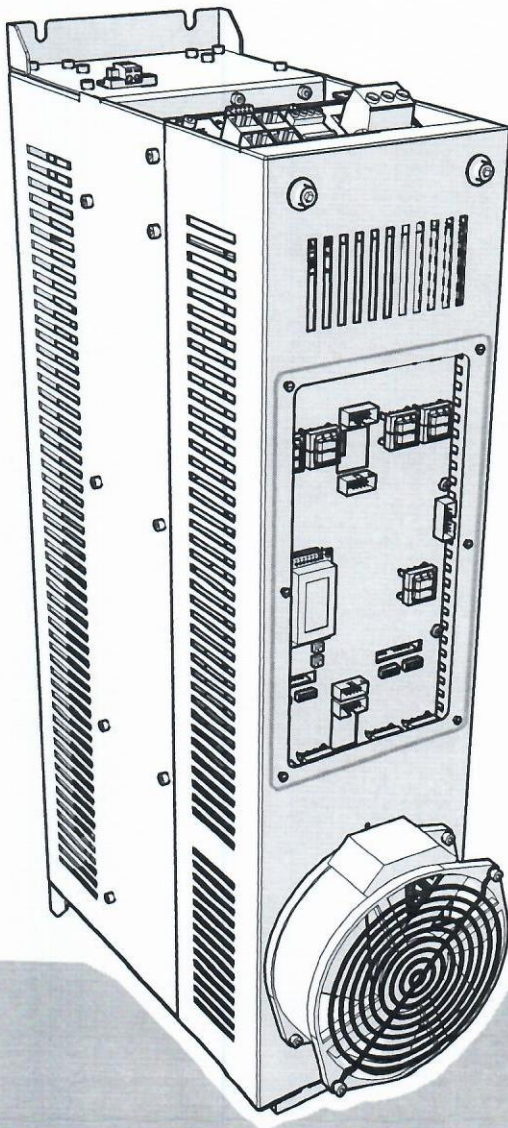


Guida di installazione

Installation guide



Modelli / Models: HATA, HMTA, HMNA,
HMDA, HMXA, HMHA,
HMDW, HMXW, HMGA

Il campo ammesso è tra 24 Vdc e 28 Vdc, la corrente richiesta per l'alimentazione ausiliaria dipende dal modello di macchina prescelto:

- HATA e HMTA la corrente richiesta per l'alimentazione ausiliaria è di 2,5A.
- HMNA, HMDA, HMXA, HMHA, HMDW, HMXW, HMGA la corrente richiesta per l'alimentazione ausiliaria è di 1A.

The permissible range is between 24Vdc and 28Vdc, the current required for the auxiliary power supply depends which kind of machine model:

- The required current for HATA and HMTA for the auxiliary supply power is 2,5A.
- The required current for HMNA, HMDA, HMXA, HMHA, HMDW, HMXW, HMGA for the auxiliary supply power is 1A.



- Questa sorgente non deve essere in nessun modo sezionata anche in caso di emergenza del sistema ospitante.



- This source must never be isolated, even in the event of an emergency in the host system.

2.3b - "J2 e J3" Bus di campo HPE

2.3b - "J2 and J3" HPE fieldbuses

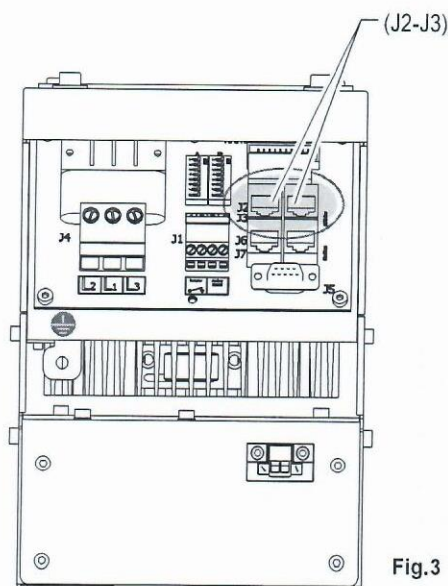


Fig.3

J1, J2 sono internamente connessi in parallelo e servono esclusivamente per collegare gli elementi HPE (HA2LD, IOCPU, IOCPU/2) tramite il cavo RJ45 di classe 5 o superiore.

J1, J2 are internally connected in parallel and are solely used to connect the HPE components (HA2LD, IOCPU, IOCPU/2) by means of cable RJ45 (class 5 or higher).



La connessione di "**Componenti**" diversi da quelli sopra indicati, potrebbe essere causa di danneggiamento irreparabile del "**Dispositivo**" e/o dei "**Componenti**" stessi.



Connection of "**Components**" differing from those indicated above could irreparably damage the "**Device**" and/or the "**Components**" themselves.

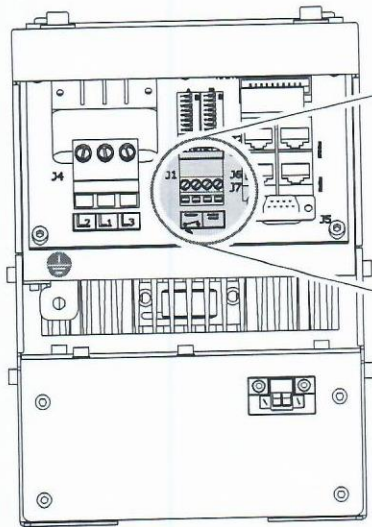


Non collegare questi connettori a reti dati (Ethernet o PC).



Do not connect these connectors to data networks (Ethernet or PC).

2.3a - "J1" Alimentazione ausiliaria in bassa tensione e comando contattore



2.3a - "J1" Low voltage auxiliary power supply and contactor control

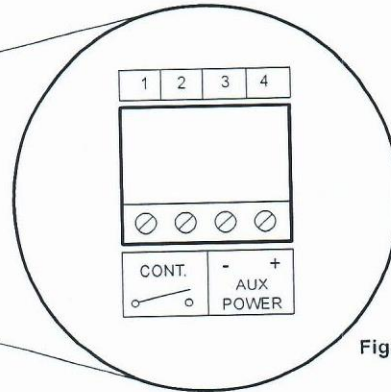





Fig.2

- **Pin 1,2 (Power Start) - Contatto NO di richiesta attivazione contattore di potenza (Rif. par. 4.4)**
Potere di interruzione:
- 2.5A
- 24VDC

Il "**Dispositivo**" chiude questo contatto per azionare il contattore di potenza (K1 - Rif. par. 4.4) che a sua volta attiva l'alimentazione di rete.


 **NOTA:** L'alimentazione del circuito ausiliario del contattore (K1 - Rif. par. 4.4), deve essere sotto il controllo di un modulo di sicurezza di categoria adeguata al "performance level" che si vuole ottenere.


