USER'S MANUAL
Rev. 03/2010

00001

REVO SSR
SOLID-STATE RELAY

Important warning for safety

The Thyristor unit are integral part of industrial equipments.
When it is supply, the Thyristor unit is subject to dangerous tensions. Don't remove the plastic cover.
Don't use this unit in aerospace and nuclear application.

Electric Shock Hazard (Rischi di scosse elettriche, Risque de choque électrique)
When thyristor unit has been connected to main supply voltage and is switched off, before to touch it be secure that the unit is isolated and wait at least one minute to allow discharging internal capacitors. Thus be secure that:

- access to thyristor unit is only permitted to specialised personnel;
- the authorised personnel must read this manual before to have access to the unit;
- the access to the unit must be denied to unauthorised personnel.
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Important warnings (Avvertenze importanti, attention)
During the operations with units under tension, local regulations regarding electrical installation should be rigidly observed:

- Respect the internal safety rules.
- Don't bend components to maintain insulation distances.
- Protect the units from high temperature humidity and vibrations.
- Don't touch components to prevent electrostatic discharges on them.
- Verify that the size is in line with real needs.
- To measure voltage current etc. on unit, remove rings and other jewels from fingers and hands.
- Authorized personnel that work on thyristor unit under power supply voltage must be on insulated board

This listing does not represent a complete enumeration of all necessary safety cautions

Protection (Protezione, Protection)
The unit have IP20 protection rating as defined by the specific international. Is necessary consider the place of installation.

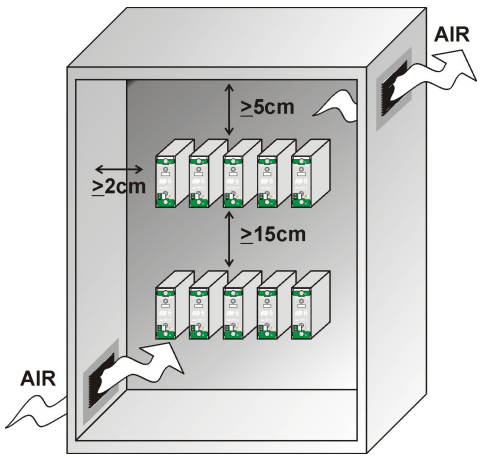
Earth (Messa a terra, Terre)
For safety, the Thyristor unit with isolated heat-sink must be connected to earth.
Earth impedance should be correspondent to local earth regulation. Periodically the earth efficiency should be inspected.

Electromagnetic compatibility (Compatibilità elettromagnetica, Compatibilité électromagnétique)
Our thyristor units have an excellent immunity to electromagnetic interferences if all suggestions contained in this manual are respected. In respect to a good Engineering practice, all inductive loads like solenoids contactor coils should have a filter in parallel

Emissions (Emissioni, Emission)
All solid-state power controllers emit a certain amount of radio-frequency energy because of the fast switching of the power devices. The CD Automation's Thyristor unit are in accord with the EMC norms, CE mark.
In most installations, near by electronic systems will experience no difficulty with interference. If very sensitive electronic measuring equipment or low-frequency radio receivers are to be used near the unit, some special precautions may be required. These may include the installation of a line supply filter and the use of screened (shielded) output cable to the load.

