- CE, EAC and cUL® marked
- 100K kA Short Circuit Current (SCCR) Tested
- Internal Fuse on complete product range
- OLED Display for easy Diagnostic & Configuration
- All Firing & Control Modes available
- RS485 Std and most popular Field Bus available
- Remote Service

CD AUTOMATION

POWERED BY INNOVATION

REVO

THE THYRISTOR EVOLUTION

From 3,5 to 2100A

We are delivering Real Cost Benefits

REVO Family Overview

www.cdautomation.com

General Catalogue 2023

Our facility in Legnano for thyristor unit production.

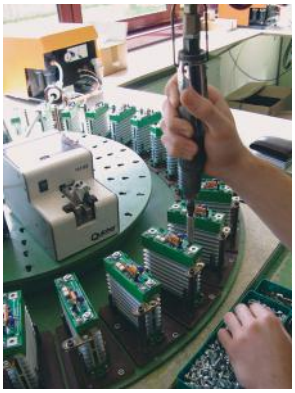
CD Automation was founded in 1987 with the clear strategy of becoming a leading supplier of quality industrial automation products to the Italian market.
Key to this success was the formation of a sales team educated from a strong technical background.
The philosophy was simple; provide product & application experts able to work in partnership with the customer to find the right solution.

In 1990 CD Automation began its development of thyristor power controllers and quickly became the world wide market leader in using microprocessor based technology including RS485 communication.

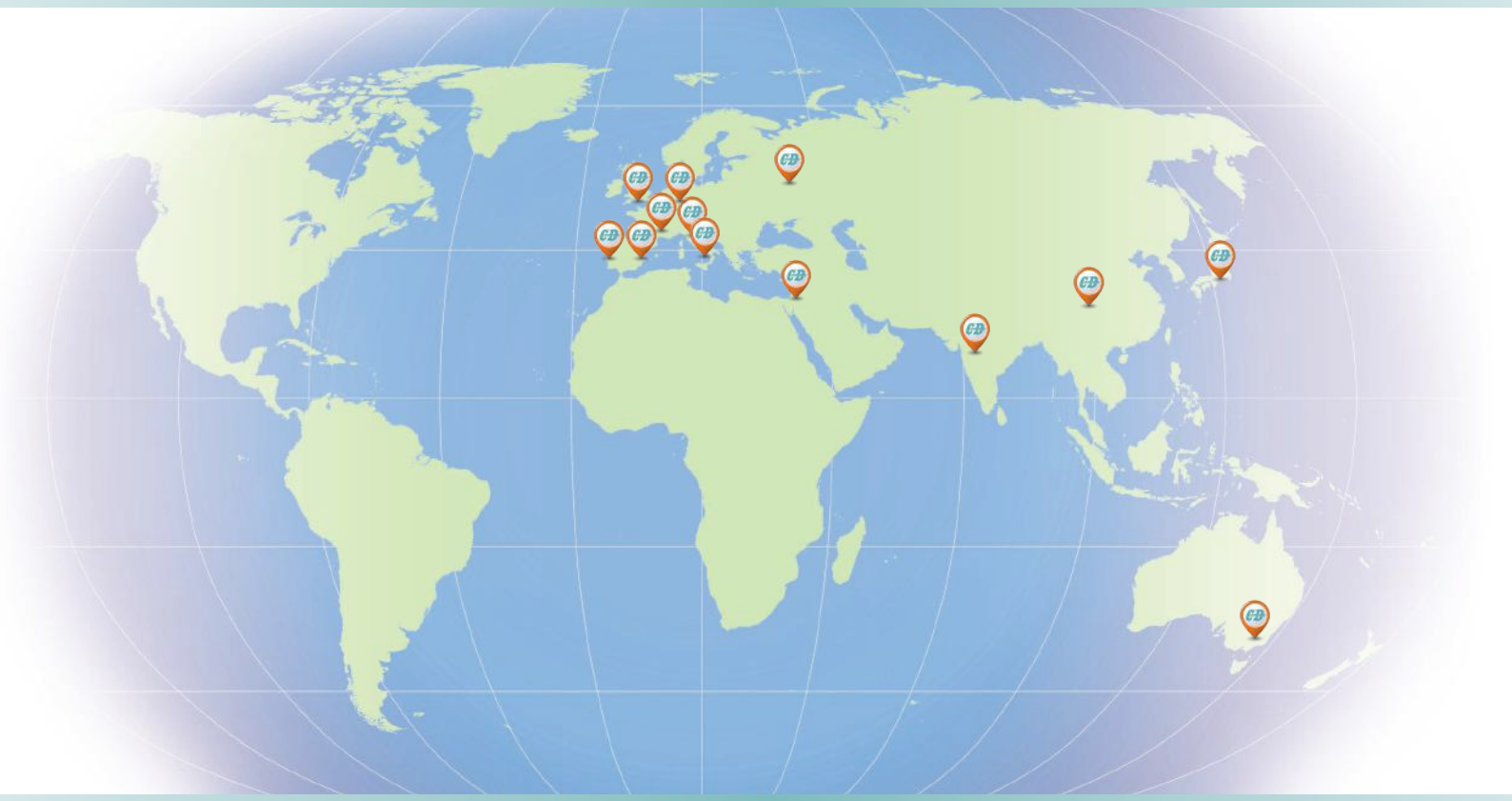
CD Automation now boasts the most comprehensive power control device range on the market today.
The extensive range is capable of accurately controlling a wide spectrum of electrical loads up to 2500 kW, from simple single-phase heaters up to complex high temperature-coefficient three-phase load.