 **NOTA:** Il tempo di latenza tra la chiusura del contatto (Start Power) e l'attivazione di K1 deve essere < 0,1 sec. In caso contrario STARCLUSTER entrerà in modalità allarme [NO MAIN].


 Proteggere con fusibile < 2,5A
• **Pin 3,4 (24 Vdc) - Punto di connessione 24V**

- **Pins 1,2 (Power Start) - NO contact for power contactor activation enabling (Ref. sect. 4.4)**
Breaking capacity:
- 2.5A
- 24VDC

The "**Device**" makes this contact to activate the power contactor (K1 - Ref. sect. 4.4), which consequently activates the mains supply.

 **NOTE:** The power supply of the auxiliary circuit of the contactor (K1 - Ref. sect. 4.4) must be controlled by a safety module of a category suited to the required "performance level".

 **NOTE:** The time lag between making of the contact (Start Power) and activation of K1 must be < 0.1 sec., otherwise STARCLUSTER will enter the alarm mode [NO MAIN].

 Protect with a < 2.5A fuse
• **Pins 3,4 (24 Vdc) - 24V connection point.**

2.1 - Contenuto del capitolo

Questo capitolo spiega come eseguire i collegamenti sul dispositivo STARCLUSTER.

2.2 - Descrizione dei collegamenti

Il collegamento del "**Dispositivo**" è sotto responsabilità dell'utilizzatore, il quale deve assicurarsi che venga eseguito da personale tecnico qualificato con materiali sicuri e a norma.

2.3 - Punti di collegamento sul dispositivo STARCLUSTER

2.1 - Chapter contents

This chapter explains how to make the connections on the STARCLUSTER device.

2.2 - Description of the connections

Connection of the "**Device**" is the responsibility of the user, who must make sure that the operation is performed by qualified technical personnel using safe materials that conform to the standards.

2.3 - Connection points on the STARCLUSTER device

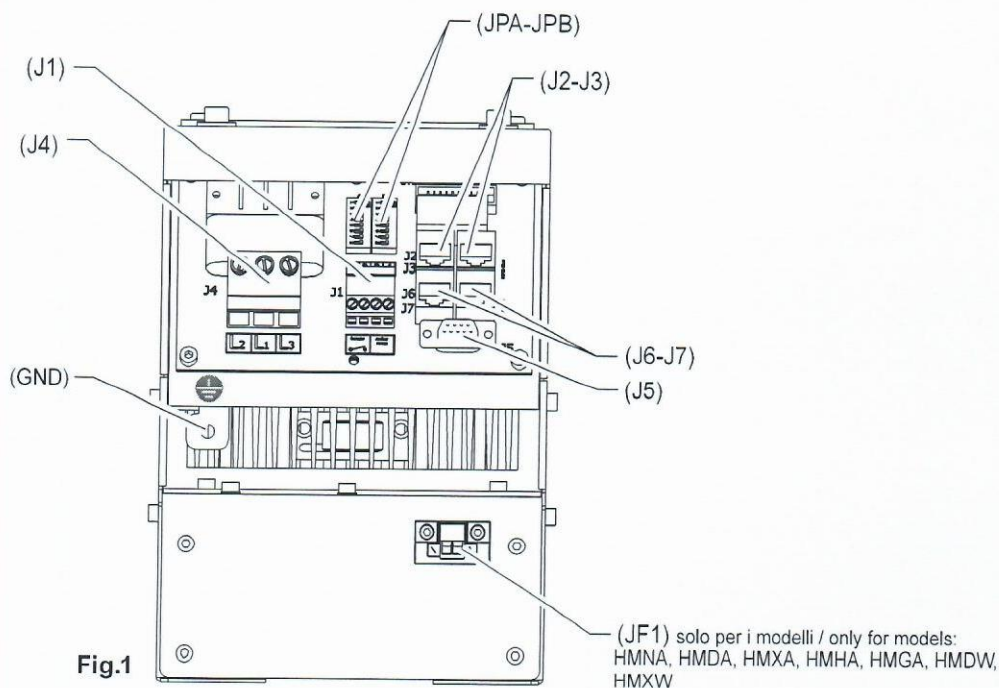


Fig.1

- J1 - Richiesta di attivazione contattore.
Tensione ausiliaria circuiti logici di controllo
24 Vdc.
- J2, J3 - Connettori RJ45 bus di campo HPE/CAN.
- J5 - Connettore D-Shell rete 485.
- J6, J7 - Connettori RJ45 ModBus®.
- JPA - Selettore RS485-A Vs J6 e J7.
- JPB - Selettore RS485-B Vs J6 e J7.
- J4 - Connettore di rete 220/400/480/510
trifase AC 50/60HZ.
- JF1 - Alimentazione ventilatori
220/230 Vac 50/60HZ (Max 0,5A - 200 Wat)

- J1 - Contactor activation request.
Auxiliary voltage for logic control circuits
24 Vdc.
- J2, J3 - Connection to the HPE/CAN fieldbus.
- J5 - 485 network connector
- J6, J7 - Dedicated ModBus® connections
- JPA - Selector switch for RS485-A VS J6 and J7
- JPB - Selector switch for RS485-B VS J6 and J7
- J4 - Connection to the main line
220/400/480/510 three-phase AC 50/60HZ
- JF1 - Fan power supply
220/230 VAC 50/60HZ (Max 0.5A - 200 Watts)

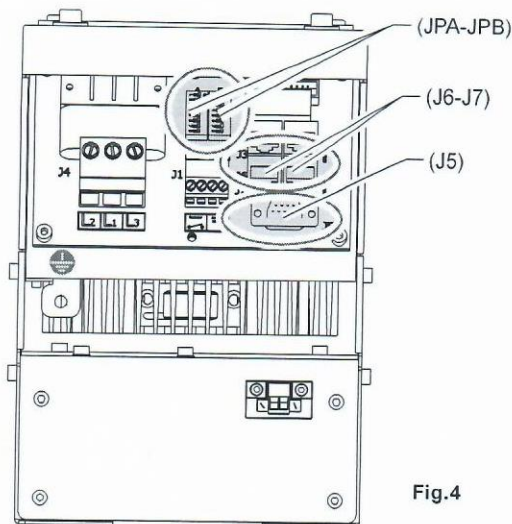


Fig.4

2.3c1 - "J5" Connettore D-Shell RS485

J5 pin 1,2 = *RS485-A*
 J5 pin 3,4 = *RS485-B*

2.3c1 - "J5" D-Shell RS485 connector

J5 pins 1,2 = *RS485-A*
 J5 pins 3,4 = *RS485-B*

4.3c2 - "J6, J7" connettori RJ45 per RS485

Questi due connettori sono connessi internamente in parallelo e sono dedicati al collegamento della rete 485. La posizione dei segnali "*485-A*" e "*485-B*" viene selezionata tramite i selettori JPA e JPB descritti nel sottoparagrafo successivo (4.3c3).