Installation

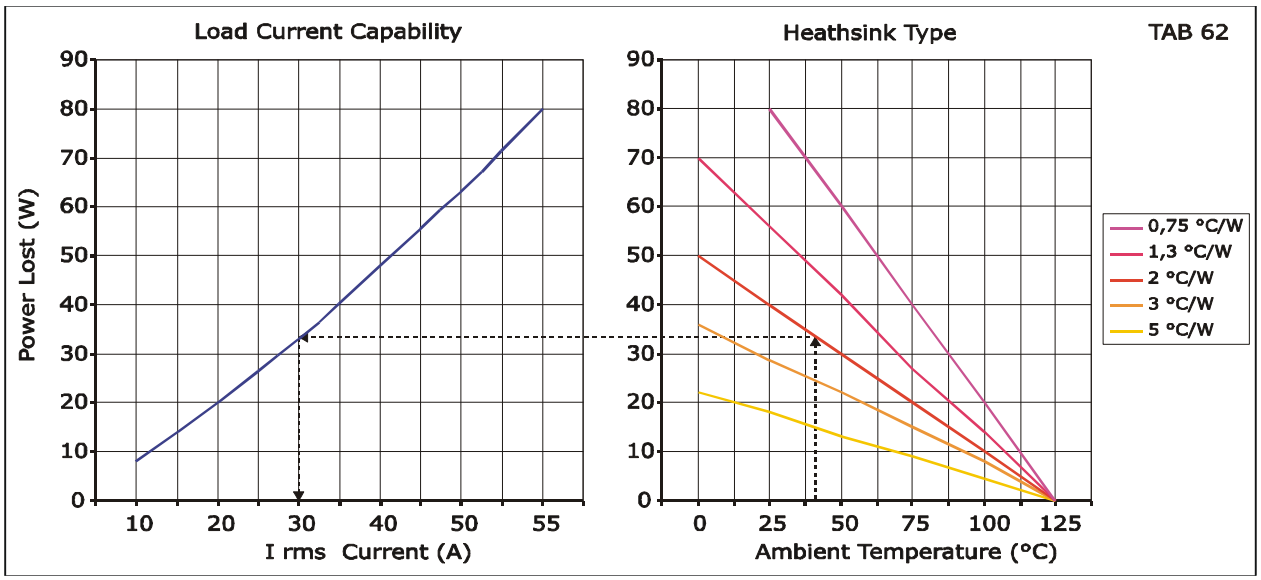
Before to install, make sure that the Thyristor unit have not damages. If the product has a fault, please contact the dealer from which you purchased the product. Verify that the product is the same thing as ordered.
The Thyristor unit must be always mounted in vertical position to improve air cooling on heat-sink.
Maintain the minimum distances in vertical and in horizontal as represented. When more unit has mounted inside the cabinet maintain the air circulation like represented in figure. Sometimes is necessary installing a fan to have better air circulation.
The Thyristor unit must be used in conjunction with an appropriate heat-sink (Optional).
The heat-sink must be sized in relation to environment temperature and the load current (see the Dissipation Curves).
The assembly (module-heatsink) must happen on a flat surface with low roughness. The fixing holes on the heat-sink must be threaded and countersunk. Spread a layer of thermo-conductive silicon putty between the two surfaces (the surfaces must be clean and the thermo-conductive silicon putty must be free of impurities).
Tighten the two fixing screws M4 alternately until reaching a torque of 1 Nm.
Attention: make sure that there are no air bubbles under the copper plate.

