USER GUIDE

Emergency Devices for Hydraulic Plants

EM01 (200W)
EM02 (200W)
EM02 (400W)

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EM01-EM02-GB
Rev.01
20/10/04

1. INTRODUCTION

The EM01 and EM02 emergency devices are DC/AC converters which feed the control panel transformer whenever 48Vdc keying voltage fails, thus allowing an emergency ride downwards and the doors to open as if the elevator had been called at the landing below.

The device is supplied by means of batteries (ex: lead acid gel battery), sized as per Tab01, and requires no specific maintenance, apart from the batteries being replaced whenever out of order or used up. The device features no circuit for battery recharging/charging. Therefore, this function should be carried out by an appropriate external circuit (recommended: B12A battery charger by SEA SYSTEMS).

The following models are available:

Product Code	Model	Output Power	Output Voltage (at transformer)	Battery feed
ED6901	EM01 200W	200W	10Vac single phase	12Vdc 7,2Ah
ED7001	EM02 200W	200W	10Vac three phase	12Vdc 7,2Ah
ED7002	EM02 400W	400W	20Vac three phase	2 x 12Vdc 7,2Ah

Tab.01_Emergency Devices Available

2. OPERATION

Master Switch 4th Pole Contact

The opening of the master switch 4th pole contact neither enables nor disables the emergency cycle, regardless of its current state.

The emergency cycle starts 3 seconds after a 48Vdc keying voltage failure (Input E31), provided the 4th pole contact (Input E21-E22) of the master switch is shut.

In a state of emergency, the EM0x device cuts off the mains power through an appropriate relay, feeds the control panel transformer, as per the above table (Outputs Vac1, Vac2, Vac3) and reports its emergency condition by shutting the voltage free contact (Output U11-U12).

The EM0x device completes its operating cycle, even if the keying voltage has been restored.

The EM0x device reverts to a standby positioning as soon as one of the following conditions arises:

a) **4th pole** opening (Input E21-E22);

b) After a maximum preset timeframe of **120 seconds**;

c) After the **end of emergency** signal has been generated by the control panel (Input E11-E12) with a 20 second delay (this input can be NC or NA configured, see par. 4).

3. INSTALLATION (IN THE CONTROL PANEL)

The device is intended to be mounted on a DIN guide, inside the control panel.

ELECTRICAL SHOCK HAZARD

The operations reported below must be carried out with the control panel DE-ENERGISED.

Observe indicated polarities (the device is NOT PROTECTED against polarity reversal) and use cables of appropriate section for connections towards the battery and the control transformer emergency primary circuit (2,5mm^2 min for connection to both the battery and the transformer).

1. Make sure your device version matches the intended use (see table in paragraph 1);
2. Preset jumper JP1 as per the following table:

Position	Operation
1-2	End of emergency signal enabled if input E11-E12 = +24V End of emergency signal disabled if input E11-E12 = 0V
2-3	End of emergency signal enabled if input E11-E12 = 0V End of emergency signal disabled if input E11-E12 = +24V

3. Connect the device as per the diagram reported in par 3.2 and according to the EM0x device model. Connect the battery at the end.
4. Feed the control panel.

3.1. Terminal Board

TERMINALS	FUNCTION	TECHNICAL SPECIFICATIONS
U11, U12	Output for emergency signal	Relay contacts 12A @ 24Vdc
E11, E12	End of emergency control input	Galvanically isolated input. (10mA @ 12Vdc)
E21, E22	4th pole input	Cable max. length = 10m
E31	48Vdc keying voltage input	
+B, -B	Battery voltage input	12V 7,2Ah (for EM01 200W and EM02 200W) 24V 7,2Ah (for EM02 400W)
R, S*, T	Mains voltage phase input	
R1, S1*, T1	Mains voltage phase outputs	Max 1A @ 440Vac
Vac	Inverter output to transformer: - Single phase for EM01 version - Three phase for EM02 version	10Vac input for EM01 200W version 3x10Vac input for EM02 200W version 3x20Vac input for EM02 400W version

