WEST Control Solutions

Datasheet

Relay S-1PH from 280A to 700A

Power Controller

General Description

- Relay S has been specifically designed to save space and labour
- These simple units can be connected with Relay PC to manage multizone system this minimize your energy cost by controlling synchronization and power limit on each zone
- All circuit board, fuses and Thyristor can be inspected just opening front door
- Input signal: SSR, Analog as an option
- Zero Crossing, Burst Firing available at 4, 8 or 16 Cycles at 50% Power demand
- Electronic circuit fully isolated from power with constant current drain on input.
- Heater Break alarm option to diagnose partial or total load failure and Thyristor Short circuit
- Internal fixed fuses are standard
- Current transformer integrated (with Heater Break option)
- Special design for Heat sink with very high dissipation value
- CE, cUL
- Panel Mounting
- IP20 Protection

Technical Specification			
Voltage power supply	24V minimum up to 480V, 600V On request		
Voltage Frequency	50 or 60 Hz no setting needed from 47 to 70 Hz		
Nominal Current	225A, 300A, 350A, 400A, 450A, 500A		
Input Signal	SSR	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;
Firing	Zero Crossing, Burst Firing with analog input signal only		
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	
Heather Break Alarm	Microprocessor based with automatic setting Digital Input, 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		

Option’s features and special details

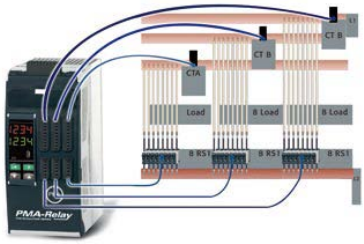
Heater Break Alarm (HB)

ON FRONT CABINET

FEW SECOND TO SET AND CALIBRATE THE UNITS

- Microprocessor based circuit
- Capacity to diagnose the failure of one Resistance over five in parallel
- Load failure alarm with LED indication on front unit
- Thyristor short circuit alarm with LED indication on front unit
- Alarm output with free voltage relay contact
- Alarm reset function and possibility to auto reset if the alarm disappear
- Built in Current transformer when heather Break option has been selected
- Self Setting via external command or push button on front unit
- Commom setting command can be given to many units and in a matter of second, the tuning is done, also by a non expert operator

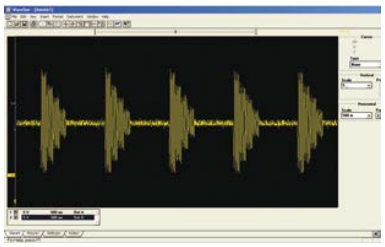
How to add power load management and features to your simple units



APPLICATION WITH 8, 16 OR 24 SINGLE PHASE LOADS

Use Relay-PC and you can add these Features

- Communication with different field bus
- Reading of current Voltage and Power
- Istantaneus power very close to average value, no pick power
- Power factor close to one no harmonics
- Prevents increase in energy supply tariffs imposed by your electricity supplier

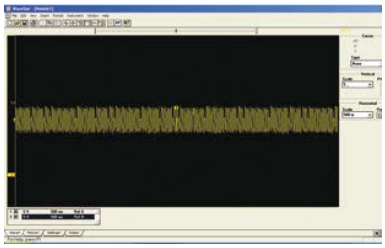


WITHOUT POWER CONTROL OPTIMISATION

Synchronization

On all controlled zones, Relay-PC Synchronization is automatic resulting in superior performance:

- Total current is equal to a sinusoidal wave form.
- Power factor > 0,9.
- Instantaneous current close to average value.
- Cancellation of harmonics.
- Flickering effect removed.



WITH POWER CONTROL OPTIMISATION

Smart power limitation

- Smart power limitation works together with synchronization. If this function is enabled, Relay-PC makes a live calculation of power at each period and generates the output values for the next period. If the calculated power is below the power limit value, the previous values remain with each channel using full power.
- If the power is above the power limit value, the setpoint of each channel is reduced proportionally to restrict power overshoot. This function significantly reduces disturbances on the main network compared to a full power system, preventing any increase in energy tariffs imposed by the electricity supplier.
- This function can be activated/deactivated and the limit value changed at any time.

Ordering Code Relay-PC

	1	2	3	4	5		6	7	8	9	10	11	12	13	14	15	16
Realy-PC	R	P	C	_	_	-	_	_	_	0	0	0	0	0	0	0	0

4,5 - Channels	
Description code	Numeric code
8 Channels	08
16 Channels	16
24 Channels	24

6 - Current Sensor	
Description code	Numeric code
N. 1 CS 200 Amps	1
N. 2 CS 200 Amps	2
N. 3 CS 200 Amps	3
N. 1 CS 400 Amps	4
N. 2 CS 400 Amps	5
N. 3 CS 400 Amps	6
N. 1 CS 600 Amps	7
N. 2 CS 600 Amps	8
N. 3 CS 600 Amps	9