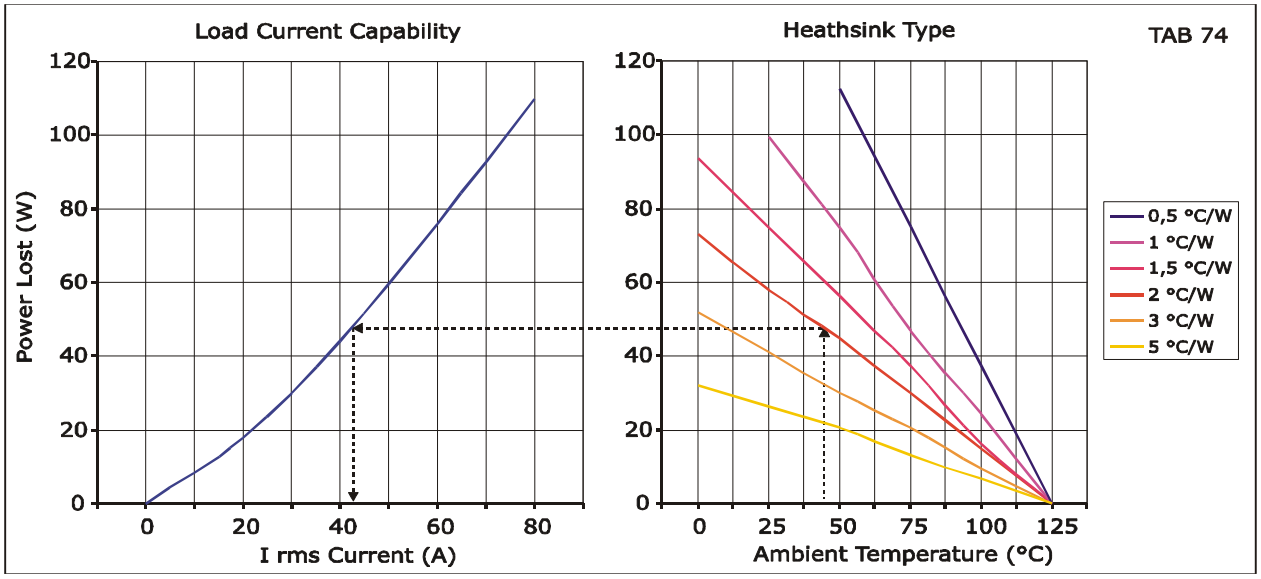


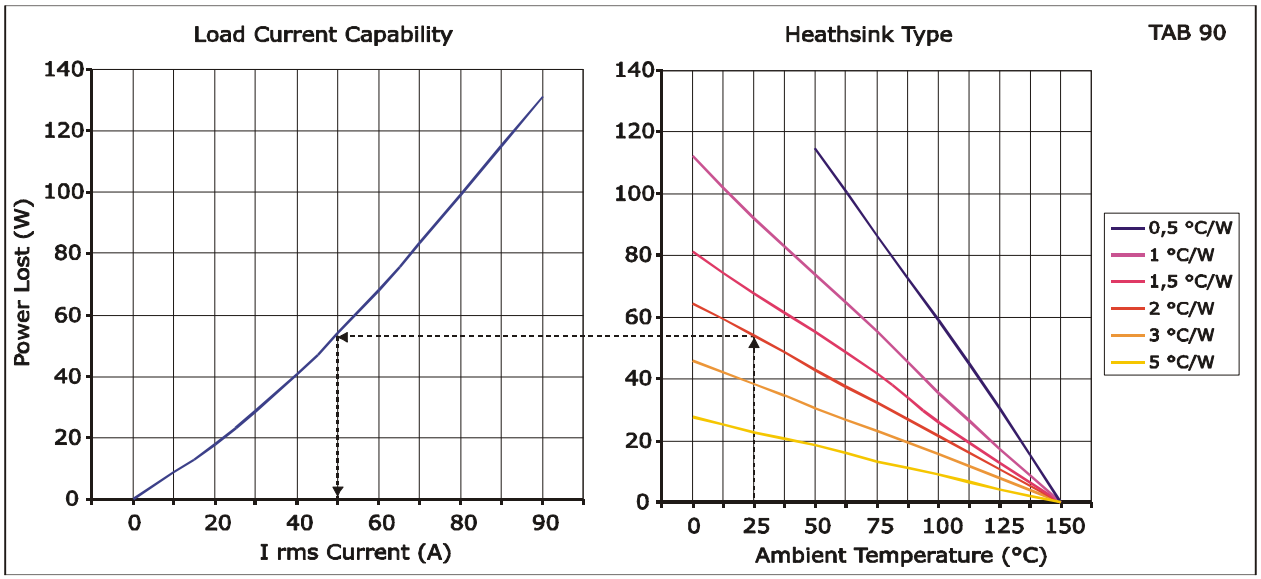
Environmental installation conditions

Ambient temperature	0-40°C at nominal current. Over 40°C use the derating curve.
Storage temperature	-25°C a 70°C
Installation place	Don't install at direct sun light, where there are conductive dust, corrosive gas, vibration or water and also in salty environmental.
Altitude	Up to 1000 meter over sea level. For higher altitude reduce the nominal current of 2% for each 100m over 1000m
Humidity	From 5 to 95% without condense and ice
Pollution Level	Up to 2nd Level ref. IEC 60947-1 6.1.3.2