** Only for EM02 200W and EM02 400W devices.*

3.2. Installation Diagrams

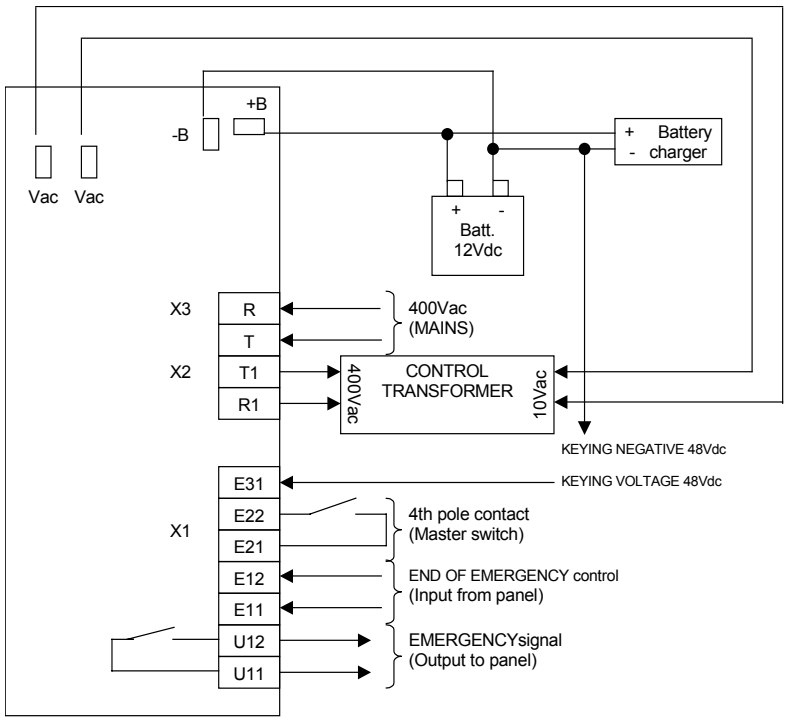

Diagram 1 - EM01 200W Device Connexions

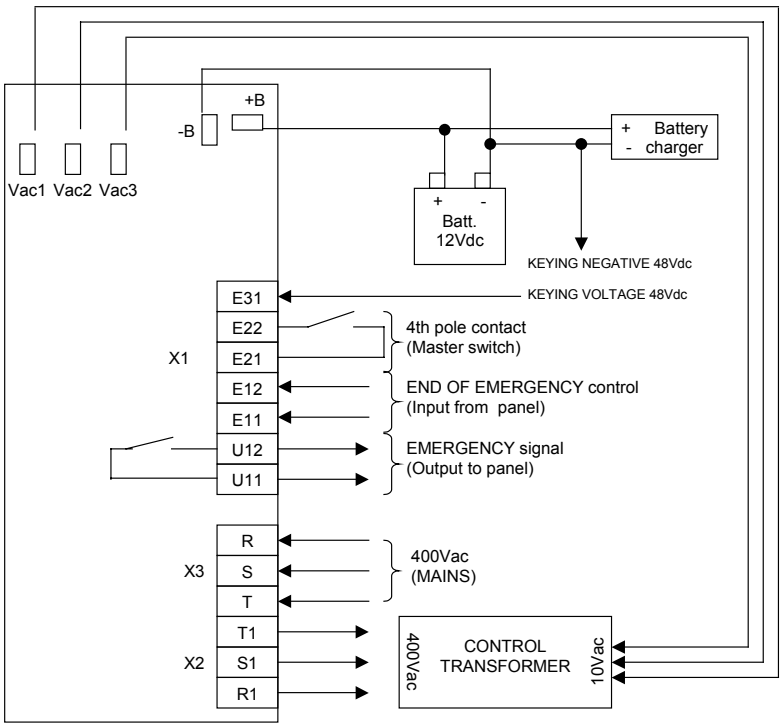

Diagram 2 - EM02 200W Device Connexions

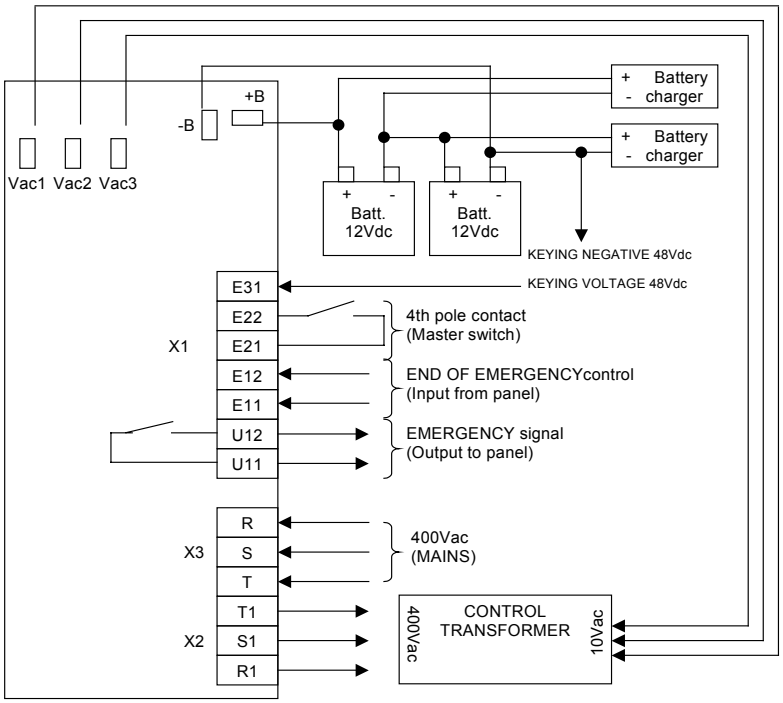

Diagram 3 - EM02 400W Device Connexions

4. TROUBLESHOOTING:

Operation diagnosis is signalled through two leds having the following meaning:

HPW led state (yellow)	Description
1 quick blink every 4 seconds	Standby system
1 long blink	System waiting for control voltage to return. Emergency cycle ended without problems.
Quick blink	System waiting for control voltage to return. Emergency cycle improperly completed (red led indicates why)
Uninterruptedly ON	The system is carrying out an emergency cycle

HAL led state (red)	Description
1 quick blink every 4 seconds	4^{th} pole contact open. The emergency cycle has been interrupted.
1 long blink	Flat battery. The emergency cycle does not start or was interrupted.
Quick blink	Output overload. The emergency cycle gets interrupted after three attempts.