Technical Service

CD Automation has invested heavily in computerised testing equipment & state-of-the-art production equipment.
All products are individually tested including full functional, to improve quality and product reliability.
Our help desk service is available 10 hours per day with ex-stock delivery for spare parts.
Remote service via Internet is also available for thyristor units with REVO C with Bluetooth communication and all the most popular FieldBus.
CD Automation configuration APP for both Apple and Android system available free of charge.



Our facility in Cantalupo for IGBT unit production and motor soft starters.



Our facility in Ajmer, for production dedicated to India.

Our facility in East Sussex, England.

CD AUTOMATION PRODUCTS

CD3000S

Solid state relay

- CD3000S is a compact low cost family of solid state switches designed to replace contactors
- Thyristor units up to 90A
- Applicable for resistive loads and infrared lamp
- Zero crossing firing available with logic input signal (SSR)
- Constant current drain with SSR input
- Analog input 4÷20mA or 0÷10V with burst firing 4, 8 or 16 cycle at 50% power demand, is available as an option from 35A to 90A
- Heater break alarm (HB) to diagnose partial or total load failure and short circuit on thyristor. Available as an option from 35A to 90A
- Side by side mounting
- Special design for heatsink with high dissipation
- IP20 protection
- CE, EAC and cUL® approved

REVO S

The Thyristor Evolution

- The family is available in 1-2-3 phase Units
- From 3,5A up to 800A
- Voltage range 480V, 600V and 690V
- Load type: Resistance, IR Lamp long and medium waveform
- Input: SSR or Analog Inputs
- Firing: Burst Firing (Fast Zero Crossing)
- Heater Break: Alarm to diagnose Partial or Total Load Failure and Thyristor Short Circuit
- Fuse and Fuse Holder up to 40A
- Fixed Fuses from 60 to 800A
- 100 KA Short Circuit Current (SCCR) Tested
- CE, EAC and cUL® approved

REVEX

The REVO on demand

REVEX is a real Universal Unit where you can select:

- Input signal in digital mode, no link jumpers inside
- Firing mode: Single cycle, Half cycle, Burst, Phase Angle, Delayed Triggering, different types of adjustable ramp
- Control Mode (V, V2, I, I2, VxI)
- Communication RS485 with Modbus® protocol std.
- Two Analog inputs
- Two Digital inputs
- USB port to program REVEX, should you ever need to re-program from your ordered configuration

REVO C

The Connecting Unit

- Ability to drive 1 phase or 3 phase loads using 1-2 or 3 leg switching
- Nominal Voltage 480-600-690V
- 100 KA Short Circuit Current (SCCR) Tested
- Fuse and Fuse Holder up to 40A
- Fixed Fuses from 60 to 2100A
- Popular FieldBus connectivity including Profibus and Profinet
- Proprietary APP to communicate with Apple and Android Smartphone system
- All input signal selectable via PC or OLED front panel display
- All Firing types selectable with capability to switch from one firing to another one while the unit is controlling power to the load
- Control Mode / Feed Back selectable while the unit is working
- CE, EAC and cUL® approved

MULTICHANNEL THYRISTOR UNIT

CD Automation has a wide product range suitable for many applications from 30 to 2100A.
Specific applications require a high number of zone control with low current sizes, typically from 3.5 to 25A. These include:
• Thermoforming for plastic
• Thermoforming for glass
• Infrared short waveform where reducing wiring, labour time and cabinet space are important.
In addition our Multichannel units can operate with **Power Control Optimization**, that ensures power peaks are kept close to the average power value and the Power Factor is close to 1 (saving money on your energy bill).
The communication from the PLC or multiloop system, is instigated from PLC central processing unit directly to the REVO PN input, avoiding the need to use the PLC output modules.