4.3c2 - "J6, J7" RJ45 connectors for RS485

These two connectors are internally connected in parallel and are dedicated to 485 network connection. The position of signals "*485-A*" and "*485-B*" is selected by means of selectors JPA and JPB, described in the next subsection (4.3c3).

4.3c3 -"JPA e JPB" Selettori polarità 485

Questi due selettori servono per connettere i segnali *485-A* e *485-B* della rete 485 presenti sui connettori J6 e J7 alla rete interna del "*Dispositivo*".

Es: JPA.4 = ON, significa che i pin J6.4 e J7.4 sono collegati al segnale *485-A* interno al "*Dispositivo*".

Es: JPB.5 = ON, significa che i pin J6.5 e J7.5 sono collegati al segnale *485-B* interno al "*Dispositivo*".

4.3c3 -"JPA and JPB" 485 polarity selectors

These two selectors are designed for connecting signals *485-A* and *485-B* of the 485 network on connectors J6 and J7 to the internal network of the "*Device*".

E.g.: JPA.4 = ON, means that pins J6.4 and J7.4 are connected to signal *485-A* inside the "*Device*".

E.g.: JPB.5 = ON, means that pins J6.5 and J7.5 are connected to signal *485-B* inside the "*Device*".

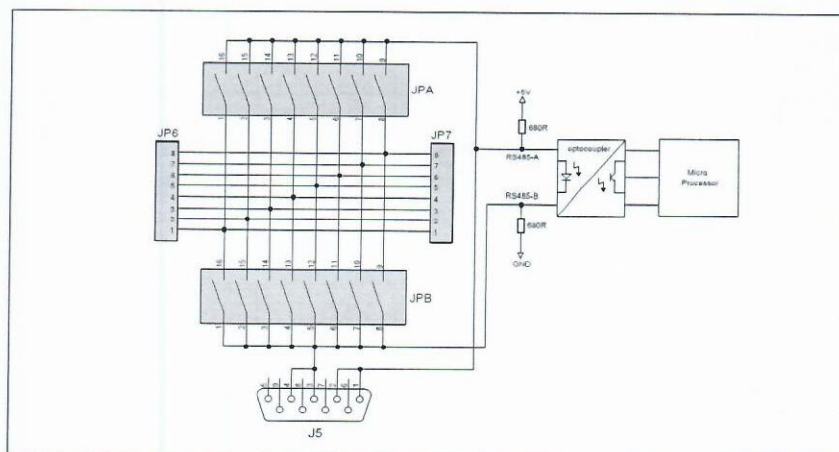


Fig.5

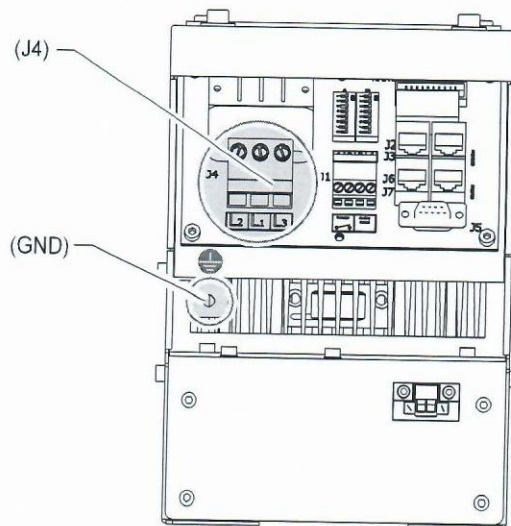


Fig.6

2.3d1 - "J4" Connettore estraibile alimentazione di potenza

- Sezione 3x16 mm²
- Passo 10,16
- I_{max} = 42A; V_{max} = 600V

Per i modelli HMHA e HMGA:

- Sezione 3x20 mm²
- Passo 15
- I_{max} = 115A; V_{max} = 600V

Questo connettore viene utilizzato per collegare il "**Dispositivo**" alla rete di alimentazione trifase.

Per il dimensionamento dei cavi di collegamento, riferirsi alla targhetta dati presente su ogni "**Dispositivo**".



Adottare tutte le protezioni necessarie secondo quanto imposto dalle normative di sicurezza vigenti.



L'errato cablaggio e/o il non rispetto delle normative di sicurezza vigenti, potrebbe causare danni irreparabili al "**Dispositivo**", alle persone e agli elementi attigui ad esso collegati.

2.3d2 - GND



La connessione di "terra" (GND) deve essere eseguita a regola d'arte come previsto dalle norme di sicurezza vigenti.



Connettere il punto di terra presente sul "**Dispositivo**" alla piastra di metallo di supporto con un cavo elettrico di lunghezza non superiore a 15 cm.

2.3d1 - "J4" Withdrawable power supply connector

- Section 3x16 mm²
- Pitch 10,16
- I_{max} = 42A; V_{max} = 600V

For the HMHA and HMGA models:

- Section 3x20 mm²
- Pitch 15
- I_{max} = 115A; V_{max} = 600V

This connector is used to connect the "**Device**" to the three-phase electric power mains.

Refer to the rating plate on each "**Device**" when sizing this connector.



Take all the necessary precautions, as required by the safety regulations in force.



Incorrect wiring and/or failure to comply with the safety regulations could cause irreparable damage to the "**Device**" device.

