REVO M-2PH from 280A to 700A

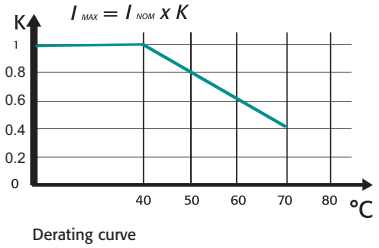
Universal 2 Phase Thyristor Unit

GENERAL DESCRIPTION

- Revo M has been specifically designed to be an Universal Unit
- RS485 Comm. MODBUS Protocol Standard
- Frontal Key Pad to configure the unit and to read V,I and Power
- Configurablity via RS485, USB Port and frontal Key Pad
- Microprocessor based electronic circuit fully isolated from power
- Universal input signal: RS485,Pot, Analog and SSR
- Firing Mode: Zero Crossing and Burst Firing Mode with programmable cycle time
- Configurable Control Mode: V and VxI and I
- Heather Break alarm to diagnose partial or total load failure and Thyristor Short circuit
- Digital input configurable
- Fixed Fuses Standard
- Current transformer integrated in the unit
- Comply with EMC, cUL pending
- IP20 Protection
- Panel mounting

TECHNICAL SPECIFICATION

Voltage power supply	24V minimum,480V Standard ,600V option available on all sizes. 690V available from 400 to 700A		
Voltage Frequency	50 or 60 Hz no setting needed from 47 to 70 Hz		
Nominal Current	280A, 400A, 450A, 500A, 600A, 700A		
Input Signal	SSR (logic)	4:30Vdc	5mA Max (On ≥ 4Vdc Off ≤ 1Vdc);
	Voltage input	0:10Vdc	impedance 15 K ohm;
	Current input	0:20/4:20mA	impedance 100 Ohm;
Digital input	4:30V dc 5 mA Max (On > 4Vdc Off < 1Vdc)		
Firing	Burst Firing and Zero Crossing with possibility to set number of Burst and cycle time		
Control Mode	Voltage Current and Power selectable via frontal Key Pad, and RS485 or via Digital input to transfer from one control mode to another one to estabilish a control strategy.		
Auxiliary Voltage Supply	90:130Vac	8VA Max	
	170:265Vac	8VA Max	(Standard)
	230:345Vac	8VA Max	
	300:530Vac	8VA Max	(Standard)
	510:690Vac	8VA Max	
	600:760Vac	8VA Max	(Available on unit ≥400A)
Heater Break Alarm	HB alarm setting on front unit or RS485 with possibility to set sensitivity. Relay output 0,5A at 110V		
Mounting	Panel Mounting		
Operating Temperature	40 °C without derating. Over this temperature see below derating curve		
Storage temperature	-25 °C to 70 °C Max		
Altitude	Over 1000 m of altitude reduce the nominal current of 2% for each 100m		
Humidity	From 5 to 95% without condense and ice		



Derating curve

USER'S MANUAL
Rev. 01/2012

OPTION'S FEATURES AND SPECIAL DETAILS

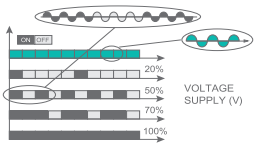
HEATER BREAK ALARM HB

ON FRONT CABINET

= FEW MINUTES TO SET AND CALIBRATE ALL THE UNITS

The Heather Break circuit diagnostic partial or total load failure. It reads load resistance with an internal voltage transducer and current transformer to calcolate the resitance value V/I.
The Heather Break circuit is compensated for voltage fluctuation,infact a voltage variation has no influence on resistance value because V/I ratio remain constant.
On this unit is possible to set the nominal resistance value and the alarm sensitivity.
HB alarm in addition diagnostic the thyristor in short circuit.
A normaly open contact gives the alarm condition and an indication of the alarm type appears on display.