REVO PN

Perfect for Electric Heater control and IR Lamps in Industrial Heating Systems

Designed specifically for industrial multi-zone applications, REVO PN can be configured to control between 4 and 24 channels/zones. Typically each zone is sized for 25A but by using the front panel connector, loads of up to 210A can be connected. Important power control functionality is offered by REVO PN including:

- Elimination of power overshoot
- Power factor maintained close to 1
- Keeps your instantaneous power within the limits of your electricity supply contract
- Stay connected with the most popular Field Bus protocols
- Eliminate use of PLC output modules by using comms for Power to CPU connections
- Alarm notification per zone of heater break and thyristor short circuit
- Product footprint for 24 zone package 60% less than using standard thyristor stacks
- Dramatic savings with less wiring & smaller cabinet enclosures
- REVO PN's considered design not only helps you save start-up costs but ensures you keep on saving money throughout the products lifetime
- Package includes electronic circuit control with up to 24 thyristor units

REVO PB

Three one phase SCR power controller with power optimization algorithm

- Each zone is sized for 35A / 50A / 75A / 90A max.
- Three zone thyristor controller with power optimization algorithm
- Internal extrarapid fuses
- High precision current transducer
- Firing mode: Single cycle, Half cycle
- Load and SCR diagnostics
- Outputs for alarms

REVO PC

Reduce Power Peaks and maximise your savings

- Multi Channel Power Control
- Suitable to communicate with PLC & Multiloop
- Dedicated to solve applications
- Space & wiring reduction
- Integrated field bus for communication with the most important PLCs on the market
- CE EMC and cUL® listed
- Elimination of power overshoot
- Power factor maintained close to 1
- Power control optimization
- Possibility of connecting static relays of different sizes to adapt them to the system
- REVO-PC can be connected with REVO S and REVO Sx

REVO RT

3-zone PID power controller up to 90A

- Power controller PID 3 zones up to 90A
- 3 control Loops in the same unit
- Load monitoring and alarms
- Integrated SSR
- Up to 90A per channel
- Integrated high-speed fuses (standard)
- Data always available via Fieldbus
- Reduction of wiring and spaces

REVO TH

Compact power controller with modular multi-zone SCR

- 3 independent power controllers in one compact product
- Max voltage 480V up to 90A
- Thyristor unit with high I^2t
- Synchronization circuit
- Integrated extra rapid fuses
- Digital input and relay output
- HB alarm
- High precision current transducer
- Monitoring of RMS voltage, current and power
- Communication: RS485 Modbus
- Reduction of wiring and cabinet space

WHAT OUR CUSTOMERS WANT?

They want a positive experience with our total solution, not just a cheap price!

CD Automation is confident of achieving this with...

Knowledgeable Sales Team

- We have a team of sales engineers focused on core business products only
- An expert at no cost, not an engineer with a big catalogue and little product knowledge, will welcome customers
- Easy access to engineers when you need a special performance project

Fast Service

- Excellent pre sales and after sales service including engineering support
- Remote assistance through team viewer or other apps on our thyristor units

Easy to do business with us

- Fast reaction to your enquiry, short lead times, timely production of order acknowledgement, invoices, etc
- Catalogues and manuals of all our products plus configuration software, available free of charge from our website

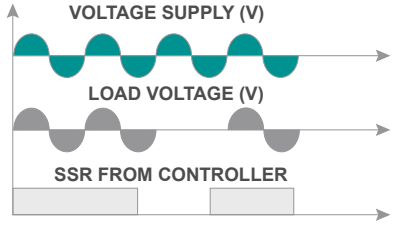
Our people are always welcoming to our customers

SELLING PRICE VS FEATURES

GLOSSARY

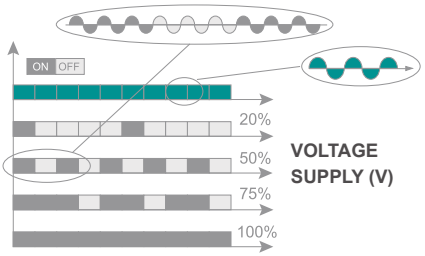
ZERO CROSSING ZC

ZC firing mode is used with the logic output from a temperature controller and so the thyristor operates like a contactor. The cycle time is performed by the temperature controller. Zero Crossing minimizes interferences as the thyristor unit switches ON-OFF at zero voltage.