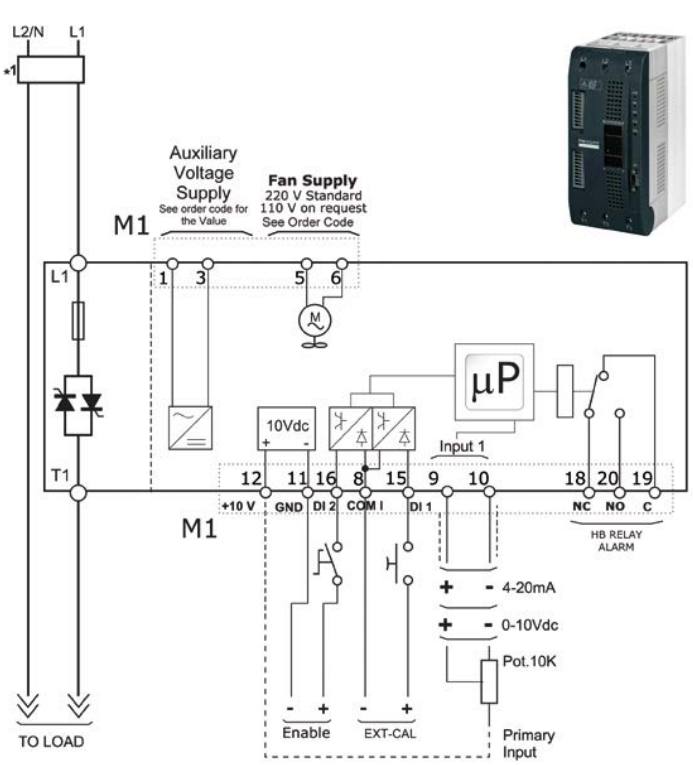
7 - Communication	
Description code	Numeric code
Ethernet	1
ModBus Slave	2
ModBus Master	3
Profibus	4
Profinet	5
CANopen	6
EtherCAT	7

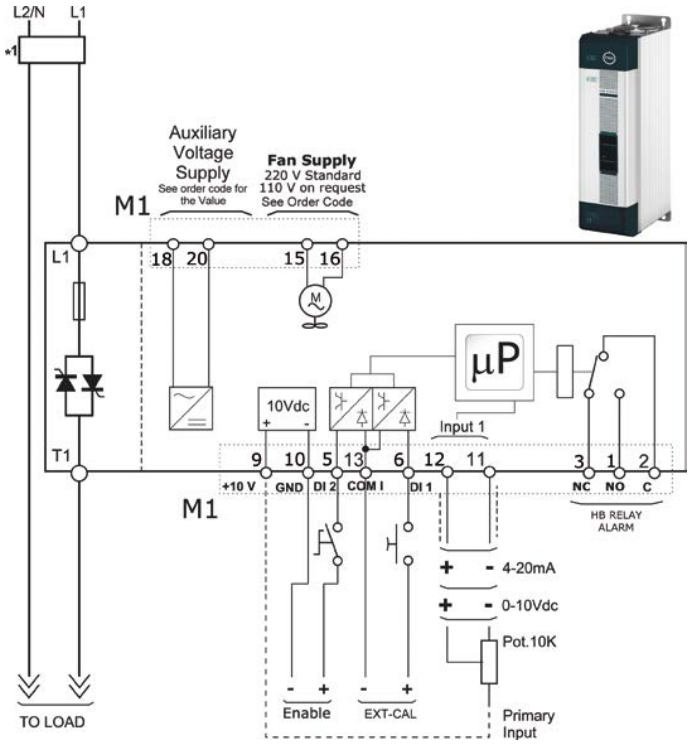
8 - Transformer	
Description code	Numeric code
Transformer 24V	1

Applications

- Autoclaves
- Furnaces
- Dryers
- Chemical

Wiring connection Relay S 1PH from 280 to 700A





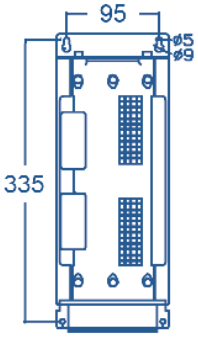
Notes

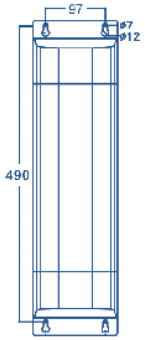
1. - A suitable device must ensure that the unit can be electrically isolated from the supply, this allows the qualified people to work in safety.
   - The user installation must be protecting by electromagnetic circuit breaker or by fuse isolator. The semiconductor fuse are classified for UL as supplementary protection for semiconductor.
2. The heat-sink must be connected to the earth.
3. Only for the HB option

