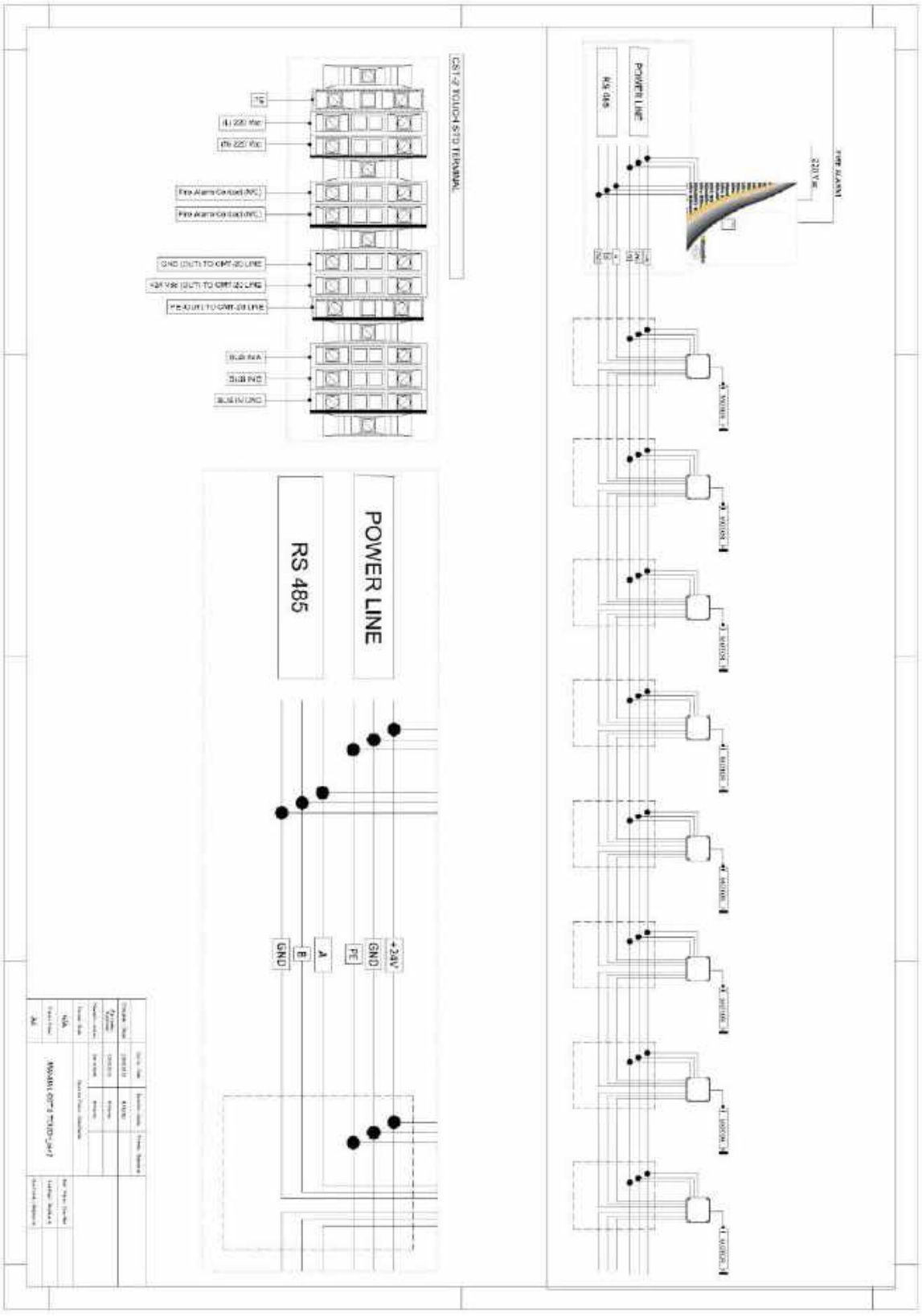
Distance	Wiring dimension
0 – 60 mts	**4 mm2**
60 – 80 mts	**6 mm2**

** Note: If longer distances are necessary, the technical department of Blackfire should be consulted.*

- **Communication Terminal Block:** Conductors with minimum gauge AWG 15 (1.5 mm2) with mesh, according to the description of the terminal will be used.

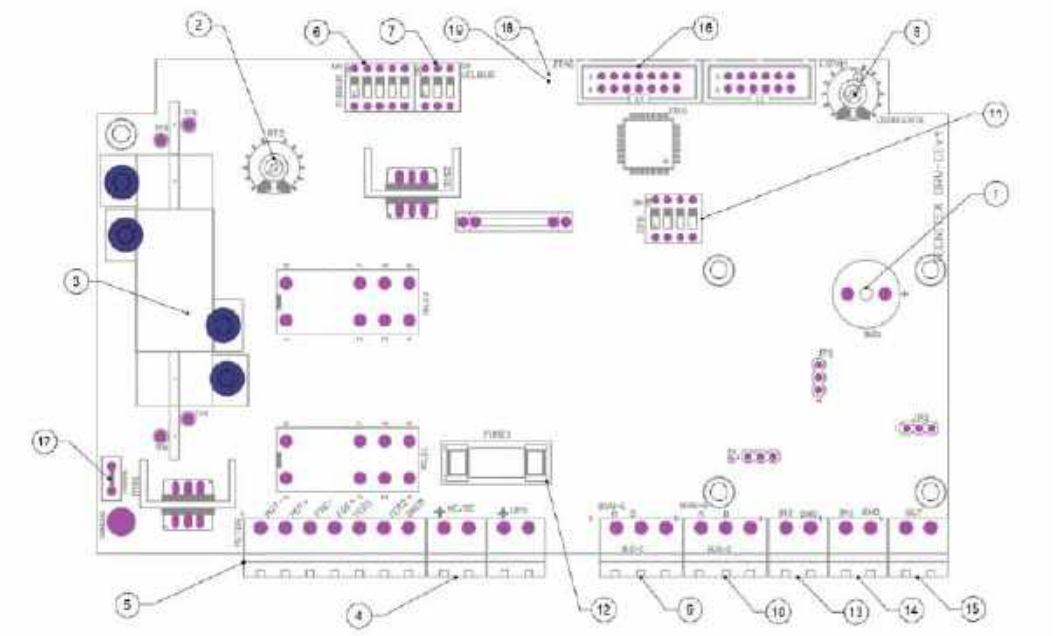
Warnings:

- Blackfire is not responsible for damages caused by a bad connection derived from the non-reading or misunderstanding of this manual, in case of doubt please contact our technical department.
- All the connection of the system must be made without power, the main power will not on until all the connections, including the alarm signal, have been made.
- The external connection wires (Input 220 Vac and Output 24 Vdc) will not be placed near dissipative elements (power supply, controller card, batteries). Poor organization in the internal wiring of the control panel could cause irreparable damage to the equipment.
- Isolated terminals shall be used at the ends of the conductors to avoid false contacts and shunts.
- The connection of the CMT-20 motor modules will be carried out by connection boxes (Not included), **never making a connection input output "BRIDGE" in the CMT-20 motor modules.**
- For the activation of the alarm signal, a normally closed potential-free contact will be used (the opening of this will generate the activation signal of the system). **A single independent contact will be used for each control panel.**
  The correct operation of the alarm contact will be verified checking if exists bounces or noises in the relay switching.
- No external elements will be connected without the express prior authorization of Blackfire.
- It is advised not to perform an automatic rearmament of the alarm modules, the non-supervision of the rearmaments of the system could cause irreparable damage.


POWER LINE
RS 485
CST-2 TOUCH-5TD TERMINAL
Fire Alarm Contact (NC)
Fire Alarm Contact (NC)
GND (OUT) TO DMT-20 LINE
+24 Vdc (OUT) TO DMT-20 LINE
FE (OUT) TO DMT-20 LINE
SUB NA
SUB NC
SUB NO
POWER LINE
RS 485
GND
B
A
FE
GND
+24V

7.3. Installing CMT-20 motor controller cards

The CMT-20 motor modules are programmable elements that regulate and manage, the speed of descent, the uptime, and the control at rest of the motors. The main features are as follows:



- **Stop by overcurrent detection:** When the counterweight bar touches against the bottom of the container box in MSB & MFB systems, the motor causes an increase in current demand (intensity) which is picked up by the CMT-20 controller card and serves as a maintenance mode activation signal.

** Note: Maintenance mode, motor stop status,* current in a range of *0.32 to 0.40 A.*

- **Stop by time:** With the "maxTimeUp" parameter in the configuration, the operating time (rise) of the barrier can be adjusted. The acting range is between 30-300s.

- **Speed and Power adjustment:** The increase in speed and power of the motors can be regulated through the "Speed Up" parameter (DRVs configuration menu), this parameter controls the PWM cycle by delivering more or less current at the output of 24 V and consequently adjusting the speed and the power delivered to the motors.

Too slow a speed setting can disable stop devices by detecting overcurrent.

- **Adjustment of descent speed:** The descent speed of the barrier, can be regulated by the potentiometer No. 2, the working range of this potentiometer ensures a descent speed between 0.03 and 0.30 m / s.

The CMT-20 controller card has a dissipating resistance that transforms the kinetic energy generated by the engine in its descent into heat (Item 12). A pause period of 1-2 minutes between operation cycles is recommended.

The control card CMT-20 has a series of led status indicators.

- LED 18 (RED) ACTIVE: Over-temperature in SMK 2A & 5A motors. The 24 Vdc output is disconnected to the motor.
- LED 18 (RED) BLINKING: Fallo de comunicaciones. Se desconecta la salida 24 Vdc a motor.
- LED 19 (GREEN) FAST BLINKING: CMT-20 in RUN mode (UP manoeuvre).
- LED 19 (GREEN) SLOW BLINKING: CMT-20 in MAINTENANCE mode.
- LED 19 (GREEN) DOUBLE BLINKING/PAUSE: CMT-20 with order to MAINTENANCE.
- LED 19 (GREEN) ACTIVE: CMT-20 in DOWN mode.

It is necessary to verify that the system remains in maintenance mode once the maneuver of raising the curtain has been performed.

The THERMISTOR alarm has the highest priority, following the RS485 alarm. If several alarms occur simultaneously, the one with the highest priority will be displayed. In the same way, if there are several simultaneously active alarms and one of them disappears, the one with the highest priority that remains active will remain.

- **BUS address:** With switch no. 6 the position of each one of the CMT-20 of the communication Bus is configured. It is essential to respect the initial factory configuration and the installation according to your order. Otherwise the system will launch a communications failure.

- **BUS speed**: With switch nº7 the speed of the communication Bus is configured. It is essential that all the CMT-20 installed on the Bus have the same configuration. Otherwise, the system will launch a communications failure..

7.4. Commissioning of the system.

Once all the appropriate connections described in the previous point have been made and verified, we will proceed to place the test key in a horizontal position (Alarm Mode) **BEFORE FEEDING THE CONTROL PANNEL WITH MAIN CURRENT 220 Vac.**

Item 3: Test key, turn the test key to its horizontal position, active alarm position

Once this step is done, we will proceed to feed the panel with main current 220 Vac. When performing this operation, the control box will be activated in fire alarm status (TEST), the control panel will show the following status indications:

- Touch Screen On System (TEST Mode).
- Acoustic Buzzer: Active.

After this step, we will proceed to rearm the system (using the test key).

Before rearming the system, it must be verified that there are no obstacles that prevent the maneuver of raising the barrier. You must have visual presence of the barrier to verify the correct direction of rotation of the engine.

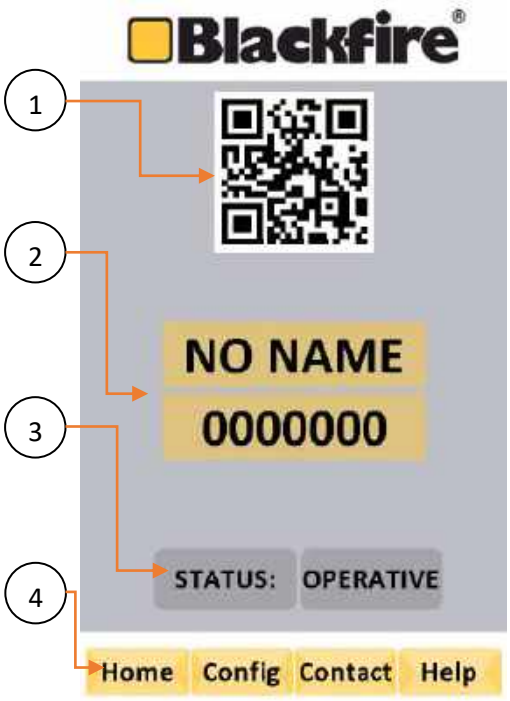
After rearming the barrier, the condition of switchboard CST-T shall be as follows:

- Touch Screen: On system (main screen)
- Acoustic Buzzer: No sound.