BURST FIRING BF

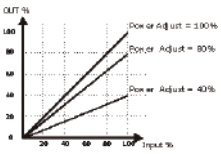


This firing is performed digitally within the thyristor unit at zero volts, producing no EMC interference. Analogue input is necessary for BF and the number of complete cycles must be specified for 50% power demand. This value can be between 1 and 255 complete cycles, determining the speed of firing.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

FIELD BUS MODULE

CD-RS Used to convert RS232 to RS422
TU-RS485-PDP Used to convert RS485 Modbus to Profibus DP
TU-RS485-ETH Used to convert RS485 Modbus to Ethernet
For more informations see "Field Bus Module"

POWER SCALING

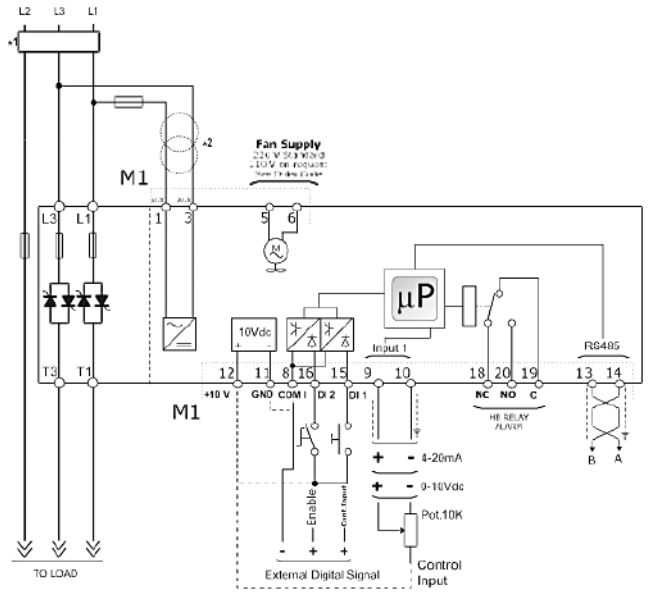


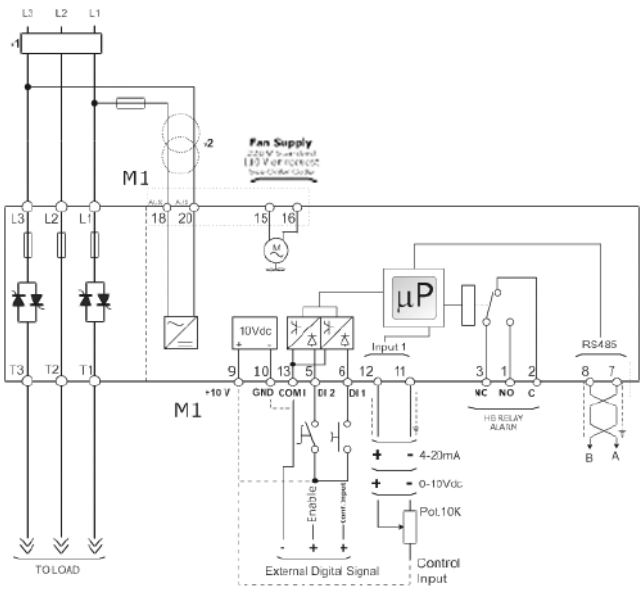
It's a scaling factor of the input command signal and limit the output of Thyristor unit. This parameter can be adjusted from 1 to 99% via RS485 or by the front of the unit If this parameter is setted at 50% and the input signal is 100% the output become 50% This feature is very useful to reduce the power when a zone has been oversized or when a temperature controller gives same reference to more unit along a furnace.
Imagine 3 zones with left and right one close to the doar where in acontinuos furnace the material come into and flow out.The profile of temperature along furnace is higher in central zone because there is less dispersion but if we scale its input we can have a flat profile.

APPLICATIONS AND FOCUS ON:

- Infrared lamp.
- Autoclaves.
- Fournaces.
- Chemical
- Petrochemical
- Dryers

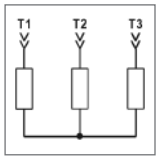
WIRING CONNECTION M 2PH from 280A to 700A





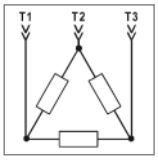
NOTE

LOAD TYPE



STAR without neutral
Resistive or Infrared Lamps
Long and medium waves

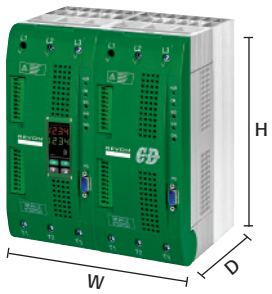
LOAD TYPE



DELTA
Resistive or Infrared Lamps
Long and medium waves

- The user installation must be protecting by electromagnetic circuit breaker or by fuse isolator. The semiconductor I^2t should be 20% less than power controller I^2t. Semiconductor fuses are classified for UL as supplemetar protection for semiconductor. They are note approved for branch circuit protection.
- The auxiliary voltage supply of the Revo M unit must be synchronized with load-voltage power supply. If the Auxiliary Voltage (written on the identification label) is different from Supply Voltage (to the load), use an external transformer as designated.