Dissipation Curves

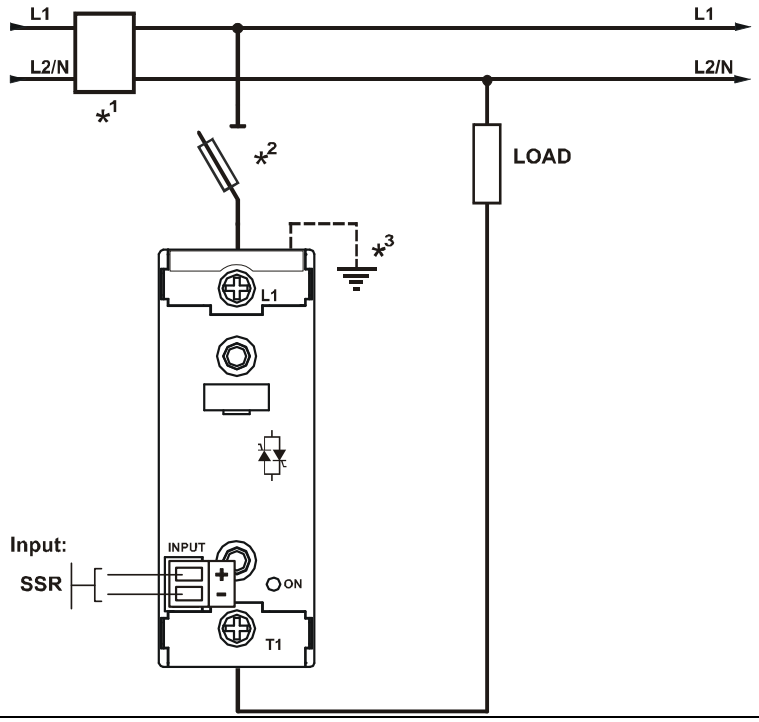






NOTE: The maximum continuative-current applicable to the power terminals is 50A

Connection Diagram



Note:

- **¹ A suitable device must ensure that the unit can be electrically isolated from the supply, this allows the qualified people to work in safety.*
- **² The thyristor unit must be protected by extrarapid fuses (optional). The Fuses must have I²t 20% less than thyristor's I²t. The warranty of thyristor is null if no proper fuses are used (see technical data).*
- **³ The heat-sink must be connected to the earth.*

Wiring instructions

The Thyristor unit could be susceptible to interferences lost by near equipments or by the power supply, for this reason in accord to the fundamental practices rules is opportune take some precautions:

- The coil contactor, the relays and other inductive loads must be equipped with opportune RC filter.
- Use shielded bipolar cables for all the input and output signals.
- The signal cables must not be near and parallel to the power cables.
- Local regulations regarding electrical installation should be rigidly observed.

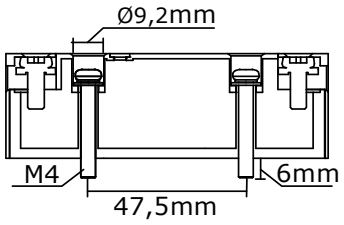
Use copper cables and wires rated for use at 75°C only.