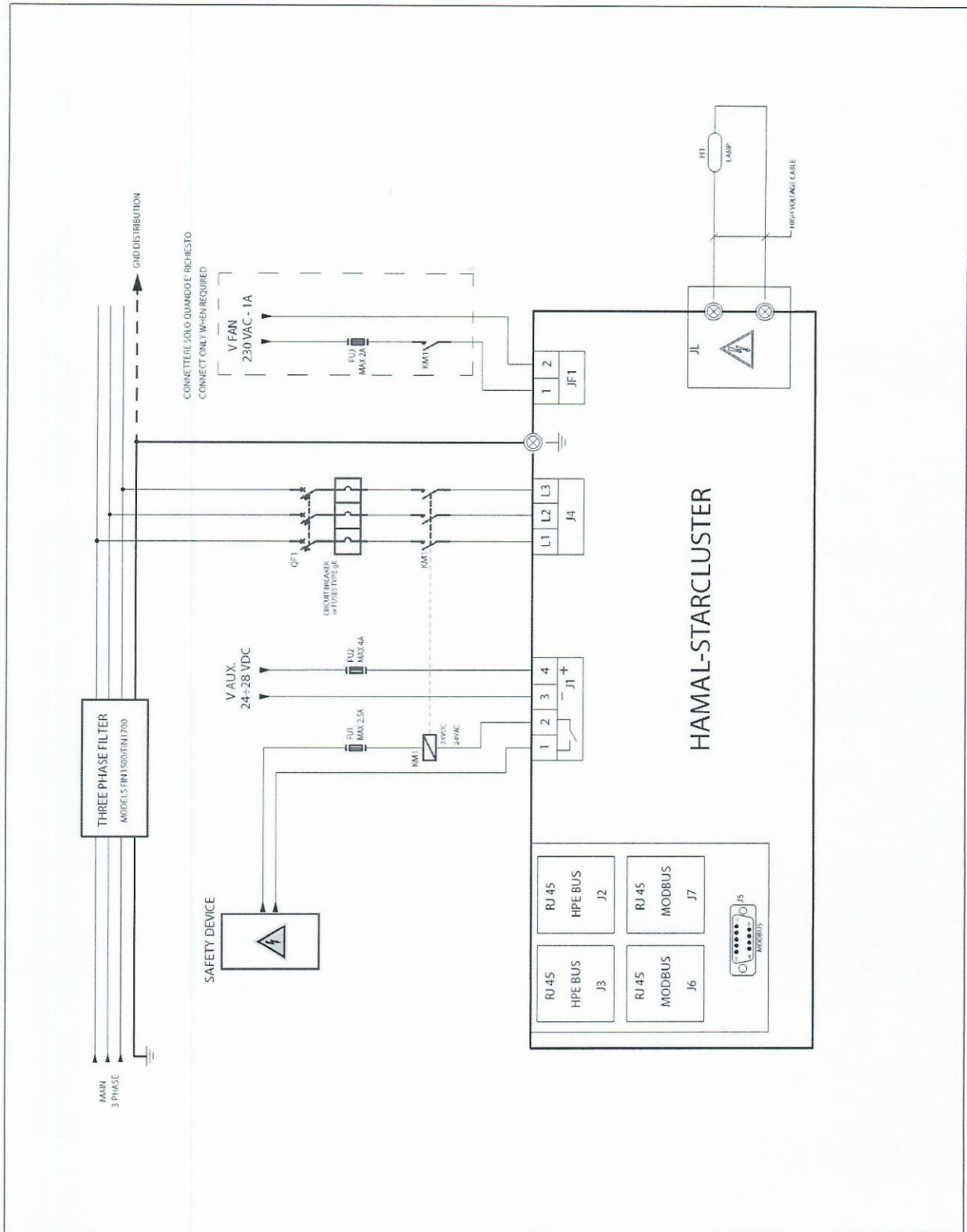
4.3d2 - GND



The "earth" connection (GND) must be made according to the highest standards of workmanship, as required by the safety regulations in force.



Connect the earthing point on the "**Device**" to the metal bearing plate using an electric cable no more than 15 cm in length.



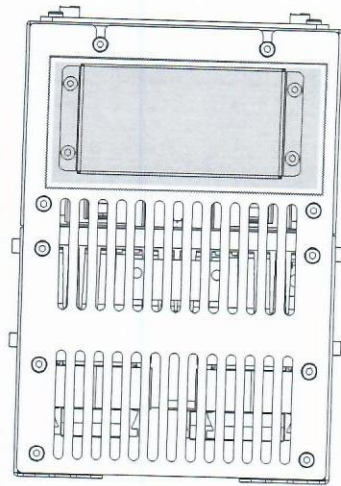


Fig.7

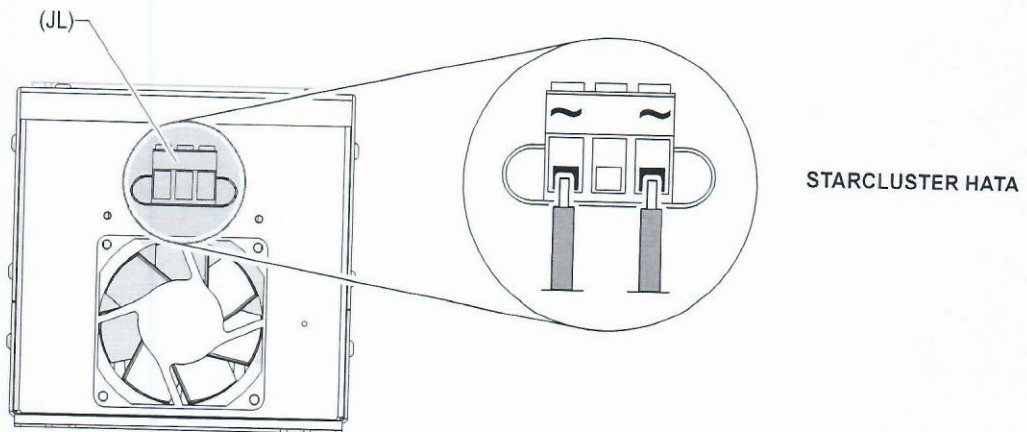
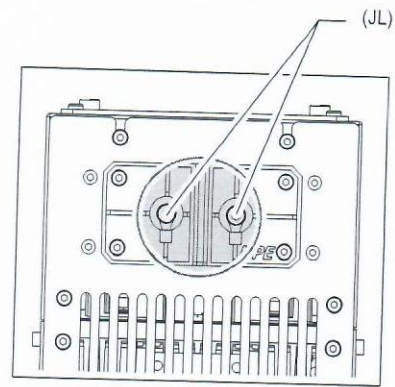


Fig.8

2.5a - "JL" connettore lampada UV

La connessione della lampada al dispositivo è una parte dell'installazione di vitale importanza per il buon funzionamento del sistema e per la sicurezza. L'installatore è tenuto ad utilizzare i materiali e a seguire le procedure di cablaggio in conformità alle normative vigenti.

Per la connessione Lampada-Dispositivo si possono utilizzare quattro tipologie di cavo:

1. Cavo doppino **Accoppiato**
2. Cavo doppino **Schermato**
3. Cavo singolo **Schermato** o Cavo Doppino **Schermato singolarmente**
4. Cavo singolo non schermato (**sconsigliato**)

2.5a - "JL" UV lamp connector

The connection of the lamp to the device is a part of the installation of vital importance for the proper working of the system and for safety.