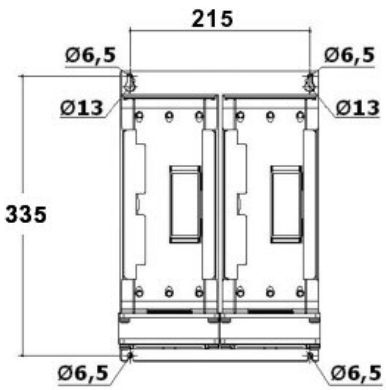
DIMENSION AND FIXING HOLES



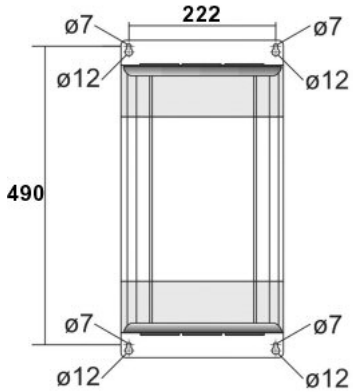
S10 W 240 mm. - H 350 mm. - D 230 mm. - kg. 11

S14 W 262 mm. - H 520 mm. - D 270 mm. - kg. 22,5

280A



400A÷700A



OUTPUT FEATURES (POWER DEVICE)

Current A	Voltage range (V)	Ripetitive peak reverse voltage (480V)	(600V)	(690V)	Latching current (mAeff)	Max peak one cycle (10msec.)	Leakage current (mAeff)	I2T value for fusing tp=10msec	Frequency range (Hz)	Power loss I=Inom	Isolation Voltage Vac
280A	24÷600V	1200	1600	N. A.	300	4800	15	108000	47÷70	560	2500
400A	24÷600V	1200	1600	1800	200	7800	15	300000	47÷70	875	2500
450A	24÷600V	1200	1600	1800	200	7800	15	300000	47÷70	1021	2500
500A	24÷600V	1200	1600	1800	200	8000	15	306000	47÷70	1061	2500
600A	24÷600V	1200	1600	1800	1000	17800	15	1027000	47÷70	1178	2500
700A	24÷600V	1200	1600	1800	1000	17800	15	1027000	47÷70	1425	2500

ORDERING CODES REVO M 2PH

Note 1

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

4,5,6 Current

Description code	Numeric code
280A	2 8 0
400A	4 0 0
450A	4 5 0
500A	5 0 0
600A	6 0 0
700A	7 0 0

7 Max Voltage

Description code	Numeric code
480V	4
600V	6
690V Available on units ≥ 400A (2)	7

8 Aux. Voltage supply

Description code	Numeric code
90:130V (3)	1
170:265V (3)	2
230:345V (3)	3
300:530V (3)	5
510:690V (3)	6
600:760V (3)	7

9 Input

Description code	Numeric code
SSR	S
0:10V dc	V
4:20mA	A
10KPot	K
RS485	R

10 Firing

Description code	Numeric code
Zero Crossing ZC	Z
Burst Firing BF	B

11 Control Mode

Description code	Numeric code
Open Loop	0
Voltage Feed Back V	U
Power Feed Back VxI	W
Current Feed Back	I

12 Fuse & Option

Description code	Numeric code
Fixed Fuses	F
Fixed Fuse + CT (4)	Y
Fixed Fuse +CT +HB (4)	H
Control Mode Retransmission 4:20mA	A
Control Mode Retransmission 0:10V	V

13 Fan Voltage

Description code	Numeric code
Fan 110V	1
Fan 220V Std Version	2

14 Approvals

Description code	Numeric code
CE EMC For European Market	0
cUL For American Market, pending	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
Std. version	1

LEGEND
IF = Internal Fixed Fuse
CT = Current Transformer

Note (1): After 16th digit write current and voltage of load inside brackets Ex. (250A-400V)
Note (2): Available on units ≥ 400A
Note (3): Load voltage must be included in Selected Auxiliary Voltage Range
Note (4): Third fuse standard from 400 to 700A