The functionality of the interface will be directly linked between the programming provided by the colet panel and the programming designed on the Nextion screen itself.

Initially when power is supplied to the system, the initialization page will be displayed on the screen. This page will be forced to start by the programming code of the collection.

Once the system is loaded, the user will see the initial notification page.



This page is the initial one of the system that shows the generic information of the curtain and the icons of user interaction.

1 QR Code. The code allows us access to the Blackfire website.

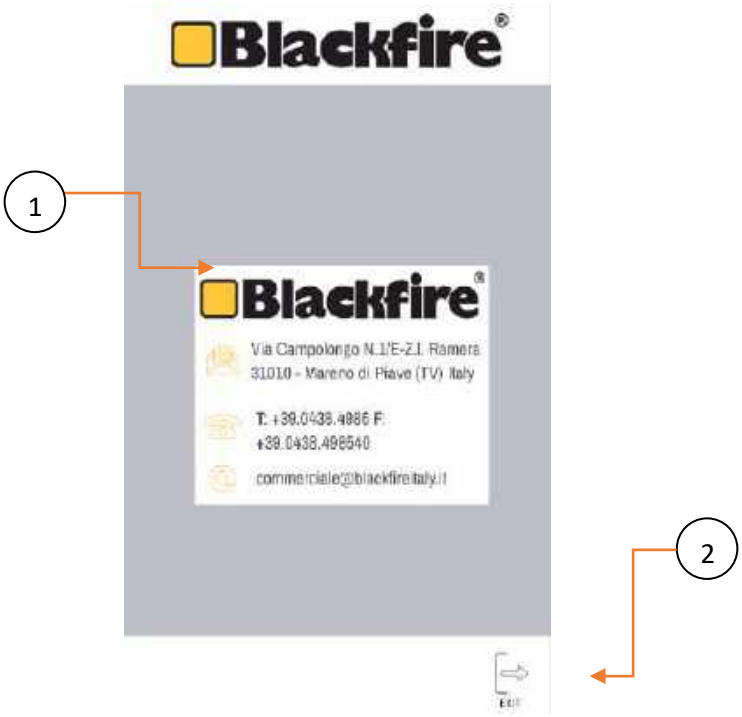
2 Name and reference. Shows the name of the project and reference of the curtain according to the client's indications.

3 Curtain status. The status of the curtain in its normal operation indicates that it is "OPERATIVE". In the event that you have an alarm, network failure, battery failure, communications failure, or fire alarm, the status will change and it will indicate the type of alarm you have received. If a Test maneuver is carried out using the key, it will indicate this state in the same way.

4 Buttons for user interaction. The user has the option to navigate through the different areas, Home, Config, Contact and Help.

Contact Area

The screen will show the company data for its location or contact information..



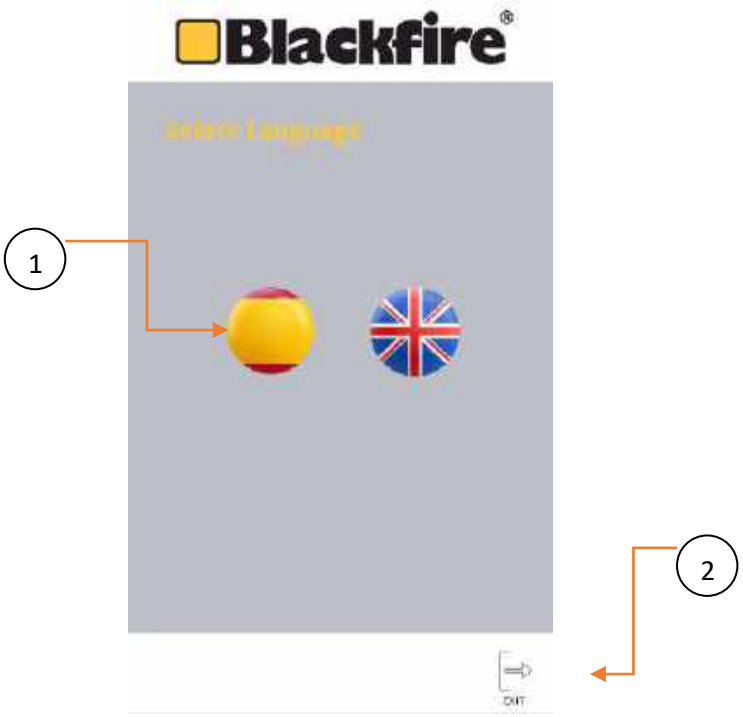
1 Data area.

2 Interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.

Help Area

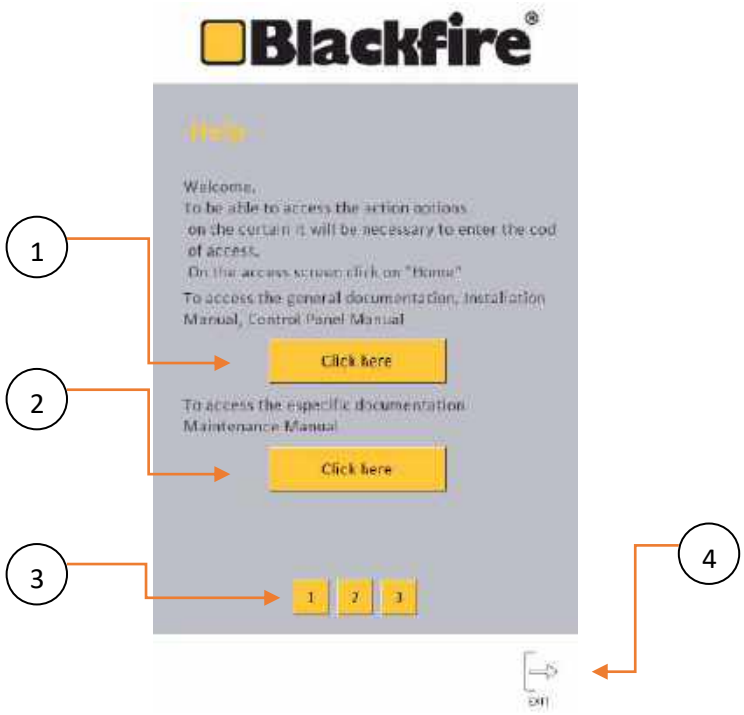
It will display the help pages for the user. In these pages you will find information on how to navigate through the different menus, access the curtain control, status information, access to the project documentation.

It will give us the option to choose the language before accessing.



1 Language selector. The user must select the language in which he wants to access the help.

2 Interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.

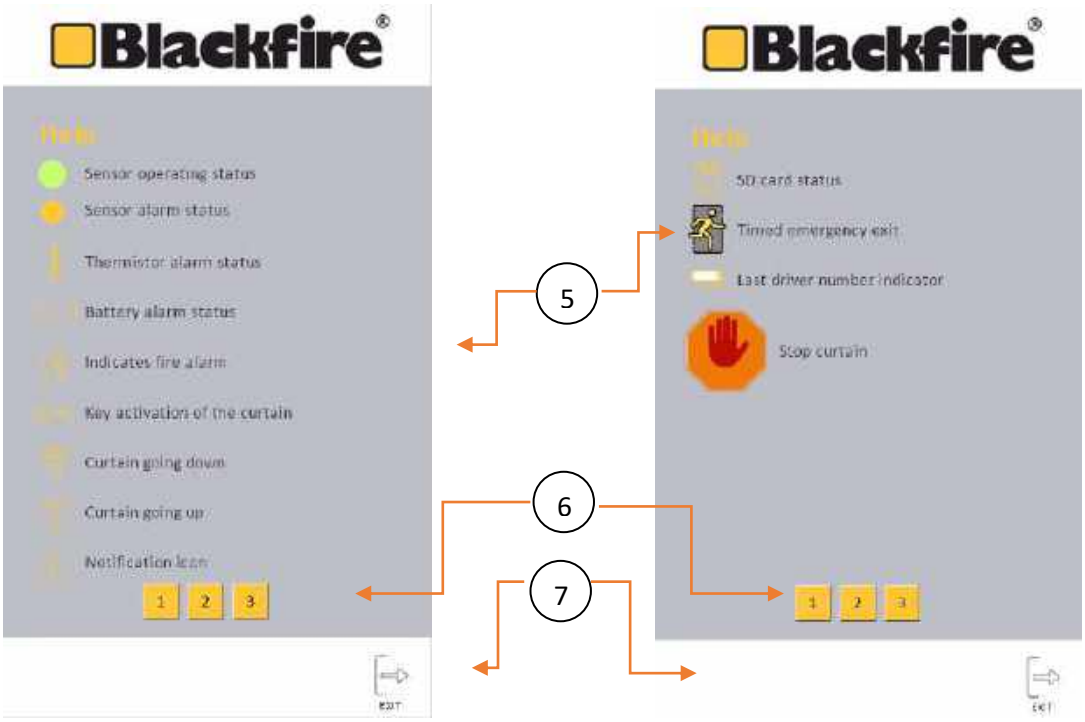


1 General documentation. The user has the option of accessing the general documentation of the system. This section contains the documentation for the system manuals and the control panel manual.

2 Specific documentation. The user has the option of accessing the specific documentation of the project. This section contains the installation documentation and maintenance manual.

3 Help Pages. In this menu the user can scroll through the different help sections with the numeric buttons.

4 Interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.



5 Status indicators. Represented the different status icons of each of the alarms that are displayed on the screen and show the detail of their condition.

6 Help Pages. In this menu the user can scroll through the different help sections with the numeric buttons.

7 Interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.

General Documentation Section

1 QR Code. By reading the QR code, the user accesses the general documentation folder for his project located on the Blackfire servers. The files that are saved in this file can only be modified by Blackfire.

2 Help Pages. In this menu the user can scroll through the different help sections with the numeric buttons.

3 Interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.

Specific documentation section

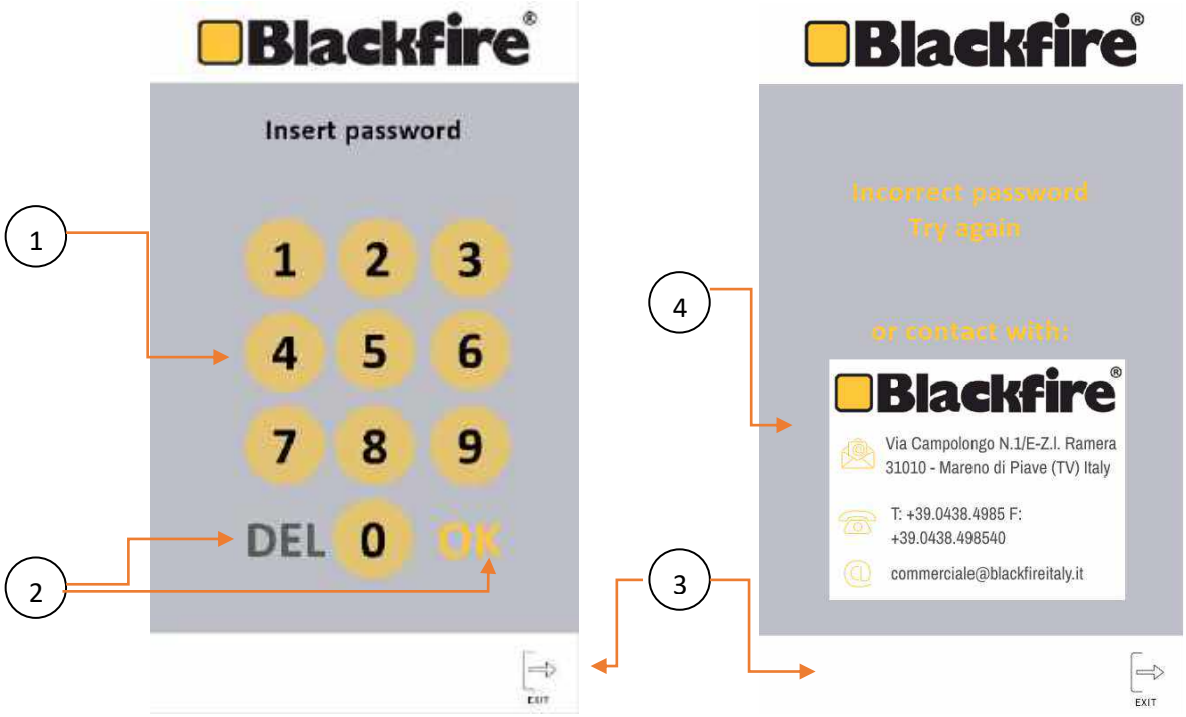
1 QR Code. By reading the QR code, the user accesses the specific documentation folder of his project, which will only have exclusive access if accessed with password permissions, located on Blackfire servers. The files that are saved in this file can only be modified by Blackfire.