BURST FIRING BF

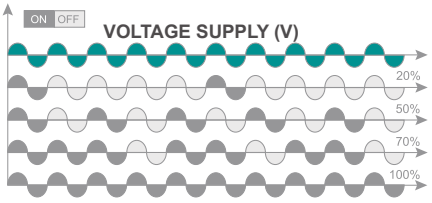
This firing is performed digitally within the thyristor unit at zero volts, producing no EMC interference. Analogue input is necessary for BF and the number of complete cycles must be specified for 50% power demand. This value can be between 1 and 255 complete cycles, determining the speed of firing. When 1 is specified, the firing mode becomes Single Cycle (SC).



Soft Start + Burst Firing now availabe as an option.

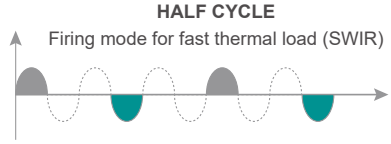
SINGLE CYCLE SC

SC is the fastest zero crossing switching method. At 50% input signal, one cycle is ON and one cycle is OFF. At 75%, 3 cycles are ON and one cycle is OFF. If power demand is 76% the unit performs the same as for 75% but every time the unit switches ON the microprocessor divides 76/75 and memorises the ratio.
When the sum is one the unit delivers one cycle more to the load.
With this firing it is necessary to have analogue input.



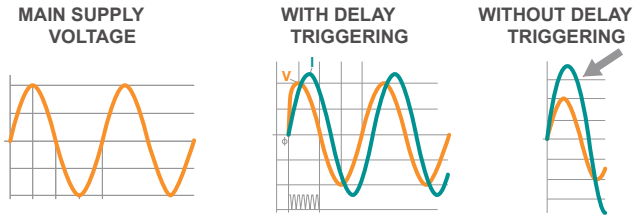
HALF CYCLE

This is a super Fast Firing used with short infrared elements to avoid flickering and harmonic generated by Phase Angle Firing.



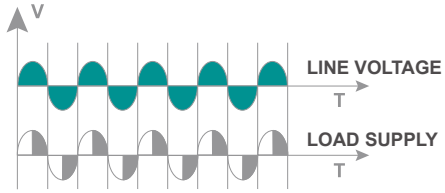
DELAYED TRIGGERING DT

Used to switch the primary coil of transformers when coupled with normal resistive loads (not cold resistance) on the secondary, DT prevents the inrush current when zero voltage (ON-OFF) is used to switch the primary. The thyristor unit switches OFF when the load voltage is negative and switches ON only when positive with a preset delay for the first half cycle.



PHASE ANGLE PA

PA controls the power to the load by allowing the thyristor to conduct for part of the AC supply cycle only. The more power required, the more the conduction angle is advanced until virtually the whole cycle is conducting for 100% power. The load power can be adjusted from 0 to 100% as a function of the analogue input signal, normally determined by a temperature controller or potentiometer, PA is normally used with inductive loads.



FEEDBACK/CONTROL MODE

Supply voltage fluctuations changes the power to the load.
To overcome this effect the voltage supplied to the load is measured and compared with the power demand from the controller.
The error signal is used to automatically hold the power at the value requested.

Three types of control mode are available:
Voltage Control Mode, where the input signal is proportional to the voltage output (voltage f/b).
Current Control Mode, where the input signal is proportional to the current output (current f/b).
Power Control Mode, where the input signal is proportional to the power output (power f/b).
As an option it is possible to transfer control mode from voltage to power via a simple digital command.

SIZE AND DIMENSIONS

SR0 H 97 x W 36 x D 32 - 0,12 kg

SR1 H 97 x W 36 x D 92 - 0,29 kg

SR2 H 121 x W 36 x D 87 - 0,27 kg

SR3 H 121 x W 36 x D 125 - 0,44 kg

SR4 H 121 x W 72 x D 125 - 0,88 kg

SR5 H 121 x W 108 x D 125 - 1,32 kg

SR6 H 121 x W 36 x D 185 - 0,61 kg

SR7 H 121 x W 72 x D 185 - 1,22 kg

SR8 H 121 x W 108 x D 185 - 1,83 kg

SR9 H 121 x W 72 x D 185 - 1,15 kg

SR10 H 121 x W 108 x D 185 - 1,76 kg

SR11 H 121 x W 144 x D 185 - 2,4 kg

SR24 H 169 x W 116 x D 183 - 2,10 kg

SR25 H 180 x W 116 x D 183 - 2,35 kg

SR12 H 269 x W 93 x D 170 - 3,4 kg

SR13 H 269 x W 186 x D 170 - 6,8 kg

SR14 H 269 x W 279 x D 170 - 10,2 kg

SR15 H 273 x W 93 x D 170 - 3,6 kg

SR16 H 273 x W 186 x D 170 - 7,0 kg

SR17 H 273 x W 279 x D 170 - 10,6 kg

NOTES:

From SR9 to SR17 The thyristor unit are represented with OLED Display Std for REVO C family. The REVO S Family have a blind frontal unit. OLED Digital Display is available to read Voltage, Current and Power HB alarm has been selected. Sizes from 18 to 23 represented REVO C Extended Family; Standard version is without plastic IP20 that is available as an option. Weights are approximate

S10 H 350 x W 120 x D 230 - 6,5 kg

2xS10 H 350 x W 240 x D 230 - 12,7 kg

S11 H 440 x W 137x D 270 - 10,5 kg

S12 H 520 x W 137 x D 270 - 15 kg

S13/S14 H 440/520 x W 262 x D 270 - 18/22 kg

S15 H 560 x W 137x D 270 - 17,2 kg

S16 H 560 x W 275 x D 270 - 34,4 kg

S17 H 560 x W 411 x D 270 - 51,6 kg

SR18 H 550 x W 329 x D 347 - 27 kg

SR19 H 550 x W 523 x D 347 - 49 kg

SR20 H 550 x W 717 x D 347 - 72 kg

SR21 H 640 x W 329 x D 347 - 32/40 kg

SR22 H 640 x W 523 x D 347 - 59/75 kg

SR23 H 640 x W 717 x D 347 - 86/110 kg

FEATURES COMPARISON - THYRISTOR UNITS SINGLE LOOP

		BASIC PRODUCTS WITHOUT COMMUNICATION			UNIVERSAL
	DESCRIPTION	REVO S 1PH	REVO S 2PH	REVO S 3PH	REVEX 1PH
	CODE	RS1	RS2	RS3	RX1
MAIN VOLT.	Max voltage 480V	●	●	●	●
	Max voltage 600V	●	●	●	●
	Max voltage 690V (1)	●	●	●	
LOAD TYPE	Single phase	●			●
	3 phase load star no neutral or delta		●	●	
	3 phase load star with neutral			●	
	3 phase load open delta			●	
INPUT	SSR 4:30VDC	●	●	●	●
	4:20 mA	○	○	○	●
	0:10 Vdc	○	○	○	●
	Potentiometer	○	○	○	●
FIRING	Zero crossing	●	●	●	●
	Half Cycle				●
	Single Cycle				●
	Burst firing				●
	Burst firing simplified 4-8-16 Cycles at 50% (2)	●	●	●	●
	Delayed triggering				●
	Phase Angle				●
	Soft Start				●
CONTROL MODE	No Feed Back	●	●	●	●
	Voltage				●
	Voltage Square				●
	Current				●
	Current Square				●
	Power Vxl				●
	Transfer from V to Vxl or I to Vxl				○
OPTION	Current limit				●
	Heater break Alarm HB	○	○	○	●
	Logging				
	Totalizer (Energy)				
TOOLS	Phone APP (Free of charge)				
	PC Configurator Software (Line analyzer Free of Charge)				●
COMM.	WiFi				
	N°1 Modbus® RTU				●
	N°2 Modbus® RTU				○
	N°1 Profibus DP + N°1 Modbus® RTU				○
	N°1 Profinet® + N°1 Modbus® RTU				○
	N°1 Modbus® TCP + N°1 Modbus® RTU				○