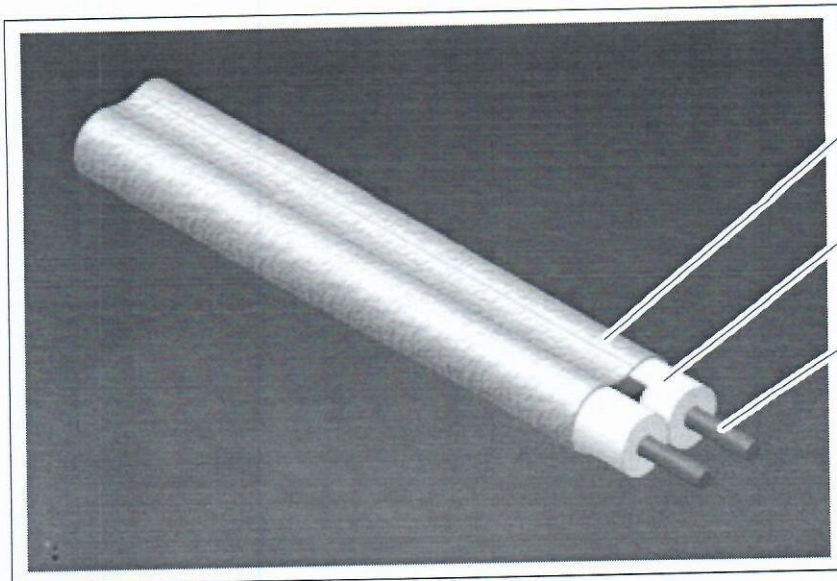
The installer must use the materials and follow the wiring procedures in compliance with the applicable regulatory standards.

For the Lamp-Device connection, four types of cables can be used:

1. Twisted pair cable **Paired**
2. Twisted pair cable **Shielded**
3. Single cable **Shielded** or Twisted pair cable **Shielded individually**
4. Single unshielded cable (not recommended)

2.5a1 - Connessione con Cavo doppino
"Accoppiato"

2.5a1 - Connection with Twisted pair cable
"Paired"