2 Help Pages. In this menu the user can scroll through the different help sections with the numeric buttons.

3 Interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.

Home Area

Access to this area will be protected by password so that only those users who are allowed to control the curtain have permissions. It can only be accessed using the correct password. In the event that the password is incorrect, the user will see a page in which they will be informed that the password is incorrect and the contact details of Blackfire for the contact..



1 Number keyboard. The correct password must be entered.

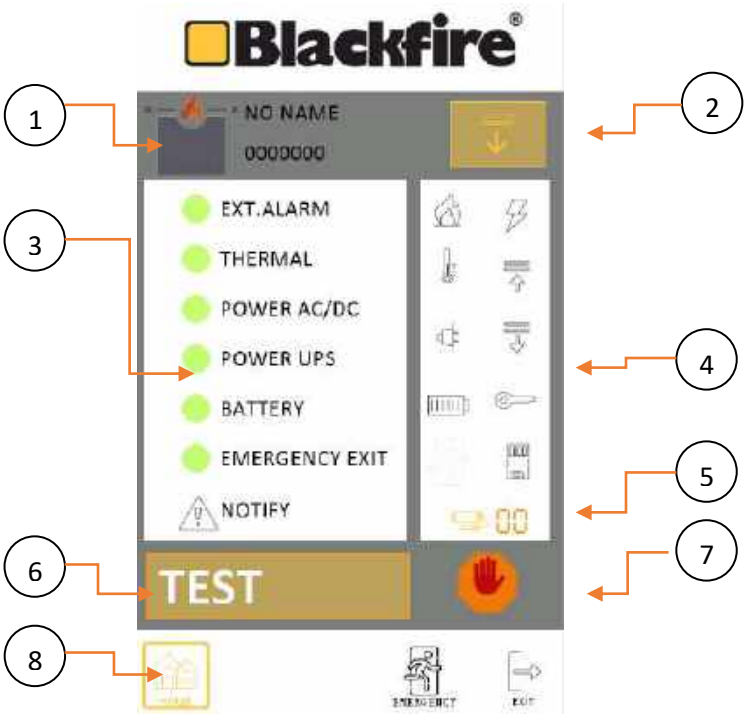
2 DEL / OK. Once the password has been typed, clicking on “OK” will validate the password entered and if it is correct, the system control will be accessed. To correct the entered numbers, you can use the “DEL” button that deletes the entered data.

3 Interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.

4 Contact details area.

Once the correct password is entered, the user accesses the display and control panel of the curtain.

Home Section



In this area the user can view the following information:

1 Name and reference. Shows the name of the project and reference of the curtain according to the client's indications.

2 Curtain status. Shows depending on the movement that the curtain is making, in which state it is, Raising, Lowering, Stop or Maintenance

3 Status of alarm sensors. In the normal operating state of the curtain, these sensors do not present any type of alarm, so they must all be with their indicator in green. In the event that an alarm is activated, this indicator turns red and shows the alarm that is activated.

4 Status indicators. Represented the different status icons of each of the alarms that are displayed on the screen and show the detail of their condition.

5 Engine indicator. Using digits, it indicates the last motor that had the status change.

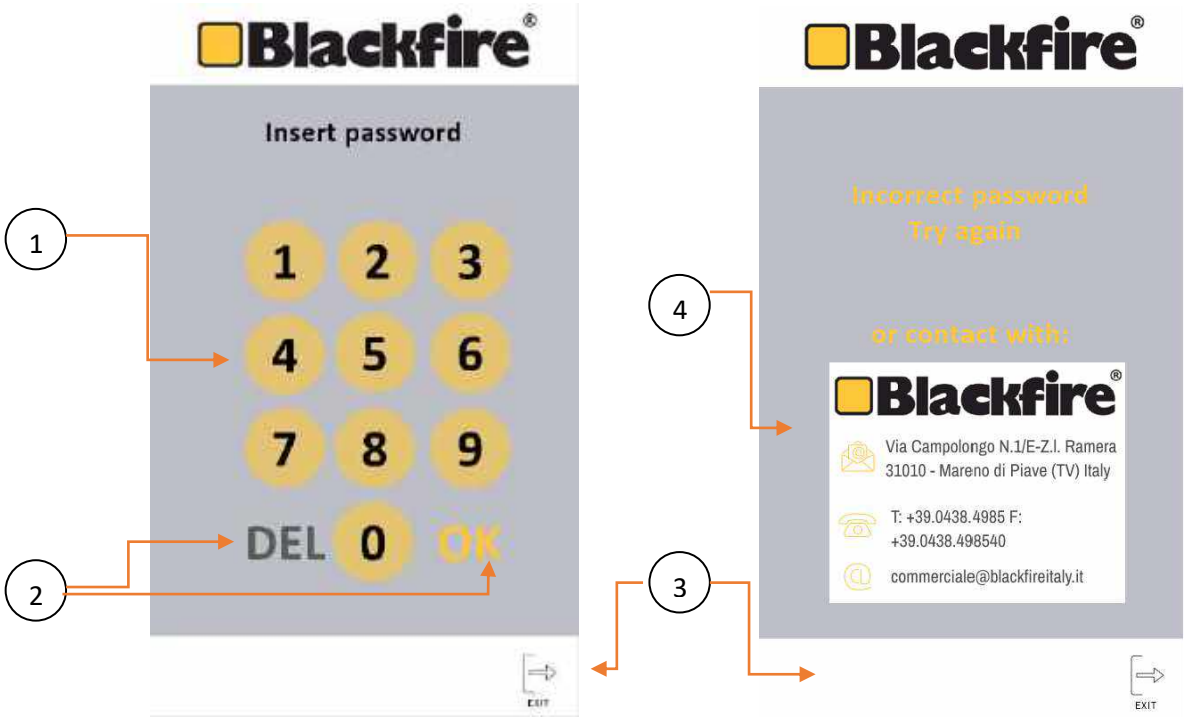
6 TEST. This button allows action on the curtain to carry out a test manoeuvre.

7 STOP. In the blind raising manoeuvre, pressing this button allows the user to stop the blind raising and it will remain stopped until the user is pressed again to unlock the action.

8 interaction buttons. On this page the user has the possibility of browsing through the Home sections, and return to the home page.

Config Area

Access to this area will be protected by a password so that only those users who are allowed to control and edit the curtain parameters have permissions. It can only be accessed using the correct password. In the event that the password is incorrect, the user will see a page in which they will be informed that the password is incorrect and the contact details of Blackfire for the contact.



1 Number keyboard. The correct password must be entered.

2 DEL / OK. Once the password has been typed, clicking on “OK” will validate the password entered and if it is correct, the system control will be accessed. To correct the entered numbers, you can use the “DEL” button that deletes the entered data.

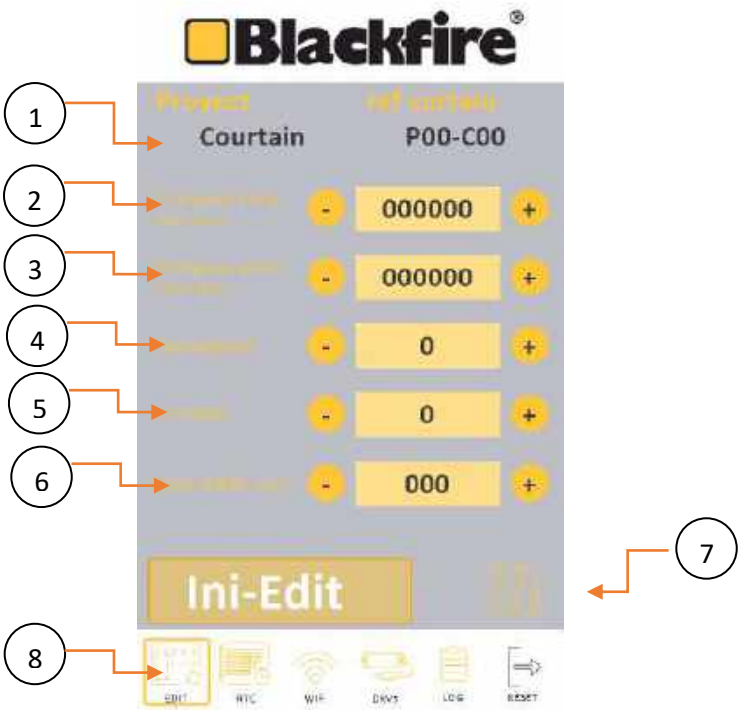
3 interaction buttons. On this page the user will not have any more navigation possibilities, they will only be able to return to the initial page.

4 Contact details area.

Once the correct password is entered, the user accesses the curtain's parameter configuration panel.

IMPORTANT: FOR THE CONFIGURATION, THE CURTAIN WILL STAY DOWN WITH THE MOTORS OFF.

EDIT Section



1 Name and reference. Shows the name of the project and reference of the curtain according to the client's indications.

2 Emergency rising time (ms). Parameter that assigns the time for the emergency button to raise the curtain and for it to remain stopped. Value displayed in milliseconds. You can increase or decrease the time with the “+” or “-“ buttons respectively.

3 Emergency pause time (ms). Parameter that assigns the time that the blind remains stopped after pressing the emergency button to raise the blind. Value displayed in milliseconds. You can increase or decrease the time with the “+” or “-“ buttons respectively.

4 Thermal Mask. Parameter used to differentiate the two types of functional action, enable (1), disenable (0)

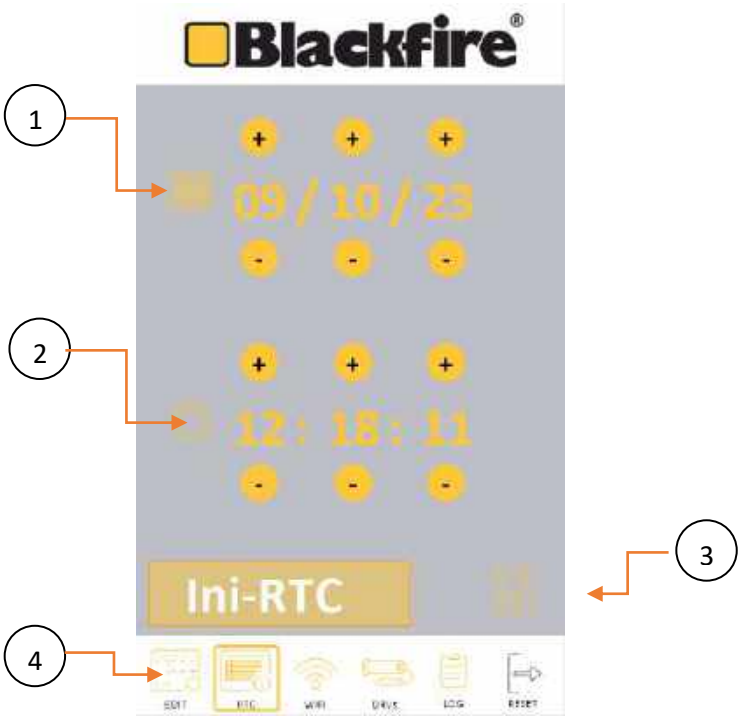
5 All About I. Parameter used to differentiate the two types of functional action, hard top (1), soft top (0).

6 Over I Delay (s). Parameter that assigns the delay time between the maintenance signal of the first motor controller card and the rest. In the case of “All Over I (0) when one of the motor driver cards reaches the holding current state, the stop order of the rest is executed after the time assigned in this parameter.

7 Save. With the modification of parameters that are made, the changes must be saved.

8 interaction buttons. On this page the user has the possibility of browsing through the Edit, RTC, Wifi, DRVs, Log and Reset sections .