Power cable torque (suggested)

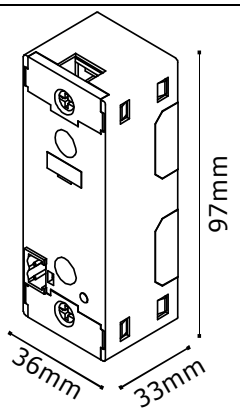
Connector Type	Torque Lb-in (N-m)	Wire Range mm²(AWG)	MAX Current Terminals	Wire Terminals UL Listed (ZMVV)
Screw M5	26.6 (3.0)	1.5-10 (16-8)	50A	Rigid / Flexible / Spade Terminal

Cable dimensions of the Command Terminals	Cable dimensions of the Earth (suggested)
0.5mm² (AWG 18)	6 mm² (AWG 10)

Dimensions and Fixing holes



Weight
0,12Kg



Technical Specifications

General features:	
Cover and Socket material:	PolymericV2
Mounting:	To screw (on heat-sink not supplied)
Utilization Category	AC-51 AC-55b
IP Code	20
Method of Connecting	Single Phase load
Delay switch ON/OFF time:	1/2 Period Max
Input features:	
Logic input SSR:	5 ÷ 30Vdc 9mA Max (ON ≥ 5Vdc OFF < 4Vdc)
Output features:	
Nominal current in continuous service:	See order code
Max peak current (10ms)	400A for unit type 62 600A for unit type 74 800A for unit type 90
Nominal Voltage range **Ue** :	24÷600V
Repetitive peak reverse voltage **Uimp** :	1200V (480V) 1600V (600V)
Latching current:	250mA
Leakage current:	15mA eff
I^2T value tp=10msec:	780 for unit type 62 1750 for unit type 74 3110 for unit type 90
Frequency range:	47÷70Hz
Power loss (I=Inom):	see the Dissipation Curves
Isolation Voltage **Ui** :	2500Vac

Order Code

	1	2	3	4	5	6		7	8	9	10	11	12	13	14	15	16
REVO SSR	S	S	R	_	_	_	-	_	_	_	_	_	_	_	_	_	_

4,5,6 Current

Description code	Numeric code
62A	0 6 2
74A	0 7 4
90A	0 9 0

7 Max Voltage

Description code	Numeric code
480V	4
600V	6

8 Aux. Voltage supply

Description code	Numeric code
Without HB No Auxiliary Voltage Supply	0
With HB 12:24V ac-dc opt. Available only with Fuse+Fuse Holder	4

9 Input

Description code	Numeric code
SSR 3:30V dc	S

10 Firing

Description code	Numeric code
Zero Crossing ZC	Z

11 Control Mode

Description code	Numeric code
Open Loop	0

12 Fuse & Option (2)

Description code	Numeric code
No Fuse	0
Fuse + Fuse Holder	F
Fuse + Fuse Holder +CT	Y
Fuse + Fuse Holder +CT +HB	H
Fuse + Fuse Holder +CT +HB +Flat Wiring System	X

13 Fan Voltage

Description code	Numeric code
No Fan	0

14 Approvals

Description code	Numeric code
CE EMC For European Market	0
cUL For American Market	L

15 Manual

Description code	Numeric code
None	0
Italian Manual	1
English Manual	2
German Manual	3
French Manual	4

16 Version

Description code	Numeric code
Standard version	1

Note (1): **Auxiliary voltage supply used only with HB option**
Note (2): **Options available only with Fuse + Fuse Holder**

Trouble Shooting

Symptom	Indication on front unit	Possible reasons of the symptom	Actions
Load current doesn't flow	Green LED (ON) light OFF	• No input signal • Reversed polarities of input signal	• Give input signal • Reverse the input signal polarity
	Green LED (ON) light ON	• No voltage power • Fuse failure • Load failure • Thyristor failure	• Check the wiring • Change the fuse • Check the load • Change the module
Load current flow also without input signal	Green LED (ON) always light OFF	• Wrong wiring • SCR short circuit	• Check the wiring • Change the module

Warranty condition

CD Automation gives a 12 months warranty to its products.
The warranty is limited to repairing and parts substitution in our factory and does exclude products not properly used and fuses.
Warranty does not include products with serial numbers deleted. The faulty product should be shipped to CD Automation at customer's cost and our Service will evaluate if product is under warranty terms.
Substituted parts remain of CD Automation property.

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