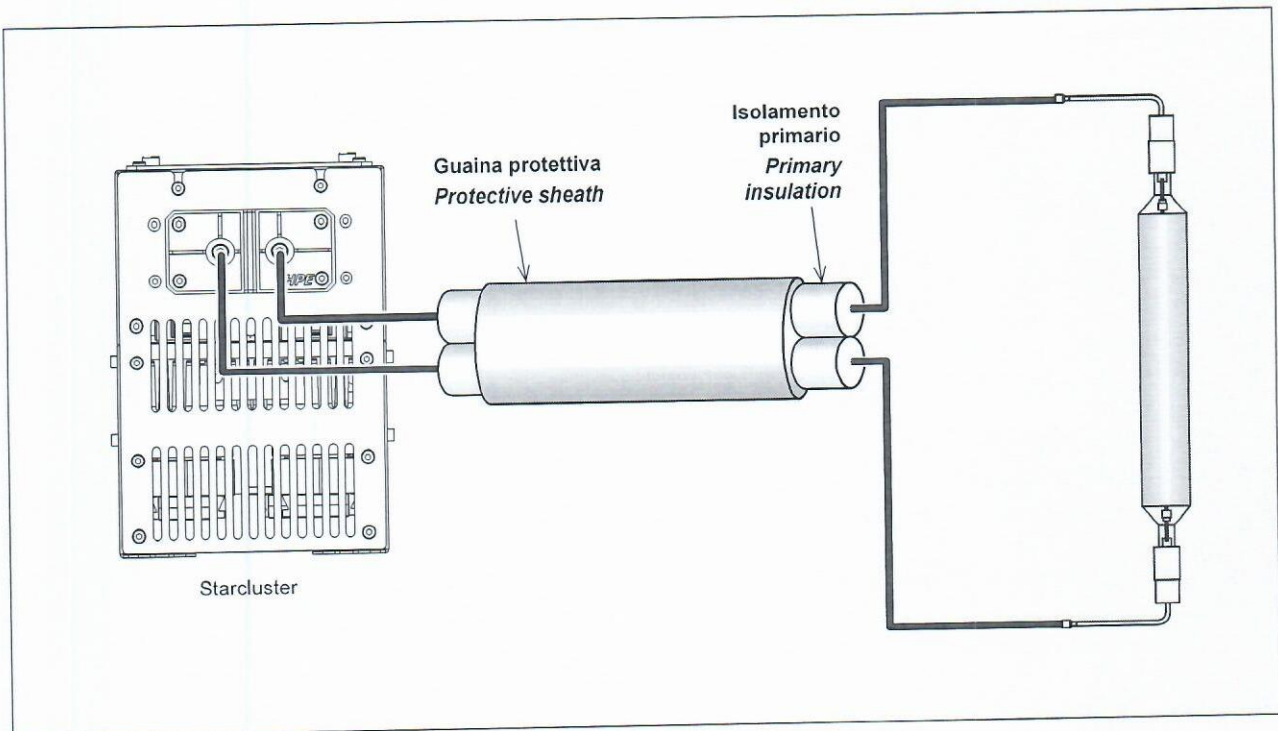


Guaina protettiva
Protective sheath

Isolamento primario
Primary insulation

Conduttore
Conductor

Fig.9

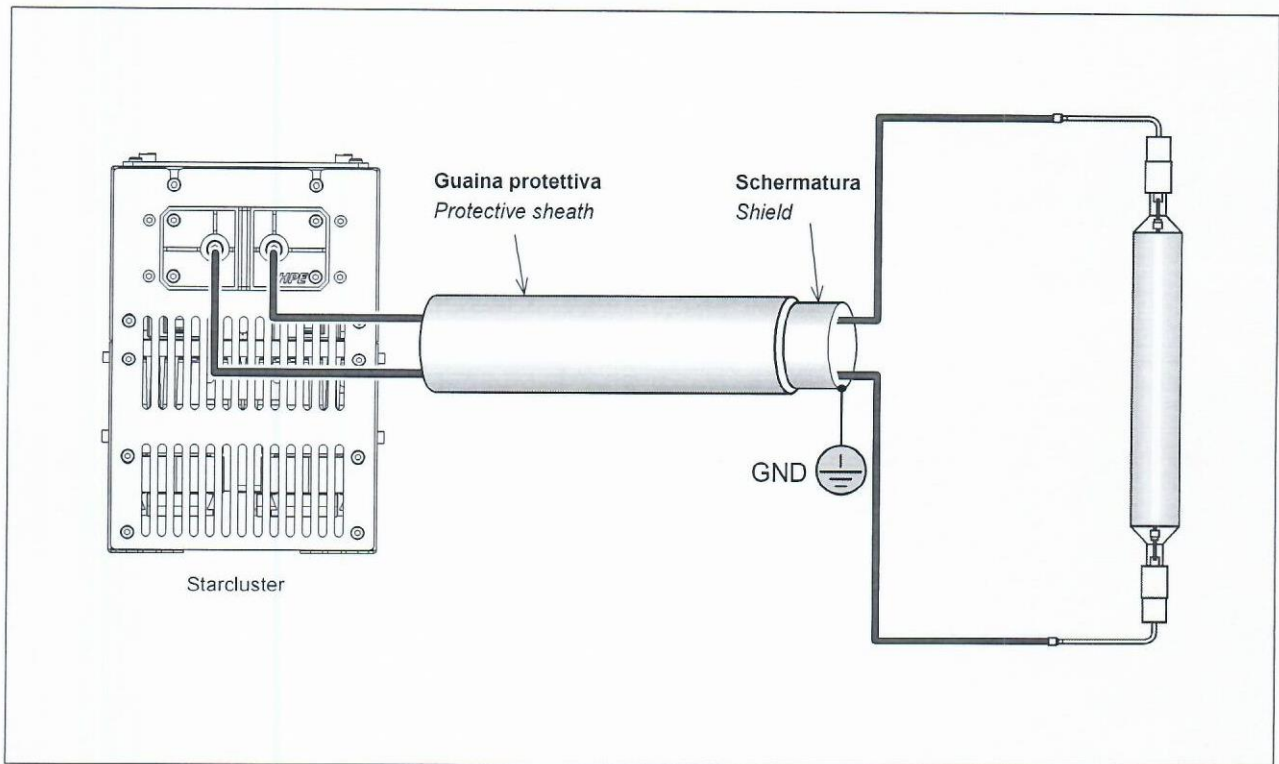
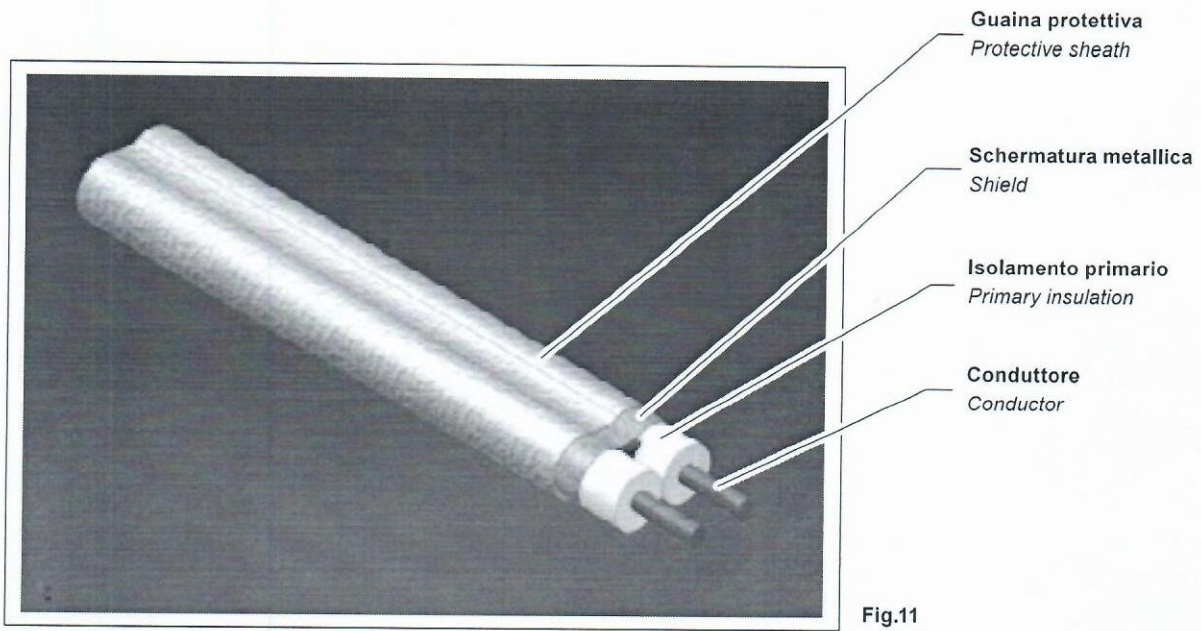


Guaina protettiva
Protective sheath

Isolamento primario
Primary insulation

Starcluster

Fig.10



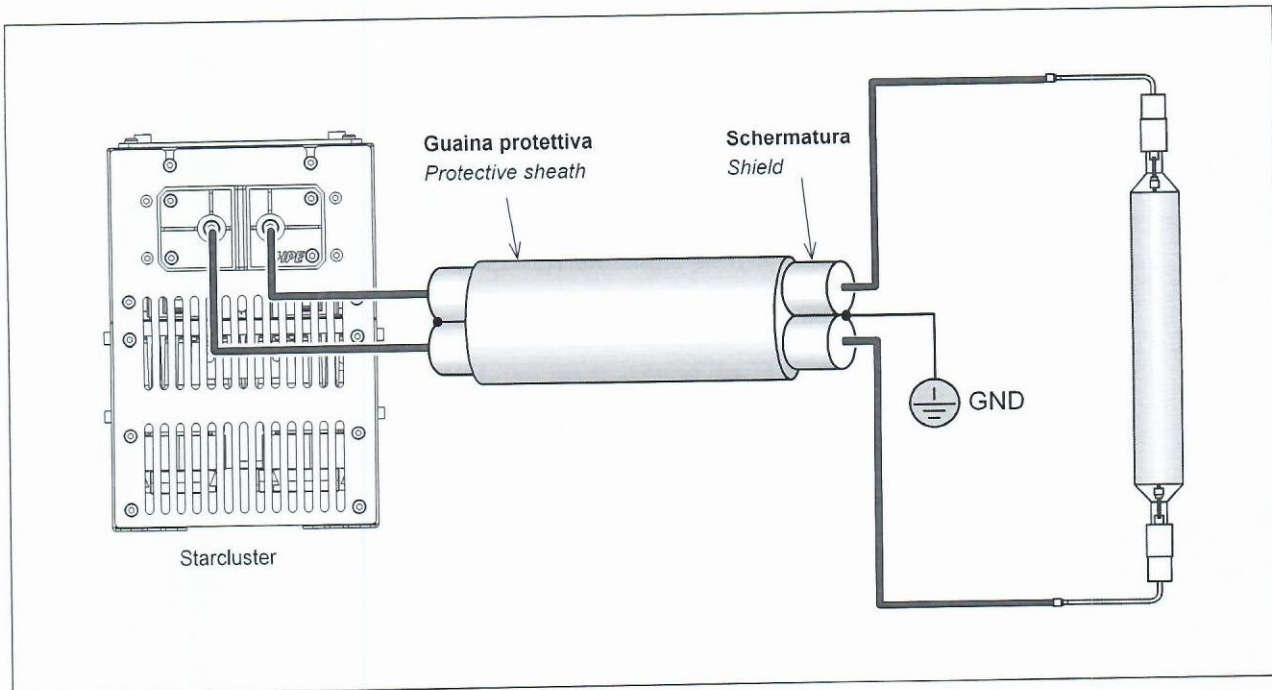


Fig.15

CABLE CHARACTERISTIC

Max Capacità ammessa tra i conduttori e schermatura <i>Max admitted Capacity between the conductors and shield</i>	pF/mt	200
Max induttanza ammessa <i>Max admitted inductance</i>	nH/mt	170
Max lunghezza di connessione dispositivo/lampada ammessa <i>Max admitted distance lamp vs . device</i>	mt	15

Vantaggi:

- Altissima capacità schermante dei disturbi irradiati.
- Alta protezione meccanica .