RTC Section



In this area the user can view the following information:

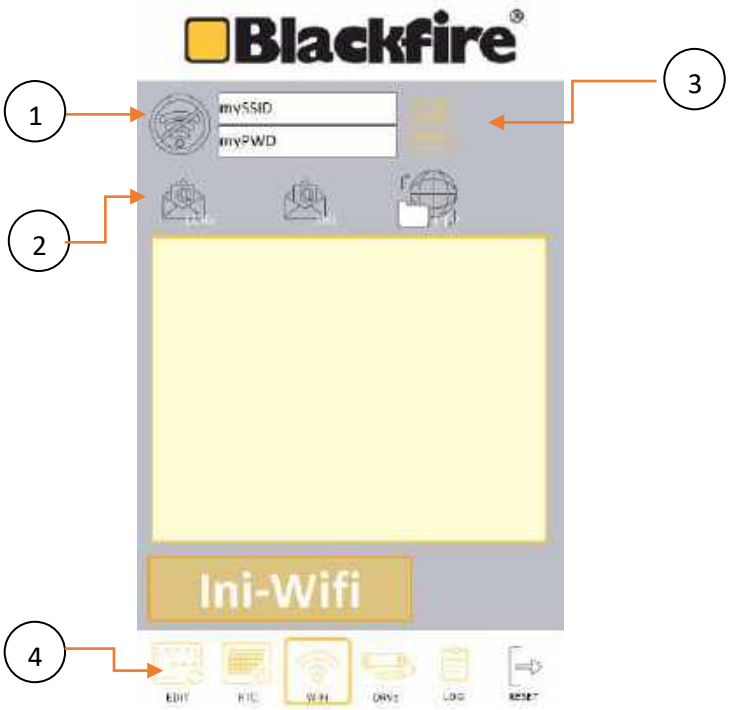
1 Date. RTC date setting with dd/mm/yy format. You can increase or decrease the digits with the “+” or “-“ buttons respectively.

2 Hour. RTC time setting in hh:mm:ss format. You can increase or decrease the digits with the “+” or “-“ buttons respectively.

3 Save. With the modification of parameters that are made, the changes must be saved.

4 Interaction buttons. On this page the user has the possibility of browsing through the Edit, RTC, Wifi, DRVs, Log and Reset sections.

WIFI Section



In this area the user can configure the Wi-Fi network connection of the control panel:

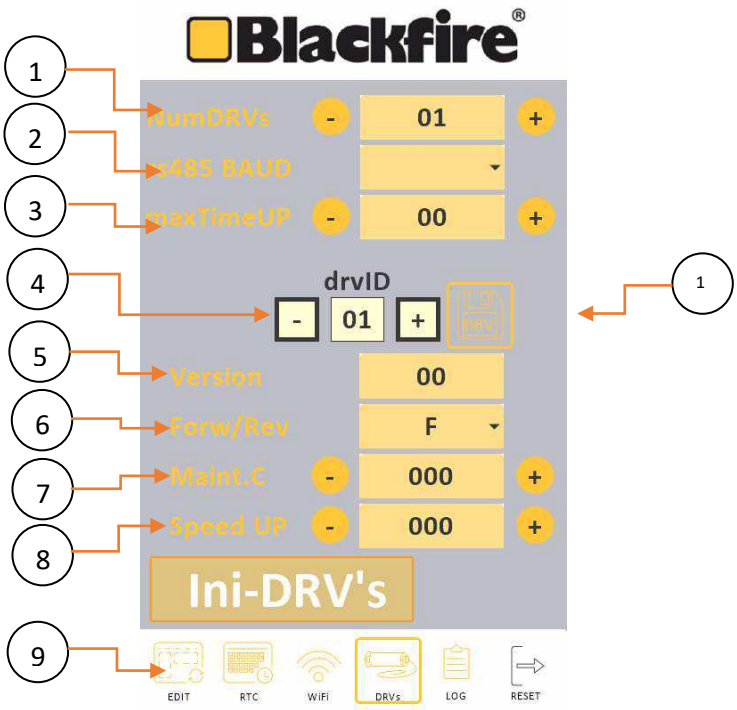
1 Data. Name and password of the Wifi network to which the user connects the control panel.

2 Information icons. The user can send the LOG and INI configuration files via previously configured email.

3 Save. With the modification of parameters that are made, the changes must be saved.

4 Interaction buttons. On this page the user has the possibility of browsing through the Edit, RTC, Wifi, DRVs, Log and Reset sections.

DRVs Section



1 NumDRVs. Parameter that corresponds to the total number of drivers that the curtain has. You can increase or decrease the value with the “+” or “-“ buttons respectively.

2 rs485 BAUD. Communications bus speed.

3 maxTimeUP(s). Parameter that assigns the maximum time that the curtain can carry out in the raising manoeuvre. Value displayed in seconds. You can increase or decrease the time with the “+” or “-“ buttons respectively. If this value is exceeded and the curtain has not yet reached its highest point, it will remain stopped and in maintenance current.

4 Driver selector. You can increase or decrease the value with the “+” or “-“ buttons respectively.

5 Version. System software version reference.

6 Forw/Rev. Parameter that assigns the direction of rotation of the motor F (forward), R (reverse).

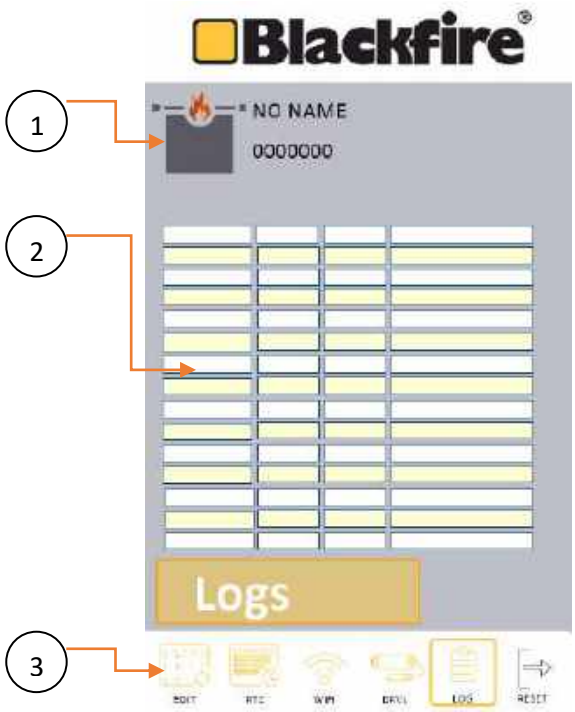
7 Main.C. Parameter that defines the holding current that is assigned to the motor when it reaches the top or stops at an intermediate height. You can increase or decrease the value with the “+” or “-“ buttons respectively.

8 Speed UP. Parameter that regulates the rising speed of the curtain

9 Interaction buttons. On this page the user has the possibility of browsing through the Edit, RTC, Wifi, DRVs, Log and Reset sections.

10 Save. With the modification of parameters that are made, the changes must be saved.

Log Section



On this page the user will be able to view the last 15 events that the curtain has had and will be able to send them via email to have their registration.

1 Name and reference. Shows the name of the project and reference of the curtain according to the client's indications.

2 Table of Events. The system collects each of them by date and time of the event and displays them in the table.

3 Interaction buttons. On this page the user has the possibility of browsing through the Edit, RTC, Wifi, DRVs, Log and Reset sections.

IMPORTANT: Do not confuse this information. Although it is named as log, it will not be the complete system log. The system log is purged to view only and exclusively the event and to be able to show it in this table.

8. Troubleshooting

During system installation or maintenance, various problems may occur. The resolution of these must be executed by the installation company, in most cases they can be resolved according to the following table:

PROBLEM	CAUSE	SOLUTION
Control Panel does not turn on	- Connection.	- Check input connection 220 Vac. - Check main power line.
Control panel reflects Alarm	- Test key in Horizontal position. - Open alarm contact.	- Place the key in vertical position (Active System). - Close contact by means of a bridge or check Fire central detection of the building in the case of being connected the alarm line.
Shade does not ascend	- Test key/Connection. - Mechanics. - Connection. - Connection.	- Check key test position and the correct closed contact of the alarm. - Check that the counterweight bar is not locked. - Check engine connection. - Check engine direction of rotation.
The curtain does not descend	- Mechanics. Possible system outage. - Mechanics. Friction in cylindrical sliding bushings. - Mechanics. Deformations in the side guides.	- Check levelling of container drawer and side guides. - Check the placement of slip bushings, there may be no fabric or elements that hinder sliding. - Check the status of these.
Test key not working	- Connection: The contact in the alarm terminal is open.	- Close contact by means of a bridge or check central detection CDI in the case of being connected the alarm line.
The curtain has descended alone	- Connection: The contact in the alarm terminal is open.	- Close contact by means of a bridge or check central detection CDI in the case of being connected the alarm line.
The engine rotates in the opposite direction	- Connection: The polarity of the connection is reversed.	- Reverse the polarity in the engine connection and test again
The curtain descends 2 seconds and rearms itself	- Connection: There is a problem with the fire alarm signal: Shared contact with other teams. Alarm cable length too long.	- Check that the delivered contact is exclusive to the curtain. - Check that the distance between the alarm cable is not excessive. *Note: A relay may be placed in the header of the control box to clean the alarm contact.
Communication failure	- Connection. - Switch BUS and Speed configuration.	- Check main communication line RS485. - Check the switchs of BUS Adrees and BUS Speed.

9. Maintenance and Cleaning

Since fire curtains and smoke control curtains are a product of high importance in terms of fire safety, the owner of the building has the obligation to keep the curtains in good working order, being inspected and tested regularly.

To ensure the reliability and integrity of textile roller fire curtains, the system must be inspected, evaluated, and repaired by trained and qualified personnel for product maintenance.
The system must be verified in the following periods:

- ✓ **Monthly:**
  A manual test will be carried out by means of the curtain control panel, the correct functioning of this will be verified.

- ✓ **Annually:**
  Several tests of operation of the curtain will be carried out through the control panel, the condition of the batteries will be **verified** which have to be replaced **every 2 years.**

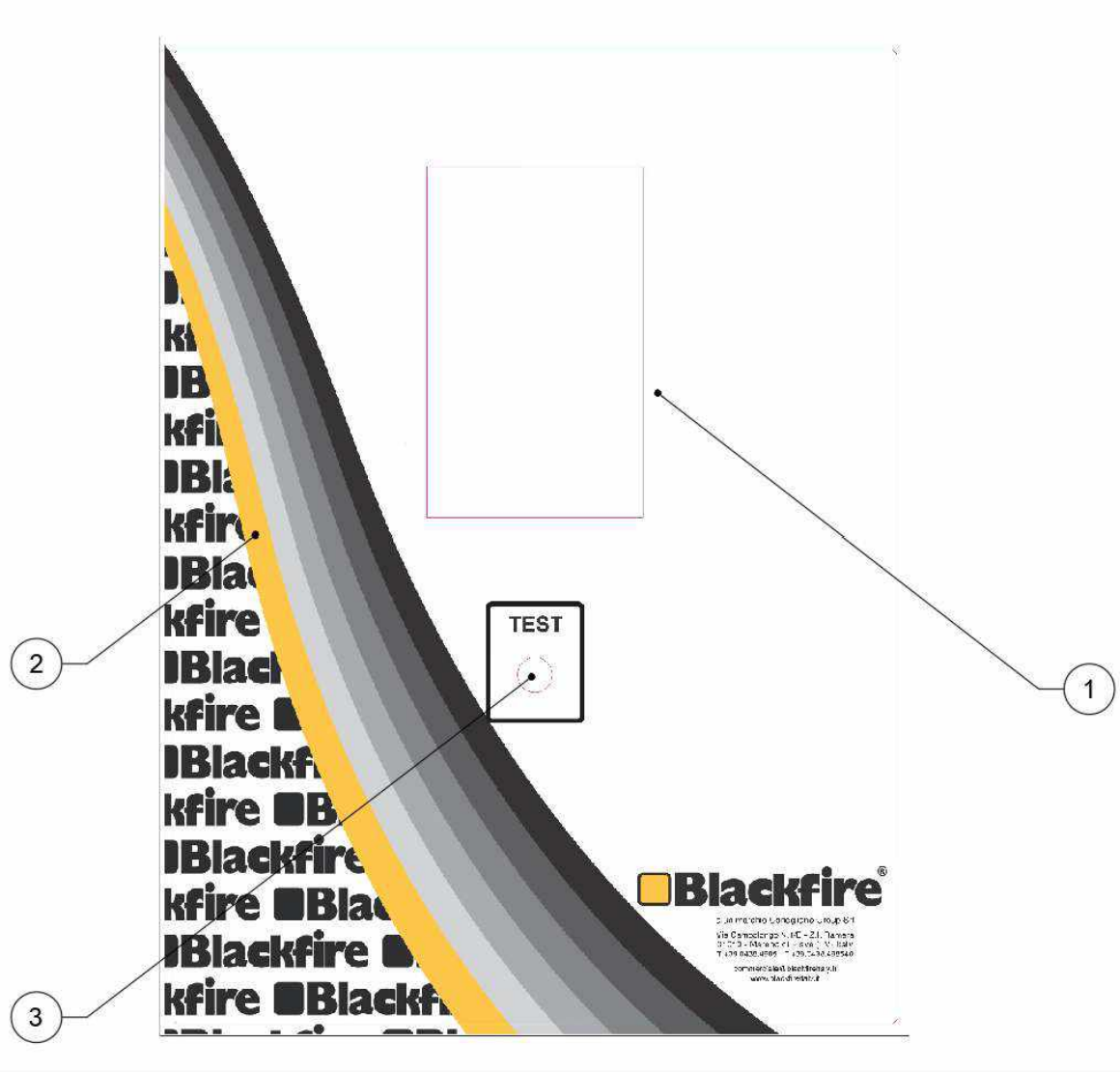
10. Storage and transport

The systems are packaged for transport by protective plastic (bubble paper), cardboard and retractable plastic throughout its exterior, all elements are placed on pallets and secured by strapping.
Despite the packaging used, it is recommended to store the pieces inside to avoid those climatic causes can affect the system.
It is always recommended the unloading of the systems by means of machinery (bulls, elevators, cranes, etc.) that facilitates their positioning on the work area.