Dimensions and fixing holes

S9H W 120 mm. - H 350 mm. - D 230 mm. - kg. 5,5
280A

S12 W 137 mm. - H 520 mm. - D 270 mm. - kg. 15
400A÷700A





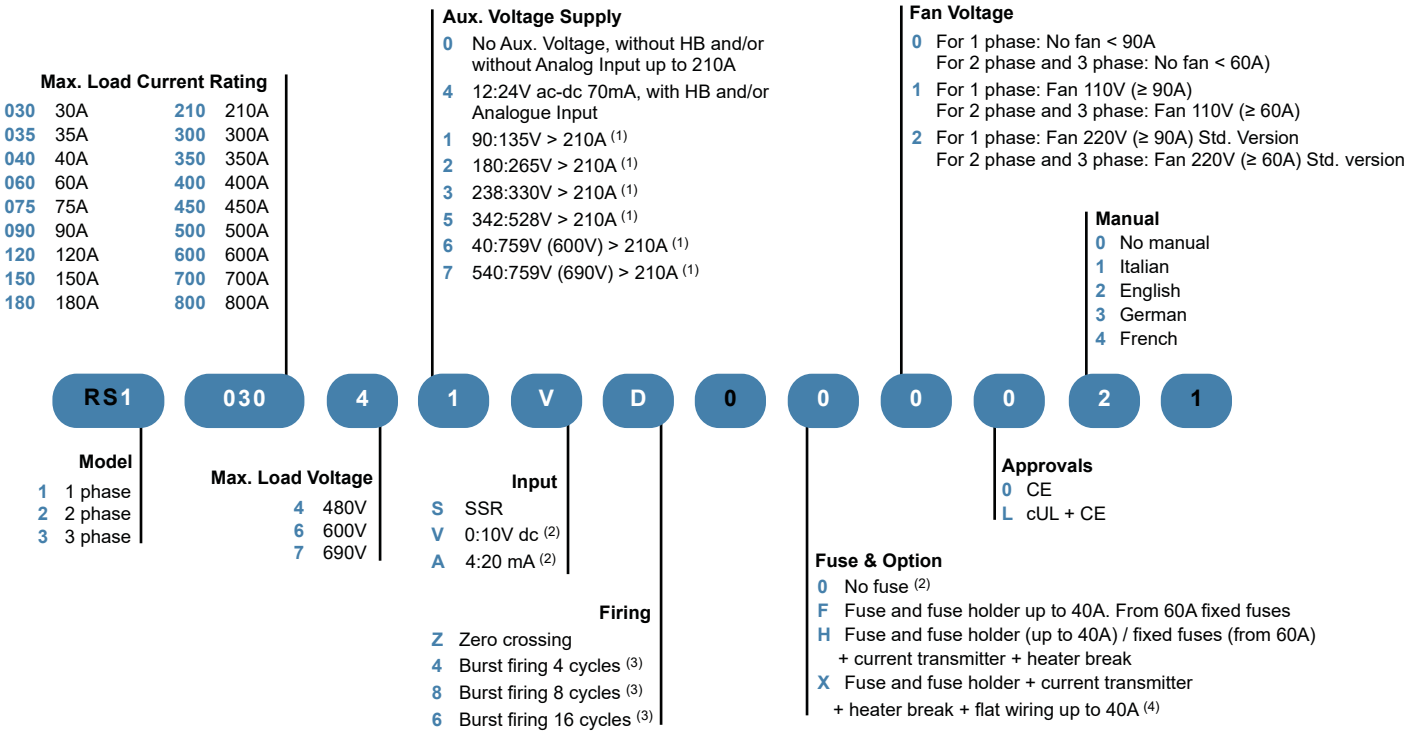
Output Features (power

Current A	Voltage range (V)	Repetitive peak reverse voltage (480V)	(600V)	Latching current (mAeff)	Max peak one cycle (10msec.)	Leakage current (mAeff)	I2T value for fusing tp=10msec.	Frequency range (Hz)	Power loss I=Inom (W)	Isolation Voltage Vac
280A	24÷600V	1200	1600	200	7000	15	236000	47÷70	375	2500
400A	24÷600V	1200	1600	200	7800	15	300000	47÷70	397	2500
500A	24÷600V	1200	1600	200	8000	15	306000	47÷70	530	2500
600A	24÷600V	1200	1600	1000	17800	15	1027000	47÷70	589	2500
700A	24÷600V	1200	1600	1000	17800	15	1027000	47÷70	712	2500
210A	24÷600V	1200	1600	300	5250	15	128000	47÷70	202	2500

Fan Specification

Supply: 230V Standard	Input Power 17W
Supply: 115V Option	Input Power 14W

Ordering Code Relay S



(1) Load voltage must be included in Selected Voltage Auxiliary Range for units > 210A

(2) With analogue input (0:10Vdc, 4:20mA) it is necessary to have the fuse (1 phase also the fuse holder on units =< 40 A)

(3) On at 50% power demand; Available only with analogue input

(4) Available up to 40A. With flat wiring it is necessary to use TU-RS1 (2;3) terminal unit

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