Svantaggi:

- Adatto solo a brevi tratte di connessioni .
- La parte schermata dei cavi deve avere la stessa lunghezza
- Medio Alta distorsione della corrente della lampada.
 - E' preferibile non superare i 1500V

Advantages:

- Extremely high shielding capacity of radiated disturbances.
- High mechanical protection.

Disadvantages:

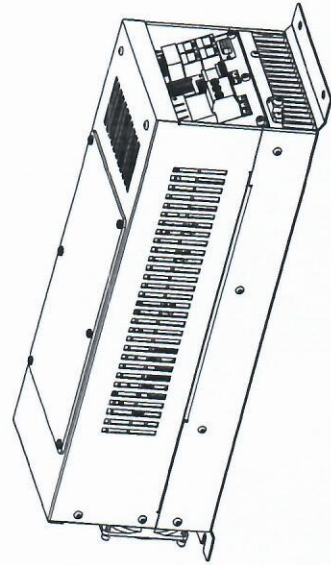
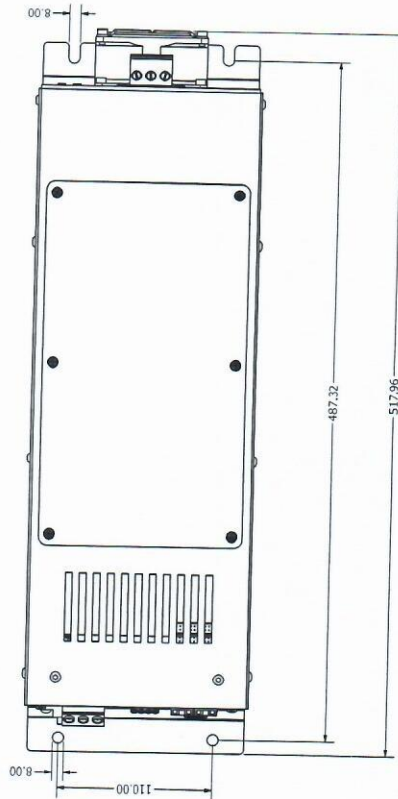
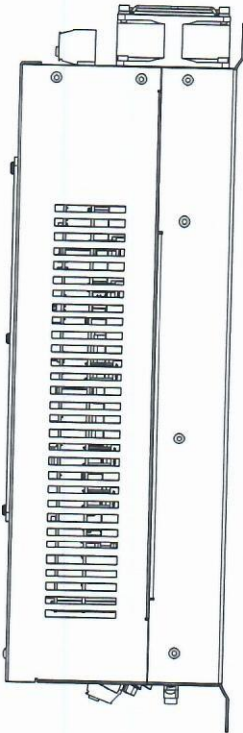
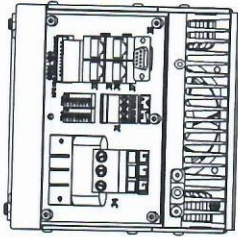
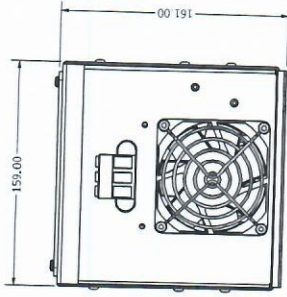
- Only suitable for short sections of connections.
- The shielded part of the cables must be of the same length
- Medium High distortion of lamp current.
 - It is advisable to avoid exceeding a voltage of 1500V

3.1 - Dati dimensionali

3.1 - Dimensional data

Mod. STARCLUSTER "HATA"

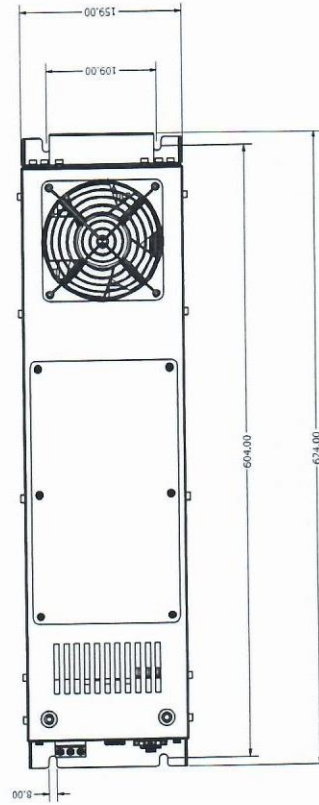
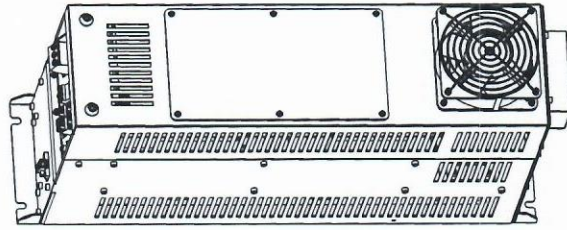
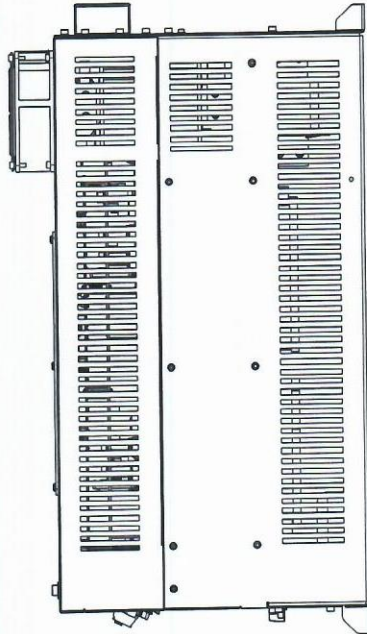
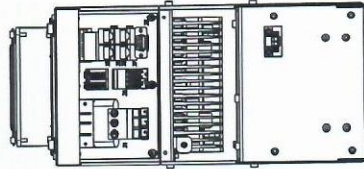
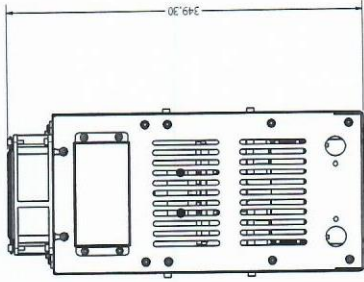
12
kg



Dwg.1

Mod. STARCLUSTER "HMDA"

24
Kg



Dwg.4

4.1 - Descrizione generale

Questa tastiera è opzionale e se acquistata può essere impiegata per effettuare la programmazione del dispositivo STARCLUSTER o per consultare i dati sullo stato di funzionamento dello stesso.