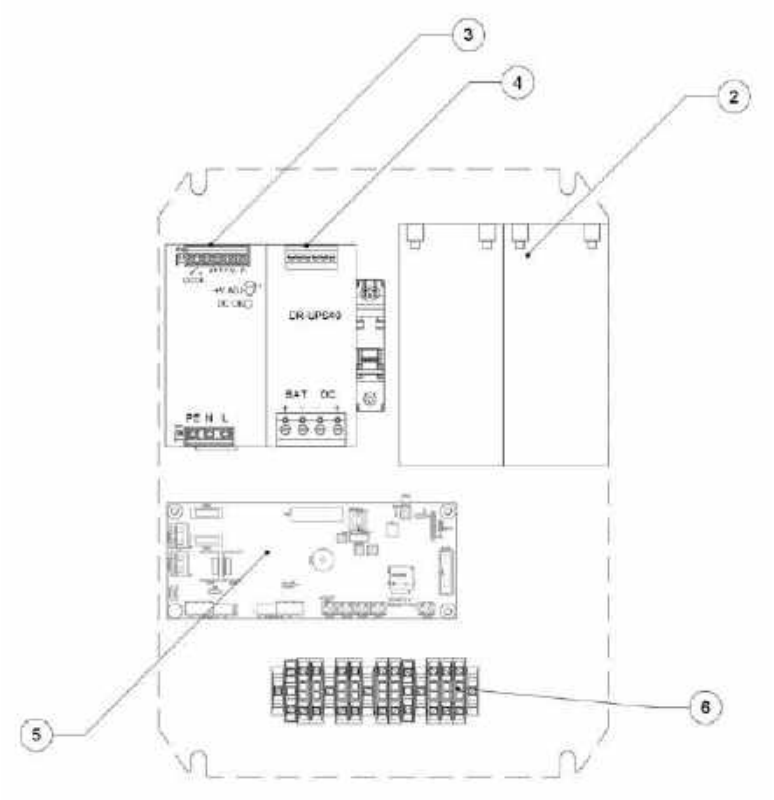
11. Environment

Regulations on the environment and local waste management must be respected, the system and its elements do not present (in their usual use) elements that may be harmful to health or the environment.

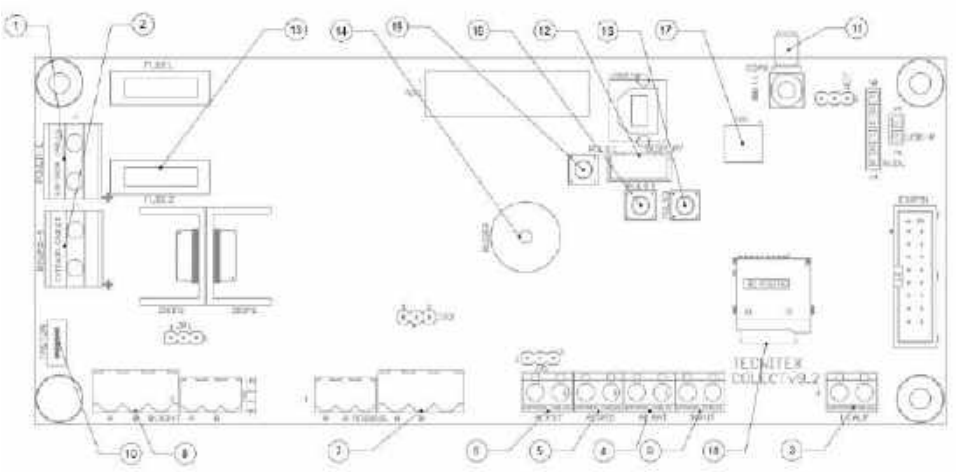
12. Annexes:



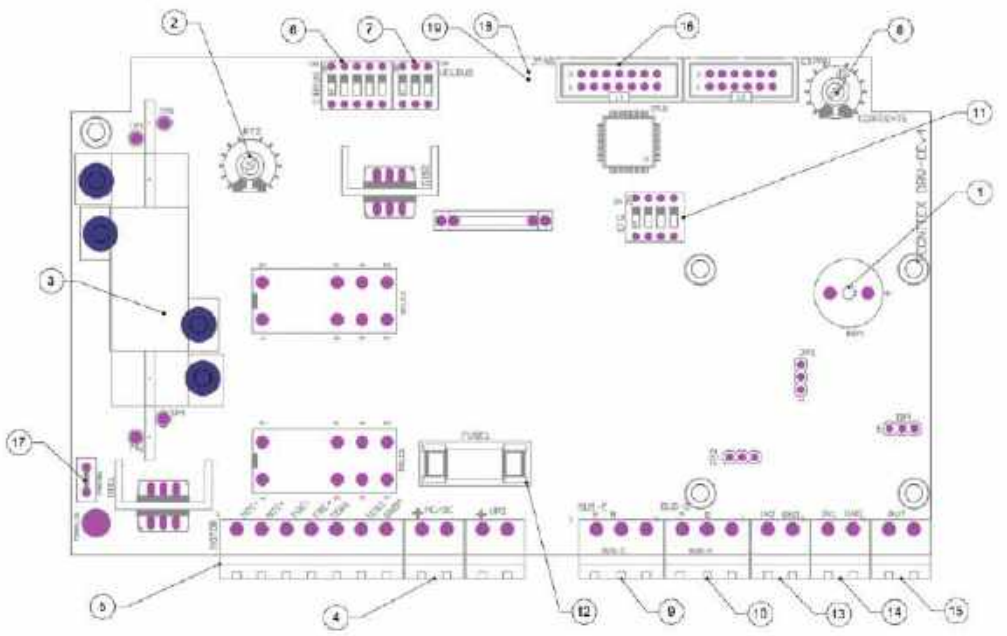
REF	ELEMENTO / ITEM	MATERIAL	DESCRIPCION / DESCRIIPTION
1	PANTALLA TÁCTIL / TOUCH SCREEN	N/A	N/A
2	LLAVE DE APERTURA PUERTA / DOOR OPENING KEY	PLASTICO / PLASTIC	N/A
3	LLAVE DE TEST / TEST KEY	METAL / METAL	N/A



REF	ELEMENTO / ITEM	MATERIAL	DESCRIPCION / DESCRIIPTION
2	BATERIAS / BATTERIES	N/A	2 PCS 12V 7.2 Ah (STANDAR)
3	FUENTE DE ALIMENTACION POWER SUPPLY	N/A	27 Vdc potencia según modelo 27 Vdc power acording model
4	CARGA BATERIAS UPS MODULE	N/A	27.6 Vdc 40A
5	TARJETA CONTROLADORA COLECT BOARD	N/A	TARJETA CONTROLADORA COLECT BOARD
6	BORNERA PRINCIPAL DE CONEXION MAIN CONNECTION TERMINAL	PLASTICO / PLASTIC	BORNERO PRINCIPAL PARA EL CONEXIONADO DE ALIMENTACION, ALARMA Y SALIDA MAIN TERMINAL CONNECTION FOR THE MAIN POWER SUPPLY, ALARM AND POWER OUT



REF	DETALLE / DETAIL
1	BORNE ENTRADA 24 Vdc 24Vdc INPUT TERMINAL
2	BORNE SALIDA 24 Vdc CONDICIONADA SEÑAL FUEGO 24Vdc OUT TERMINAL FIRE SIGNAL CONDITION
3	BORNE LLAVE DE TEST KEY TEST TERMINAL
4	ENTRADA SEÑAL FALLO BATERÍAS BATTERY FAILURE SIGNAL IN
5	ENTRADA SEÑAL FALLO DE RED MAINS POWER FAILURE SIGNAL IN
6	BORNE ALARMA FUEGO FIRE ALARM TERMINAL
7	BORNE DE CONEXION PROTOCOLO DE COMUNICACIONES SALIDA MODBUS RS485 CONNECTION TERMINAL FOR OUTPUT MODBUS RS485 COMMUNICATION PROTOCOL
8	BORNE DE CONEXION PROTOCOLO DE COMUNICACIONES SALIDA RS485 CONNECTION TERMINAL FOR OUTPUT RS485 COMMUNICATION PROTOCOL
9	ENTRADA DE CONTACTO DE PROPÓSITO GENERAL INPUT CONTACT FOR GENERAL PURPOSE
10	BORNE CONEXIÓN DE TIERRA GND TERMINAL CONNECTION
11	BORNE DE CONEXIÓN ANTENA SMA CONNECTION TERMINAL SMA ANTENNA
12	BORNE DE CONEXIÓN PANTALLA TÁCTIL CONNECTION TERMINAL FOR TOUCH SCREEN
13	FUSIBLE DE SEGURIDAD SAFETY FUSE
14	ZUMBADOR ACÚSTICO ACOUSTIC BUZZER
15	BOTÓN PARA CARGA DE FIRMWARE FIRMWARE DOWNLOAD BUTTON
16	BOTÓN RESET RESET BUTTON
17	MICROPROCESADOR CON ANTENA WIFI MICROPROCESSOR WITH WIFI ANTENNA
18	ZÓCALO TARJETA MICRO-SD PARA CARGA DE SOFTWARE MICRO-SD TERMINAL TO SOFTWARE DOWNLOADING
19	BOTÓN RESET DISPLAY DISPLAY RESET BUTTON



REF	ELEMENTO / ITEM	DETALLE / DETAIL
1	ZUMBADOR ACUSTICO / ACOUSTIC BUZZER	ZUMBADOR ACUSTICO EN CASO DE ALARMA / ACOUSTIC BUZZER IN CASE OF ALARM
2	POTENCIOMETRO VELOCIDAD FRENO POTENTIOMETER VELOCITY BRAKE	POTENCIOMETRO ENCARGADO DE REGULAR LA VELOCIDAD DE DESCENSO POTENTIOMETER IN CHARGE OF REGULATING THE SPEED OF DESCENT
3	DISIPADOR FRENO / BRAKE HEATSINK	DISIPADOR DE TEMPERATURA GENERADA EN EL SISTEMA DE FRENADO ELEMENT HEATSINK FOR THE TEMPERATURE GENERATED IN THE BRAKE SYSTEM
4	BORNE ENTRADA 24 Vdc 24Vdc INPUT TERMINAL	BORNE EN PLACA DE ENTRADA 24 Vdc TERMINAL IN BOARD FOR 24 Vdc INPUT
5	BORNE MOTOR / MOTOR TERMINAL	BORNE DE CONEXION PARA EL MOTOR / MOTOR TERMINAL
6	SWITCH DIRECCIÓN BUS SWITCH BUS DIRECTION	DIRECCIÓN BUS DE LA SITUACIÓN DE LA PLACA EN EL MEDIO DE COMUNICACIÓN BUS DIRECTION OF THE BOARD LOCATION IN THE COMMUNICATION MEANS
7	SWITCH VELOCIDAD PROTOCOLO RS485 SWITCH SPEED PROTOCOL RS485	SWITCH DE CONFIGURACIÓN DE LA VELOCIDAD DEL PROTOCOLO DE COMUNICACIÓN RS485 SWITCH FOR SETTING THE SPEED OF THE RS485 COMMUNICATION PROTOCOL
8	POTENCIOMETRO POTENCIA DE FUNCIONAMIENTO OPERATING POWER POTENTIOMETER	POTENCIOMETRO ENCARGADO DE REGULAR LA POTENCIA DE FUNCIONAMIENTO POTENTIOMETER TO REGULATE THE OPERATING POWER OF THE SYSTEM
9	BORNE RS485-E / RS485-E TERMINAL	BORNE DE CONEXION PROTOCOLO DE COMUNICACIONES ENTRADA RS485 CONNECTION TERMINAL FOR INPUT RS485 COMMUNICATION PROTOCOL
10	BORNE RS485-S / RS485-S TERMINAL	BORNE DE CONEXION PROTOCOLO DE COMUNICACIONES SALIDA RS485 CONNECTION TERMINAL FOR OUTPUT RS485 COMMUNICATION PROTOCOL
11	SWITCH CONFIGURACIÓN CONFIGURATION SWITCH	SWITCH DE CONFIGUACIÓN DE PLACA SWITCH FOR CONFIGURATION BOARD
12	FUSIBLE DE SEGURIDAD SAFETY FUSE	FUSIBLE DE SEGURIDAD PARA SOBRECORRIENTE O CORTOCIRCUITO SAFETY FUSE FOR OVERCURRENT OR SHORT CIRCUIT
13	ENTRADA PROPÓSITO GENERAL / GENERAL PURPOSE INPUT	ENTRADA DE CONTACTO DE PROPOSITO GENERAL INPUT CONTACT FOR GENERAL PURPOSE
14	ENTRADA PROPÓSITO GENERAL / GENERAL PURPOSE INPUT	ENTRADA DE CONTACTO DE PROPOSITO GENERAL INPUT CONTACT FOR GENERAL PURPOSE
15	SALIDA PROPÓSITO GENERAL / GENERAL PURPOSE OUTPUT	SALIDA DE CONTACTO DE PROPÓSITO GENERAL OUTPUT CONTACT FOR GENERAL PURPOSE
16	BORNE PROGRAMACIÓN TERMINAL PROGRAMMING	BORNE PARA PROGRAMACIÓN DE TARJETA DRV TERMINAL FOR PROGRAMING DRV ELECTRONIC BOARD
17	TERMINAL TIERRA GND TERMINAL	BORNE CONEXIÓN DE TIERRA GND TERMINAL CONNECTION
18	LED ALARMA SENSOR TÉRMICO (TER) TERMICAL SENSOR (TER) LED INDICATOR	LED ALARMA SENSOR TERMICO (TER) TERMICAL SENSOR (TER) LED INDICATOR
19	LED STATUS	LED STATUS CORRIENTE CICLO / MANTENIMIENTO STATUS LED RUN MODE / MAINTENANCE MODE