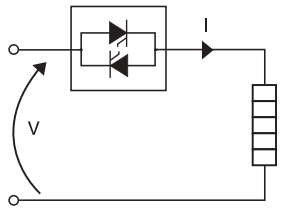
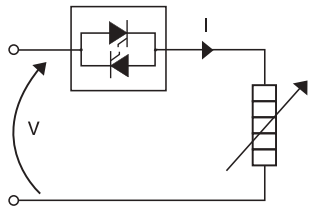
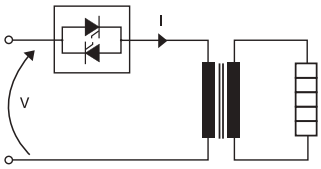
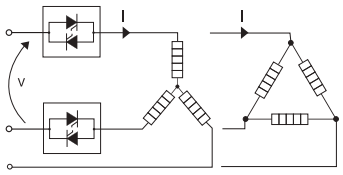
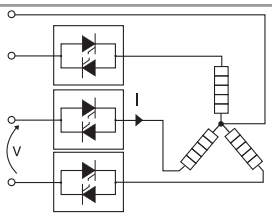
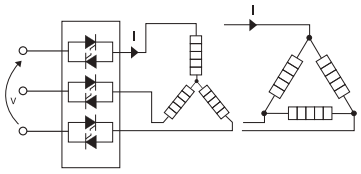
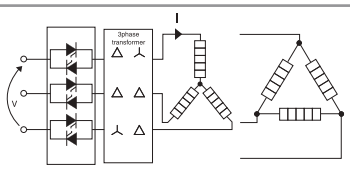
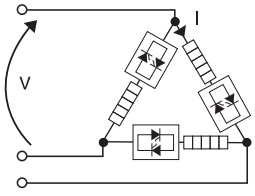
	DESCRIPTION	REVO S 1PH	REVO S 2PH	REVO S 3PH	REVEX 1PH
CURRENT	SIZE / Approval	SIZE / Approval	SIZE / Approval	SIZE / Approval	SIZE / Approval
	30	SR3-SR6/CE-cUL	SR4-SR7/CE-cUL	SR5-SR8/CE-cUL	SR6/CE
	35	SR3-SR6/CE-cUL	SR4-SR7/CE-cUL	SR5-SR8/CE-cUL	SR6/CE
	40	SR3-SR6/CE-cUL	SR4-SR7/CE-cUL	SR5-SR8/CE-cUL	SR6/CE
	60	SR12/CE-cUL (3)	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (3)	SR24/CE
	75		F/SR15/cUL	F/SR16/cUL	
	90	F/SR15/CE-cUL (3)	F/SR15/CE (3)	F/SR16/CE (3)	F/SR24/CE
	120	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	F/SR15/CE
	150	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	F/SR15/CE
	180	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	F/SR15/CE
	210	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	F/SR15/CE
	280	F/S10/CE	F/2xS10/CE		F/S10/CE
	300	F/S12/CE-cUL	F/S14/CE-cUL	F/S14/CE-cUL	
	350			F/S14/CE-cUL	
	400	F/S12/CE-cUL	F/S14/CE-cUL	F/S14/CE-cUL	
	450		F/S14/CE-cUL	F/S14/CE-cUL	
	500	F/S12/CE-cUL	F/S14/CE-cUL	F/S14/CE-cUL	
	600	F/S12/CE-cUL	F/S14/CE-cUL		
	700	F/S12/CE-cUL	F/S14/CE-cUL		
	800	F/S15/CE	F/S16/CE	F/S17/CE	
	1100				
	1400				
	1600				
	1800				
	2100				

● **STANDARD** ○ **OPTION** **SIZE** See pag. 10-11 **F** Fan Air Cooling; nothing before SIZE: Natural Air Cooling **(1)** cUL® Approval is for Voltage ≤ 600V