Uninterruptedly ON	Output short-circuit. The emergency cycle gets interrupted after three attempts.

Note: messages are reset as soon as the control voltage returns.

5. TECHNICAL SPECIFICATIONS:

SPECIFICATION	VALUE	DEVICE TYPE
Supply voltage	12V 7,2Ah min	EM01 and EM02 (200W)
	24V 7,2Ah min	EM02 (400W)
Output power	200W	EM01 and EM02 (200W)
	400W	EM02 (400W)
Cable section	Battery and transformer connexion	2,5mm^2 min.; 1mt max.
Inverter output voltage	2 x 10Vac 50Hz	EM01 (200W)
	3 x 10Vac 50Hz	EM02 (200W)
	3 x 20Vac 50Hz	EM02 (400W)
Operating temperature	0÷50 °C	Natural convection
Cooling	Natural, through built-in heat sink	
Emergency cycle duration	120 sec	
End of emergency cycle duration	20 sec	
State and diagnosis	Through leds: Standby, Successful emergency conclusion, Unsuccessful emergency conclusion, Flat battery, Short-circuit, Overload	
Protection against short-circuit and overload	Self-reset electronics and car type of fuse 25°	
Signals to the outside	Emergency cycle in progress signalled through clean relay contacts (10A@250Vac)	
Maximum switching current on three phase line	2A@400Vac	
Sheath protection degree	IP20	
Assembly position	Vertical, on DIN guide	