Blackfire®

MEAN WELL

240W Single Output Industrial DIN RAIL with PFC Function **SDR-240 series**

■ Features :

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.93
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508 (industrial control equipment) approved
- BS EN/EN61000-6-2(BS EN/EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 years warranty

SPECIFICATION

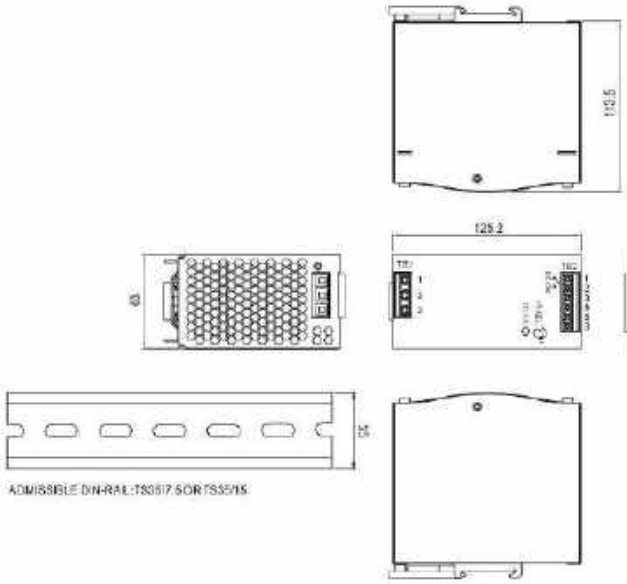
MODEL		SDR-240-24	SDR-240-48
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	10A	5A
	CURRENT RANGE	0 ~ 10A	0 ~ 5A
	RATED POWER	240W	240W
	PEAK CURRENT	15A	7.5A
	PEAK POWER Note.6	360W (3sec.)	
	RIPPLE & NOISE (max.) Note.2	50mVp-p	50mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%
	SETUP, RISE TIME	650ms, 50ms/230VAC 1300ms, 50ms/115VAC at full load	
	HOLD UP TIME (Typ.)	20ms/230VAC 20ms/115VAC at full load	
INPUT	VOLTAGE RANGE	88 ~ 264VAC 124 ~ 370VDC	
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	0.94/230VAC 0.99/115VAC at full load	
	EFFICIENCY (Typ.) Note.8	94%	
	AC CURRENT (Typ.)	2.6A/115VAC 1.3A/230VAC	
	INRUSH CURRENT (Typ.)	30A/115VAC 55A/230VAC	
	LEAKAGE CURRENT	<1mA / 240VAC	
PROTECTION	OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery	
		>150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	
	OVER VOLTAGE	29 ~ 33V	56 ~ 65V
		Protection type : Shut down o/p voltage with auto-recovery	
	OVER TEMPERATURE	95°C ± 5°C (TSW : detect on heatsink of power switch)	
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	DC OK RELAY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load	
ENVIRONMENT	WORKING TEMP. Note.5	-25 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 95% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV BS EN/EN62368-1, AS/NZS 62368.1, EAC TP TC 004 approved; meet BS EN/EN60204-1)	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C/ 70% RH	
	EMC EMISSION	Compliance to BS EN/EN55032 (CISPR32), BS EN/EN61204-3 Class B, BS EN/EN61000-6-3, EAC TP TC 020	
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, BS EN/EN61000-6-2 (BS EN/EN50082-2), BS EN/EN61204-3, heavy industry level, criteria A, EAC TP TC 020, SEMI F47 approved	
OTHERS	MTBF	169.3K hrs min. MIL-HDBK-217F (25°C)	
	DIMENSION	63*125.2*113.5mm (W*H*D)	
	PACKING	1.03Kg; 12pcs/13.4Kg/1.22CUFT	
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended. 6. 3 seconds max., please refer to peak loading curves. 7. Derating may be needed under low input voltage. Please check the derating curve for more details. 8. After 30 minutes of burn-in. 9. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx		

File name:SDR-240-SPEC 2021-06-23

MEAN WELL 240W Single Output Industrial DIN RAIL with PFC Function **SDR-240 series**

■ Mechanical Specification

Case No. 978A Unit:mm



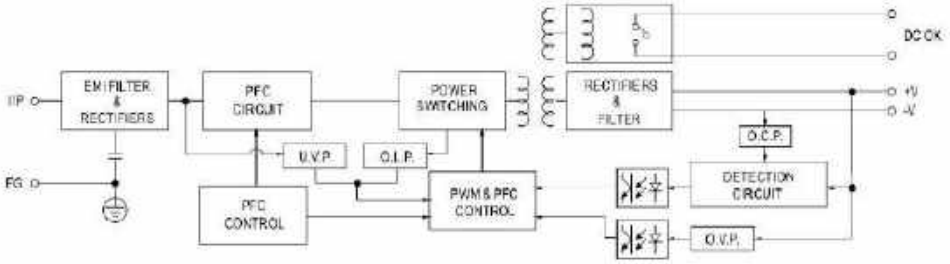
Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG ⏚
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2	Relay Contact
3,4	DC OUTPUT +V
5,6	DC OUTPUT -V

■ Block Diagram

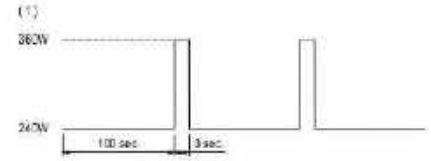


■ DC OK Relay Contact

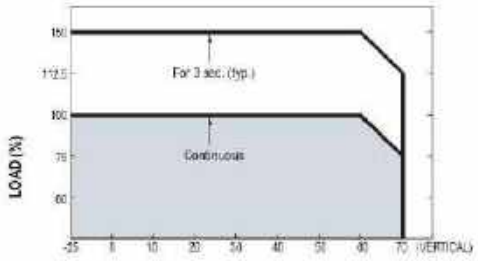
Contact Close	PSU turns on / DC OK
Contact Open	PSU turns off / DC Fail
Contact Ratings (max.)	30W/1A resistive load.

MEAN WELL 240W Single Output Industrial DIN RAIL with PFC Function **SDR-240** series

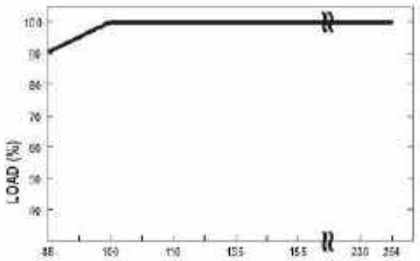
■ Peak Loading



■ Derating Curve



■ Output derating VS input voltage



MEAN WELL

CE

Declaration of Conformity

For the following equipment :

Product Name: Din-Rail Switching Power Supply

Model Designation: SDR-240-X (X=24/48)

is herewith confirmed to comply with the requirements set out in the Council Directive, the following standards were applied :

RoHS Directive (2011/65/EU)、(EU)2015/863

Low Voltage Directive (2014/35/EU) :

EN62368-1:2014+A11 TUV certificate No : R50452750

Electromagnetic Compatibility Directive (2014/30/EU) :

EMI (Electro-Magnetic Interference)

Conducted emission / Radiated emission

EN 55032:2015+EN 55032:2015+A11:2020 EN IEC 61204-3:2018 Class B

Harmonic current	EN IEC 61000-3-2:2019		
Voltage flicker	EN 61000-3-3:2013+A1:2019		

EMS (Electro-Magnetic Susceptibility)

EN 55035:2017+EN 55035:2017+A11:2020 EN IEC 61000-6-2:2019 EN IEC 61204-3:2018

ESD air	EN61000-4-2:2009	Level 3	8KV
ESD contact	EN61000-4-2:2009	Level 2	4KV
RF field susceptibility	EN61000-4-3:2006+A1:2008+A2:2010	Level 3	10V/m
EFT bursts	EN61000-4-4:2012	Level3	2KV/5KHz
Surge susceptibility	EN61000-4-5:2014+A1:2017	Level 3	2KV/Line-Line
Surge susceptibility	EN61000-4-5:2014+A1:2017	Level 4	4KV/Line-Earth
Conducted susceptibility	EN61000-4-6:2014	Level 3	10V
Magnetic field immunity	EN61000-4-8:2010	Level 4	30A/m
Voltage dip, interruption	EN61000-4-11:2004+A1:2017+A2:2020	>95%dip 0.5 periods	30% dip 25periods >95% interuptions 250periods

Note:
The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete system, the final equipment manufacturers must re-qualify EMC Directive on the complete system again.
For guidance on how to perform these EMC tests, please refer to TDF (Technical Documentation File).

This Declaration is effective from serial number EC8xxxxxxx

Person responsible for marking this declaration :

MEAN WELL Enterprises Co., Ltd.
(Manufacturer Name)
No.28, Wuquan 3rd Rd., Wugu Dist., New Taipei City 24891, Taiwan
(Manufacturer Address)

Johnny Huang/Manager, Certification Center		Alex Tsai/Director, Marketing Department :	
(Name / Position)	(Signature)	(Name / Position)	(Signature)
Taiwan	Oct. 27th, 2020		
(Place)	(Date)		

Version : 7

SGS CCSRF

Compliance Certification Services (Kunshan) Inc.