THYRISTOR UNITS FULLY CONFIGURATION WITH COMMUNICATION						
REVEX 2PH	REVEX 3PH	REVO C 1PH	REVO C 2PH	REVO C 3PH	DESCRIPTION	
RX2	RX3	RC1	RC2	RC3	CODE	
●	●	●	●	●	Max voltage 480V	MAIN VOLT.
●	●	●	●	●	Max voltage 600V	
		●	●	●	Max voltage 690V (1)	
		●			Single phase	LOAD TYPE
●	●		●	●	3 phase load star no neutral or delta	
	●			●	3 phase load star with neutral	
	●	● (5)			3 phase load open delta	
●	●	●	●	●	SSR 4:30VDC	INPUT
●	●	●	●	●	4:20 mA	
●	●	●	●	●	0:10 Vdc	
●	●	●	●	●	Potentiometer	
●	●	●	●	●	Zero crossing	FIRING
		●			Half Cycle	
		●			Single Cycle	
●	●	●	●	●	Burst firing	
●					Burst firing simplified 4-8-16 Cycles at 50% (2)	
		●		●	Delayed triggering	
		●		●	Phase Angle	
		●		●	Soft Start	
●	●	●	●	●	No Feed Back	CONTROL MODE
●	●	●	●	●	Voltage	
●	●	●	●	●	Voltage Square	
●	●	●	●	●	Current	
●	●	●	●	●	Current Square	
●	●	●	●	●	Power Vxl	
O	O	●	●	●	Transfer from V to Vxl or I to Vxl	
		O		O	Current limit	OPTION
●	●	O	O	O	Heater break Alarm HB	
		O	O	O	Logging	
		O	O	O	Totalizer (Energy)	
		●	●	●	Phone APP (Free of charge)	TOOLS
●	●	●	●	●	PC Configurator Software (Line analyzer Free of Charge)	
		O	O	O	WiFi	COMM.
●	●	●	●	●	N°1 Modbus® RTU	
O	O	O	O	O	N°2 Modbus® RTU	
O	O	O	O	O	N°1 Profibus DP + N°1 Modbus® RTU	
O	O	O	O	O	N°1 Profinet® + N°1 Modbus® RTU	
O	O	O	O	O	N°1 Modbus® TCP + N°1 Modbus® RTU	
REVEX 2PH	REVEX 3PH	REVO C 1PH	REVO C 2PH	REVO C 3PH	DESCRIPTION	CURRENT
SIZE / Approval	SIZE / Approval	SIZE / Approval	SIZE / Approval	SIZE / Approval	SIZE / Approval	
SR9/CE	SR10/CE	SR9/CE	SR10/CE-cUL	SR11/CE-cUL	30	
SR9/CE	SR10/CE	SR9/CE-cUL	SR10/CE-cUL	SR11/CE-cUL	35	
SR9/CE	SR10/CE	SR9/CE-cUL	SR10/CE-cUL	SR11/CE-cUL	40	
SR25/CE	F/SR25/CE (6)	SR12/CE-cUL (3)	SR13/CE-cUL (3)	SR14/CE-cUL (3)	60	
					75	
F/SR25/CE	F/SR25/CE (6)	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (3)	F/SR17/CE-cUL (3)	90	
F/SR16/CE	F/RS17/CE	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	120	
F/SR16/CE	F/RS17/CE	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	150	
F/SR16/CE	F/RS17/CE	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	180	
F/SR16/CE	F/RS17/CE	F/SR15/CE-cUL (3)	F/SR16/CE-cUL (4)	F/SR17/CE-cUL (4)	210	
F/2xS10/CE					280	
		F/S12/CE-cUL	F/S14/CE-cUL	F/S14/CE-cUL	300	
					350	
		F/S12/CE-cUL	F/S14/CE-cUL	F/S14/CE-cUL	400	
			F/S14/CE-cUL	F/S14/CE-cUL	450	
		F/S12/CE-cUL	F/S14/CE-cUL	F/S14/CE-cUL	500	
		F/S12/CE-cUL	F/S14/CE-cUL	F/S17/CE	600	
		F/S12/CE-cUL	F/S14/CE-cUL	F/S17/CE	700	
		F/S15/CE	F/S16/CE	F/S17/CE	800	
		F/SR18/CE	F/SR19/CE	F/SR20/CE	1100	
		F/SR21/CE	F/SR22/CE	F/SR23/CE	1400	
		F/SR21/CE	F/SR22/CE	F/SR23/CE	1600	
		F/SR21/CE	F/SR22/CE	F/SR23/CE	1800	
		F/SR21/CE	F/SR22/CE	F/SR23/CE	2100	

(2) It's possible just using Analog Input Ex. 4:20mA **(3)** SIZE 11 at 690V (no cUL®) **(4)** SIZE 13 at 690V (no cUL®) **(5)** Use n° 3 1PH units **(6)** from 2021 version

APPLICATION GUIDE FOR THYRISTOR UNIT SINGLE LOOP

APPLICATION GUIDE	LOAD TYPE	MODEL	CURRENT RANGE	N. OF UNITS	PHASE CTRL
	Normal resistance infrared medium and long waveform	REVO SSR	It depends on heat sink	1	1
		REVO S 1PH	30-800A	1	1
		REVO C 1PH	30-2100A	1	1
	Quartz lamp infrared short waveform	REVEX 1PH	30-280A	1	1
		REVO C 1PH	30-2100A	1	1
	Molibdenum, Tungstenum, Kanthal® super, Platinum	REVEX 1PH	30-280A	1	1
		REVO C 1PH	30-2100A	1	1
	Silicon carbide elements	REVO S 1PH	30-800A	1	1
		REVEX 1PH	30-280A	1	1
		REVO C 1PH	30-2100A	1	1
	Transformers coupled with normal resistance	REVEX 1PH	30-280A	1	1
		REVO C 1PH	30-2100A	1	1
	Transformers coupled with cold resistances (Kanthal® super)	REVEX 1PH	30-280A	1	1
		REVO C 1PH	30-2100A	1	1
	Normal Resistance	REVO S 2PH	30-800A	1	2
		REVEX 2PH	30-280A	1	2
		REVO C 2PH	30-2100A	1	2
	Normal Resistance	REVO S 3PH	30-500A	1	3
		REVEX 3PH	30-210A	1	3
		REVO C 3PH	30-2100A	1	3
	Silicon carbide elements	REVO C 3PH	60-2100A	1	3
		REVEX PA	35-90A		
	Molibdenum, Tungstenum, Kantal® Super, Platinum, Quartz lamp infrared short waveform	REVO C 3PH	60-2100A	1	3
	Three phase transformer	REVO C 3PH	60-2100A	1	3
		REVEX PA	35-90A		
	Three phase normal load resistance with open delta connection	REVO S 3PH	30-800A	1	3
		REVO C 1PH	30-2100A	3	3
	Cold resistance	REVO C 1PH	30-2100A	3	3