NOTA: Il fabbricante, in funzione della modalità di lavoro con cui l'acquirente sceglie di utilizzare il dispositivo STARCLUSTER, fornisce una scheda specifica per il corretto settaggio.

4.1 - General description

This keyboard is optional and, if purchased, can be used to program the STARCLUSTER device or to consult the data concerning its operating status.



NOTE: The manufacturer supplies a specific board for correct setting, depending on the operating mode with which the purchaser decides to use the STARCLUSTER device.

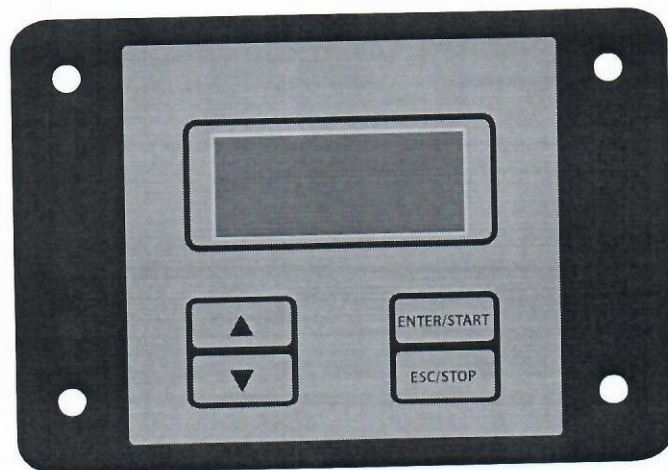




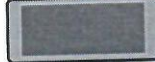


Fig.16

4.2 - Tasti funzione

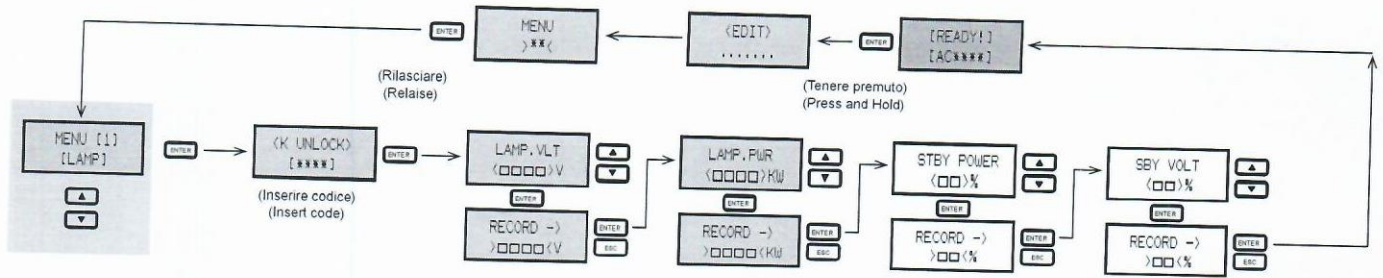
-  - Tasto "UP"
-  - Tasto "DOWN"
-  - Tasto "ENTER/START"
-  - Tasto "ESC/STOP"
-  - Display di visualizzazione messaggi

4.2 - Function keys

-  - UP key
-  - DOWN key
-  - ENTER/START key
-  - ESCAPE key
-  - Message display

4.3 - Impostazione parametri lampada

4.3 - Lamp parameters settings



MENU [1]
[LAMP]

Schermata di ingresso menù [1]
LAMP

MENU [1]
[LAMP]

[1] LAMP menu access page

LAMP.VLT
<0000>V

Tensione di lavoro della lampada.

LAMP.VLT
<0000>V

Operating voltage of the lamp.

LAMP.PWR
<0000>KW

Potenza di lavoro della lampada.

LAMP.PWR
<0000>KW

Operating power of the lamp.

X-Code	E-Code	Mnemonic	Phase	Description
1	14	E-IGND-1	ENTRY TEST [ET]	Ground circuitry test failed
2	14	E-IST2-1		Voltage detector (IL300) fail OR "Mutual interference with other machines installed"
3	14	E-IST3-1		Dutycycle detector on the control card failure Not recoverable:
4	14	E-IST4-1		Voltage detected with Test Jumper On Mains contactor not switched off Voltage Detector (IL300) fail
5	14	E-IST5-1		Buck IGBT integrity failure Not recoverable:
6	14	LAMP_SC		Current detected when Applied 50V at the output Short circuit on the cable or on the connector
7	4	NO MAIN		No mains detected
8	4	LOWMAIN		Mains detected is too LOW according the setting up of the machine
9	4	OVER-VLT		Mains detected is too HIGH according the setting up of the machine
10	6	IGNIT_31		The "lamp voltage detected is too high" >1/4 Voltage Nominal The circuit detected high capacity cable as lamp on
11	6	IGNIT_32	The lamp current cannot reach 50% of the Nominal current Too high impedance cabling or bad connection	
12	6	IGNIT_04	The duty cycle is unstable Too high impedance cabling	
13	6	IGNIT_11	HATA: the lamp cannot reach 50% of the current Wrong type of lamp	
14		-----		
15	6	IGNIT_01	No current detected Lamp not connected or voltage insufficient to ignite the lamp	
16->17	6	-----		
37	6	IGN_CBC1	Extra current resonance due to instability Detected The cable connection has too high capacitance	
18	7	WRMUP_TO	WARM UP [WU] After the time set "WUP T.O." the lamp cannot reach the warm up condition Check the "WUP T.O." or the ventilation of the lamp	
19	9	BUCK-HOC	Machine goes in hardware protection mode due to extra Current on buck side Extra voltage at main site or mains instability	
20	9	BRIG-HOC	Machine goes in hardware protection mode due to extra Current on output Extreme high current at the output	
21	9	BRIG-DCY	Machine goes in software protection mode due to extra Current on output High current at the output	
22	4	PWR_FAIL	The mains tripped off Cable defective or lamp broken	
23	5	GND_FAIL	Leakage current to GND found	
24		-----		
25	4	PH_LOST	One of the 3 phase have been lost	
26	9	LAMP_OFF	The lamp trips off with no apparently reason	
27	2	AUX_FAIL	The 24V DC voltage for the auxiliary function drops below 21V The auxiliary power supply has insufficient current	
28	1	THERMAL	Dangerous temperature have been detected on the heat-sink	
29	15	CAN_LINK	The CAN link with IO CPU CARD is interrupted or missing	
30	15	485_LINK	The RS485 link with master system is interrupted or missing	
36	15	TL2_OFFL	The CAN link with HAZLED is interrupted or missing (MODE_2 only)	
31	10	LD_THERM	"LED HOOD" thermal protection detected	
32	10	LED_CAN	The CAN link with LED IO CPU CARD is interrupted or missing	
33	10	LED_COB	One or more COB are defective	
34	10	LED_N.C	"LED HOOD" control cable not connected	
35	10	LED_PWR	"LED HOOD" power cable not connected	