VERIFICATION OF COMPLIANCE

Verification No.:	KSEM201000134401ATC
Applicant:	MEAN WELL Enterprises Co., Ltd.
Address of Applicant:	No.28, Wuquan 3rd Rd., Wugu Dist., New Taipei City 248, Taiwan (R.O.C.)
Product Description:	Din-Rail Switching Power Supply
Model No.:	SDR-240-24;SDR-240-48

Sufficient samples of the product have been tested and found to be in conformity with

Test Standards:	EN IEC 61204-3:2018, EN 55032:2015 + EN 55032:2015+A11:2020 EN IEC 61000-3-2:2019, EN 61000-3-3:2013+A1:2019, EN 55035:2017 + EN 55035:2017+A11:2020,EN IEC 61000-6-2:2019
As shown in the Test Report Number(s):	KSEM201000134401

This verification of EMC Compliance has been granted to the applicant based on the results of the tests, performed by laboratory of Compliance Certification Services (Kunshan) Inc. on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards under Directive 2014/30/EU. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

CE

Eric Lin
EMC Lab Manager

Date: 2020-10-27

Member of SGS Group (Société Générale de Surveillance)

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300 t(86-512)57399888 f(86-512)57399816 www.sgsgroup.com.cn
中国·江苏·昆山市创新路维业路10号 邮编 215300 t(86-512)57399888 f(86-512)57399816 sgs.china@sgs.com

MEAN WELL

480W Single Output Industrial DIN RAIL with PFC Function **SDR-480 series**

■ Features :

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.94
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508(industrial control equipment)approved
- BS EN/EN61000-6-2(BS EN/EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 years warranty

SPECIFICATION

MODEL		SDR-480-24	SDR-480-48
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	20A	10A
	CURRENT RANGE	0 ~ 20A	0 ~ 10A
	RATED POWER	480W	480W
	PEAK CURRENT	30A	15A
	PEAK POWER Note.6	720W (3sec.)	
	RIPPLE & NOISE (max.) Note.2	150mVp-p	120mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
	VOLTAGE TOLERANCE Note.3	±1.2%	±1.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%
	SETUP, RISE TIME	1500ms, 150ms/230VAC 3000ms, 150ms/115VAC at full load	
	HOLD UP TIME (Typ.)	14ms/230VAC at full load	
INPUT	VOLTAGE RANGE Note.7	90 ~ 264VAC 127 ~ 370VDC	
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	0.94/230VAC 0.99/115VAC at full load	
	EFFICIENCY (Typ.)	94%	
	AC CURRENT (Typ.)	5A/115VAC 2.6A/230VAC	
	INRUSH CURRENT (Typ.)	40A/115VAC 80A/230VAC	
	LEAKAGE CURRENT	<0.8mA / 240VAC	
PROTECTION	OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery	
		>150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	
	OVER VOLTAGE	29 ~ 33V	56 ~ 65V
		Protection type : Shut down o/p voltage with auto-recovery or re-power on to recovery	
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	DC OK RELAY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load	
ENVIRONMENT	WORKING TEMP. Note.5	-25 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 95% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV BS EN/EN62368-1, AS/NZS 62368.1, EAC TP TC 004, BSMI CNS14336-1 approved; (meet BS EN/EN60204-1)	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C/ 70% RH	
	EMC EMISSION	Compliance to BS EN/EN55032 (CISPR32), BS EN/EN61204-3 Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020, CNS13438	
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, BS EN/EN61000-6-2 (BS EN/EN50082-2), BS EN/EN61204-3, heavy industry level, criteria A, EAC TP TC 020, SEMI F47 approved	
OTHERS	MTBF	112.8K hrs min. MIL-HDBK-217F (25°C)	
	DIMENSION	85.5*125.2*128.5mm (W*H*D)	
	PACKING	1.6Kg; 8pcs/13.8Kg/0.9CUFT	

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.
6. 3 seconds peak power max. and the average output power should not exceed the rate power.
7. Derating may be needed under low input voltage. Please check the derating curve for more details.
8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).

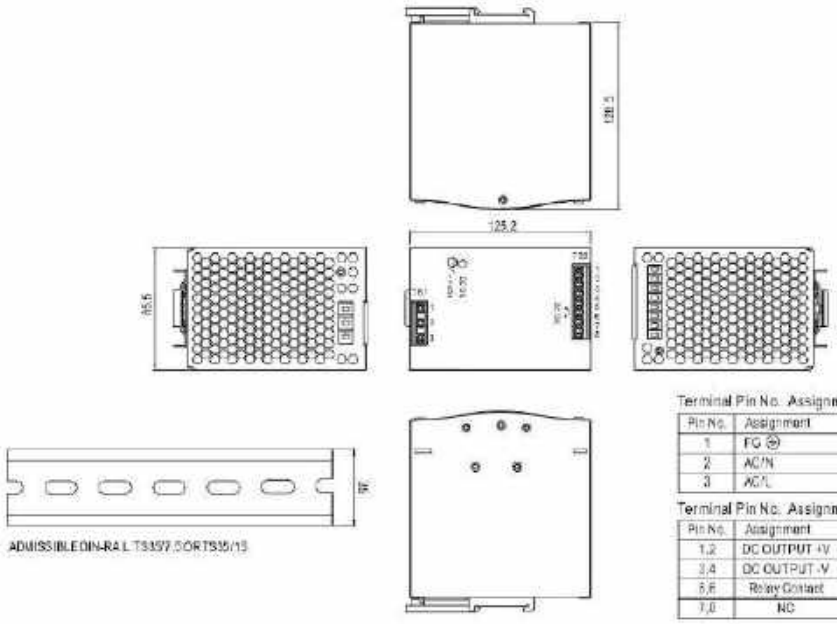
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

MEAN WELL

480W Single Output Industrial DIN RAIL with PFC Function **SDR-480 series**

■ Mechanical Specification

Case No.984A Unit:mm



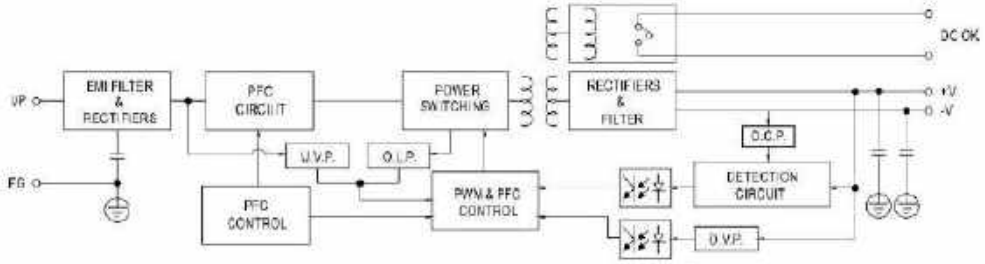
Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG ⏚
2	AC/N
3	AC/L

Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V
5,6	Relay Contact
7,8	NC

■ Block Diagram

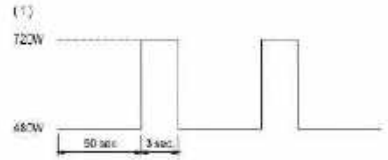


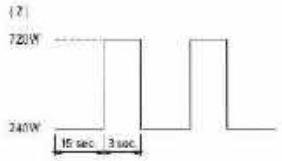
■ DC OK Relay Contact

Contact Close	PSU turns on / DC OK
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30W/1A resistive load.

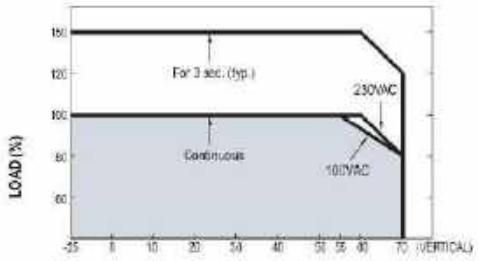
MEAN WELL 480W Single Output Industrial DIN RAIL with PFC Function **SDR-480 series**

■ Peak Loading

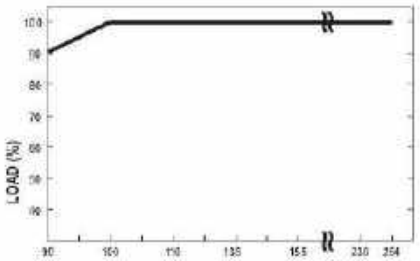




■ Derating Curve



■ Output derating VS input voltage



MEAN WELL

CE

Declaration of Conformity

For the following equipment :

Product Name: Din-Rail Switching Power Supply

Model Designation: SDR-480-X (X=24,48) ; SDR-480P-X(X=24,48)

is herewith confirmed to comply with the requirements set out in the Council Directive, the following standards were applied :

RoHS Directive (2011/65/EU), (EU)2015/863

Low Voltage Directive (2014/35/EU) :

EN62368-1:2014+A11 TUV certificate No : R50453593

Electromagnetic Compatibility Directive (2014/30/EU) :

EMI (Electro-Magnetic Interference)

Conducted emission / Radiated emission

EN 55032:2015+EN 55032:2015+A11:2020 EN IEC 61204-3:2018 Class B

Harmonic current	EN IEC 61000-3-2:2019		
Voltage flicker	EN 61000-3-3:2013+A1:2019		

EMS (Electro-Magnetic Susceptibility)

EN 55035:2017+EN 55035:2017+A11:2020 EN IEC 61000-6-2:2019 EN IEC 61204-3:2018

ESD air	EN61000-4-2:2009	Level 3	8KV
ESD contact	EN61000-4-2:2009	Level 2	4KV
RF field susceptibility	EN61000-4-3:2006+A1:2008+A2:2010	Level 3	10V/m
EFT bursts	EN61000-4-4:2012	Level 3	2KV/5KHz
Surge susceptibility	EN61000-4-5:2014+A1:2017	Level 4	2KV/Line-Line
Surge susceptibility	EN61000-4-5:2014+A1:2017	Level 4	4KV/Line-Earth
Conducted susceptibility	EN61000-4-6:2014	Level 3	10V
Magnetic field immunity	EN61000-4-8:2010	Level 4	30A/m
Voltage dip, interruption	EN61000-4-11:2004+A1:2017	>95% dip 0.5periods, 30% dip 25periods, >95% interruptions 250 periods	

Note:
The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete system, the final equipment manufacturers must re-qualify EMC Directive on the complete system again.
For guidance on how to perform these EMC tests, please refer to TDF (Technical Documentation File).

This Declaration is effective from serial number EC0xxxxxx

Person responsible for marking this declaration :

MEAN WELL Enterprises Co., Ltd.
(Manufacturer Name)
No.28, Wuquan 3rd Rd., Wugu Dist., New Taipei City 24891, Taiwan
(Manufacturer Address)

Johnny Huang/ Manager, Certification Center (Name / Position) (Signature)

Alex Tsai/Director, Marketing Department (Name / Position) (Signature)

Taiwan (Place)

Nov. 5th, 2020 (Date)

Version : 9

SGS CCSRF

Compliance Certification Services (Kunshan) Inc.

VERIFICATION OF COMPLIANCE

Verification No.:	KSEM201000135101ATC
Applicant:	MEAN WELL Enterprises Co., Ltd.
Address of Applicant:	No.28, Wuquan 3rd Rd., Wugu District, New Taipei City 24891, Taiwan
Product Description:	switching power supply
Model No.:	SDR-480 480P

Sufficient samples of the product have been tested and found to be in conformity with

Test Standards:	EN 55032:2015+EN 55032:2015+A11:2020
	EN IEC 61204-3:2018
	EN IEC 61000-3-2:2019
	EN 61000-3-3:2013+A1:2019
	EN 55035:2017+EN 55035:2017+A11:2020
	EN IEC 61000-6-2:2019

As shown in the

Test Report Number(s): KSEM201000135101

This verification of EMC Compliance has been granted to the applicant based on the results of the tests, performed by laboratory of Compliance Certification Services (Kunshan) Inc. on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards under Directive 2014/30/EU. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

CE

Eric Lin
EMC Lab Manager

Date: 2020-11-05

Member of SGS Group (Société Générale de Surveillance)

No.10, Weiye Road, Innovation Park, Kunshan, Jiangsu, China 215300 t(86-512)57309888 f(86-512)57370818 www.sgsgroup.com.cn
中国·江苏·昆山市围学生创业园伟业路10号 邮编 215300 t(86-512)57309888 f(86-512)57370818 sgs.china@sgs.com

SDR-960 series

960W Single Output Industrial DIN RAIL with PFC Function

■ Features :

- AC input 180~264VAC only
- 150% peak load capability
- 110mm slim design
- Built-in active PFC function compliance to EN61000-3-2
- High efficiency 94% and low power dissipation
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- Can be installed on DIN rail TS-35/7.5 or 15
- UL508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Current sharing up to 3840W(3+1)
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 years warranty