CONTROL MODE: V = Voltage feedback V² = Square voltage feedback Vxl = Power feedback I = Current feedback

SELECTION

SUGGESTED FIRING MODE FOR YOUR APPLICATIONS						OTHER FEATURES				SIZING		NOTE
ZC	HC	SC	BF	BF Simplified	S+BF	DT	PA	CL	Control	V	I	
•										V	$\frac{P}{V}$	For general resistance applications with low variations in temperature and age. For low inertia loads use Single Cycle (SC) or Phase Angle (PA). For Infrared Short it's also available Half Cycle that is a very Fast Firing
•				•								
•				•								
	•	•							V^2			
	•	•					•					
							•	•	I^2	V	$\frac{P}{V}$	These resistances change with temperature but have low variations with age. Starting current with cold elements can be 16 times nominal current (Kanthal® super). Infrared lamp short waveform can reach 8 time nominal current.
							•	•				
			•						V to Vxl	V	$\frac{P}{V}$	These resistances change value with temperature and age and value at the end of element life is 4 times the initial value. Constant power regulation is necessary with V to Vxl Transfer.
							•					
							•					
						•			Vxl	V	$\frac{P}{Vcos\phi}$	Transformers and inductors have inrush current on start up. Phase Angle plus Soft Start and current limit are required. To switch the transformer ON-OFF, use DT firing that will automatically switch ON-OFF when current value is at zero.
						•						
							•	•	I^2	V	$\frac{P}{Vcos\phi}$	Use Phase Angle + Current Limit
							•	•				
•				•						V	$\frac{P}{1.73V}$	Revo S, REVEX and Revo C-2PH are suitable to control resistive loads with delta or star connection without neutral.
			•						Vxl	V	$\frac{P}{1.73V}$	
			•									
•				•						$\frac{V}{1.73}$	$\frac{P}{1.73V}$	Three phase load with star plus neutral connection must be controlled on the three phases.
			•						Vxl			
			•									
							•		V to Vxl	V	$\frac{P}{1.73V}$	On three phase silicon carbide elements Vxl feedback is suggested to have a constant power control. This is necessary to compensate resistance change with temperature and age. Resistance value at the end of element life is 4 times the original value. With Revo C use BF firing and Power Limit.
							•	•	I^2			These resistances change with temperature but have low variations with age. Start up current with cold elements can be many times the nominal current value. In this case it is necessary to use Phase Angle + Current Limit.
							•	•	I^2	V	$\frac{P}{1.73Vcos\phi}$	Three phase Revo C units are specially designed to drive three phase transformers coupled on secondary with normal or special resistive loads.
•				•						V	$\frac{P}{3V}$	Open delta can be driven by three phase unit.
							•	•	I^2			
							•	•	I^2	V	$\frac{P}{3V}$	

Firing = BF Simplified 4-8-16 Cycles at 50% Power Demand with Analog Input only HC: Half Cycle SC: Single Cycle

Italy
CD Automation Srl
Via Picasso, 34/36
20025 Legnano MI
Italy
T +39 0331 577479
F +39 0331 579479
sales@cdautomation.com
www.cdautomation.com

United Kingdom
CD Automation UK Ltd
Unit 9 Harvington Business Park
Brampton Road, Eastbourne
East Sussex, BN22 9BN
England
T +44 1323 811100
info@cdautomation.co.uk
www.cdautomation.co.uk

India
M/s Toshcon CD Automation Pvt. Ltd.
H1 - 75 Gegal Industrial Area
Ajmer - 305023 (Raj.)
India
T +91 145 2791112
T +91 145 6450601/2/3
sales.cd@toshcon.com
www.cdautomation.in