CNS14336-1 UL508 EN BS/EN62368-1 TPTC004 IEC62368-1

SPECIFICATION

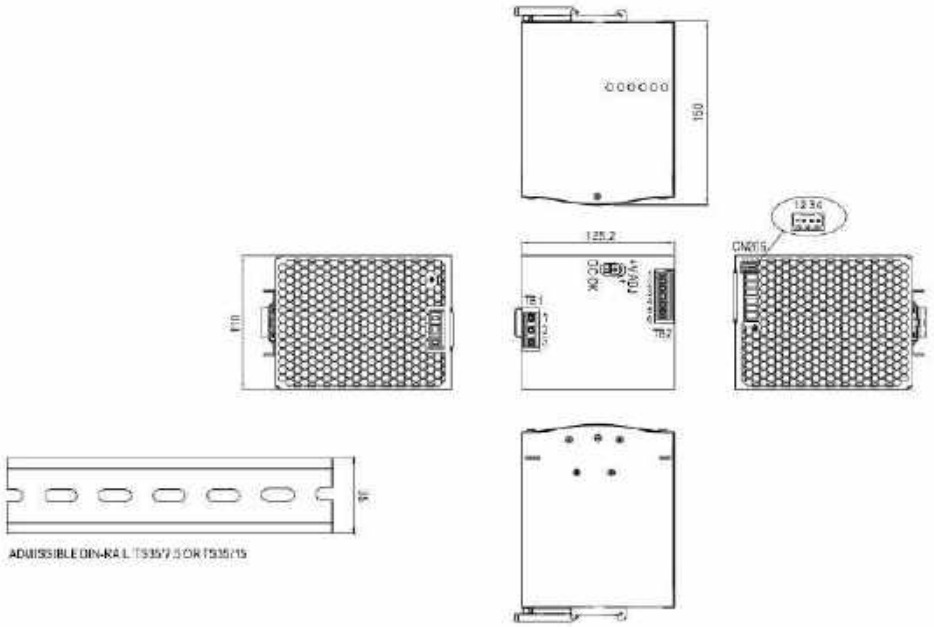
MODEL		SDR-960-24	SDR-960-48
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	40A	20A
	CURRENT RANGE	0 ~ 40A	0 ~ 20A
	RATED POWER	960W	960W
	PEAK CURRENT	52A	26A
	PEAK POWER Note.6	1248W (3sec.)	
	RIPPLE & NOISE (max.) Note.2	150mVp-p	250mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 56V
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%
	SETUP, RISE TIME	1000ms, 100ms/230VAC at full load	
	HOLD UP TIME (Typ.)	14ms/ 230VAC at full load	
INPUT	VOLTAGE RANGE Note.7	180 ~ 264VAC 254 ~ 370VDC	
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	PF≥0.95/230VAC at full load	
	EFFICIENCY (Typ.)	94%	94%
	AC CURRENT (Typ.)	6A/230VAC	
	INRUSH CURRENT (Typ.)	COLD START 50A/ 230VAC	
	LEAKAGE CURRENT	<3.5mA / 240VAC	
PROTECTION	OVERLOAD	Normally works within 105 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery after 30 seconds if the peak load condition is removed	
		Constant current limiting within 130 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage, re-power on to recover	
	OVER VOLTAGE	29 ~ 33V	56 ~ 65V
		Protection type : Shut down o/p voltage, with auto-recovery or re-power on to recover	
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	DC OK RELAY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load	
	CURRENT SHARING	Please refer to function manual	
ENVIRONMENT	WORKING TEMP. Note.5	-30 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 95% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV BS EN/EN62368-1, BSMI CNS14336-1, AS/NZS62368.1, EAC TP TC 004 approved ; meet BS EN/EN60204-1)	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C/ 70% RH	
	EMC EMISSION Note.8	Compliance to BS EN/EN55032 (CISPR32), BS EN/EN61204-3 Conduction class B, Radiation class A, BS EN/EN61000-3-2,-3, EAC TP TC 020, BSMI CNS13438	
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, BS EN/EN61000-6-2 (BS EN/EN50082-2), BS EN/EN61204-3, heavy industry level, criteria A, EAC TP TC 020	
OTHERS	MTBF	69.3K hrs min. MIL-HDBK-217F (25°C)	
	DIMENSION	110*125.2*150mm (W*H*D)	
	PACKING	2.47Kg ; 6pcs/15.8Kg/1.65CUFT	
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended. 6. 3 seconds peak power max. and the average output power should not exceed the rate power. 7. Derating may be needed under low input voltage. Please check the derating curve for more details. 8. Consult MEAN WELL for deployment of Radiation class B. 9. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx		

MEAN WELL

960W Single Output Industrial DIN RAIL with PFC Function **SDR-960 series**

■ Mechanical Specification

Case No.214A Unit:mm



Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG ⏚
2	AC/N
3	AC/L

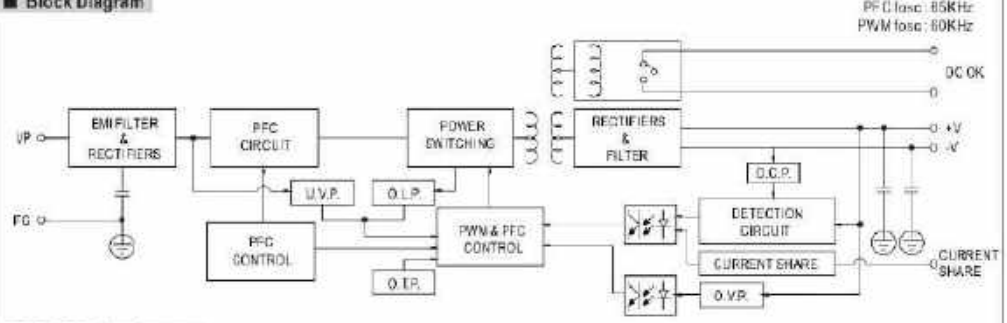
Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2,3	DC OUTPUT +V
4,5,6	DC OUTPUT -V

Control Pin (CN205) : DINKLE ECH250R-04P or equivalent

Pin No.	Assignment	Mating Housing	Wire Diameter
1	P-(Current Share)	DINKLE ESC250V-04P or equivalent (Including in the single package)	0.081~0.517mm² (28~20AWG)
2	P+(Current Share)		
3,4	DC OK Relay Contact		

■ Block Diagram



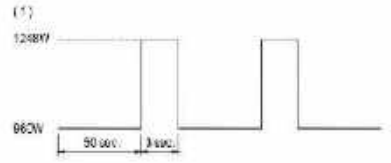
■ DC OK Relay Contact

Contact Close	PSU turns on / DC OK
Contact Open	PSU turns off / DC Fail
Contact Ratings (max.)	30W/1A resistive load

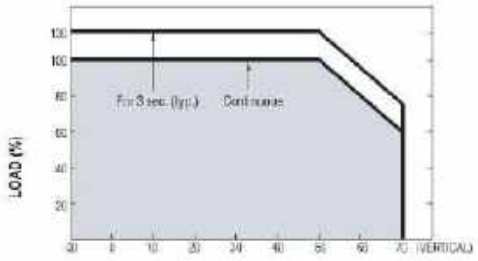
MEAN WELL

960W Single Output Industrial DIN RAIL with PFC Function **SDR-960 series**

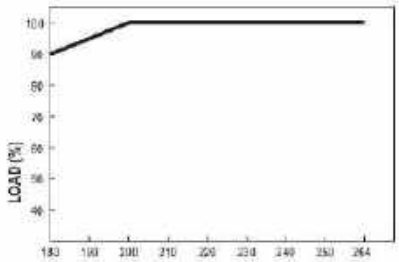
■ Peak Loading



■ Derating Curve



■ Output derating VS input voltage



■ Function Manual

1. Current sharing

(1) Parallel operation is available by connecting the units shown as below (P+, P- are connected mutually in parallel).

(2) Difference of output voltages among parallel units should be less than 0.2V.

(3) The total output current must not exceed the value determined by the following equation (Output current at parallel operation)=(The rated current per unit) x (Number of unit) x 0.9.

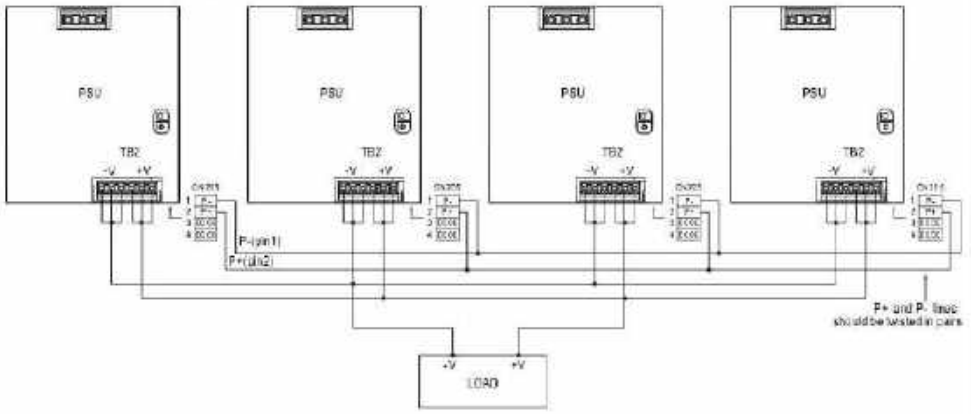
(4) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.

(5) The power supplies should be paralleled using short and large diameter wiring and then connected to the load.

(6) When in parallel operation, the minimum output load should be greater than 5% of total output load.
(Min. load =5% rated current per unit x number of unit)

(7) In parallel connection, maybe only one unit (master) operate if the total output load is less than 5% of rated load condition.
The other PSUs (slaves) may go into standby mode and their output LEDs & relays will not turn on.

(8) Some minor noise may be heard at light load condition under parallel operation.
This is a normal phenomenon and the performance of the PSU will not be influenced.



File Name:SDR-960-SPEC 2021-03-25

MEAN WELL

CE

Declaration of Conformity

For the following equipment :

Product Name: Din-Rail Switching Power Supply

Model Designation: SDR-960-X (X=24,48)

is herewith confirmed to comply with the requirements set out in the Council Directive, the following standards were applied :

RoHS Directive (2011/65/EU)、(EU)2015/863

Low Voltage Directive (2014/35/EU) :

EN62368-1:2014+A11 TUV certificate No : R50450450

Electromagnetic Compatibility Directive (2014/30/EU) :

EMI (Electro-Magnetic Interference)

Conducted emission / Radiated emission

	EN55032:2015/A11:2020		Class A
Harmonic current	EN IEC61000-3-2:2019		
Voltage flicker	EN61000-3-3:2013+A1:2019		

EMS (Electro-Magnetic Susceptibility)

EN55024:2010+A1:2015	EN IEC 61000-6-2:2019	EN IEC 61204-3:2018	EN55035:2017+A11:2020
ESD air	EN61000-4-2:2009	Level 4	15KV
ESD contact	EN61000-4-2:2009	Level 4	8KV
RF field susceptibility	EN61000-4-3:2006+A1:2008+A2:2010	Level 3	10V/m
EFT bursts	EN61000-4-4:2012	Level 3	2KV/5KHz
Surge susceptibility	EN61000-4-5:2014+A1:2017	Level 4	2KV/Line-Line
Surge susceptibility	EN61000-4-5:2014+A1:2017	Level 4	4KV/Line-Earth
Conducted susceptibility	EN61000-4-6:2014	Level 3	10V
Magnetic field immunity	EN61000-4-8:2010	Level 4	30A/m
Voltage dip, interruption	EN IEC61000-4-11:2020	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods	

Note:
The power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete system, the final equipment manufacturers must re-qualify EMC Directive on the complete system again.
For guidance on how to perform these EMC tests, please refer to TDF (Technical Documentation File).

This Declaration is effective from serial number RCDxxxxxxx

Person responsible for marking this declaration :

MEAN WELL Enterprises Co., Ltd.
(Manufacturer Name)
No.28, Wuquan 3rd Rd., Wugu Dist., New Taipei City 24891, Taiwan
(Manufacturer Address)

Johnny Huang/ Manager, Certification Center :		Alex Tsai/Director, Marketing Department :	
(Name / Position)	(Signature)	(Name / Position)	(Signature)
Taiwan	Dec. 15th, 2020		
(Place)	(Date)		

Version : 7

Verification of Compliance

Product Name	:	Din-Rail Switching Power Supply
Model Number	:	SDR-960-X (X=24, 48)
Applicant	:	MEAN WELL ENTERPRISES CO., LTD.
Address	:	No.28, Wuquan 3rd Rd., Wugu Dist., New Taipei City 248, Taiwan (R.O.C.)
Report Number	:	S3C32-M020-1207-427
Issue Date	:	December 15, 2020

Applicable Standards :

Emission :

EN 55032 : 2015/A11:2020 Class A
EN IEC 61204-3: 2018 Class A
EN IEC 61000-3-2 : 2019
EN 61000-3-3 : 2013+A1 :2019

Immunity :

EN 55024 : 2010+A1 :2015
EN IEC 61204-3 : 2018 industrial environments
EN 55035 :2017+A11 :2020
EN IEC 61000-6-2 : 2019
EN 61000-4-2 : 2009
EN 61000-4-3 : 2006+A1 : 2008+A2 : 2010
EN 61000-4-4 : 2012
EN 61000-4-5 : 2014+A1 :2017
EN 61000-4-6 : 2014
EN 61000-4-8 : 2010
EN IEC 61000-4-11 : 2020

CE

Based on the EMC Directive 2014/30/EU and the specifications of the customer, one sample of the designated product has been tested in our laboratory and found to be in compliance with the EMC standards cited above.

Central Research Technology Co.
11, Lane 41, Fushuen St., Jungshan Chiu,
Taipei 104, Taiwan
Tel : 886-2-25984568
Fax : 886-2-25984546

(Tsun-Yu Shih/ General Manager)
Date: December 15, 2020

TAF 0905
FCC CAB Code TW1104, TW0019
NVLAP Lab Code 200575-0

ISED CAB Code TW0905
VCCI Accep. No. R-11527, C-11609, T-11441, G-10010, C-20010
T-20009, G-10614