OPERATING MANUAL

FOR

RELAY CONTROLLER

Milestone Electronics Pvt. Ltd.

RELAY CONTROLLER

RELAY CONTROLLER by Milestone is a device that helps person/s to control various electric appliances sitting at one place through remote keypad or local keypad or RS 232 interface.

Models available

ML - 2 RLC	2 Relay Control
ML - 4 RLC	4 Relay Control
ML - 8 RLC	8 Relay Control

Features

INSTALLATION	Easy to install - plug and play kind.
COMPATIBILITY	Can switch 230V/8A devices
SELECTION	Individual Relay controlled through · Individual Local keypad ● Individual remote keypad (optional). ● Remote contact closure. ● RS232C interface. ● RS422/RS485 interface (optional). ● IR/RF Remote Keypad (optional).
INDICATION	LED indication for working set.
UNIT IDENTITY CODE	3 Bit DIP Switch (For RS232 only)
EXCLUSIVE RELAY OPERATION	4 Pairs of Relays through DIP Switch Setting (When One of the pairs is ON other will be OFF and vice versa.
MULTIPLE UNIT OPERATION	Using Unit Identifier, upto 48 Relays can be operated (ML-8RL X 6) through single RS232C Controller.
BATTARY BACK UP	Last selected status stored in battery backed memory.
ISOLATION	RS232C & relays are optically isolated.

SPECIFICATIONS

MODEL	ML-2 RLC	ML-4 RLC	ML-8 RLC
NO. OF RELAYS	2	4	8
INPUT POWER TERMINAL BLOCK 230V, 60A	--	1	1
OUTPUT---3 PIN CAPTIVE SCREW 230V, 8A (L, N, E) OUTPUT---4 PIN CAPTIVE SCREW 230V, 8A (F, L, N, E)	-- 1 (5A)	2 2	4 4
LED INDICATION	1 ,2 and PWR	1 to 4 and PWR	1 to 8 and PWR
KEYPAD SELECTION	1, 2	1 to 4	1 to 8
REMOTE KEYPAD / CONTACT CLOSURE CONNECTOR	D9M × 1	D9M × 1	D9M × 1
MANUAL/RS232 SELECT SWITCH	YES	YES	YES
RS 232 INTERFACE	D9F × 1	D9F × 1	D9F × 1
DIP SWITCH SETTING (8 BITS) UNIT IDENTIFIER CODE EXCLUSIVE RELAY MODE	3 Bits 4 Bits	3 Bits 4 Bits	3 Bits 4 Bits
MAINS INPUT (AC)	230 V	230 V	230 V
DIMENSION RACK (19 INCH)	Table Top	1 U	1U
WEIGHT	1000 g	1770 g	2000 g

DIP SWITCH SELECTION

A. **Normal / Exclusive Mode Selection**

DIP SWITCH	POSITION	OPERATION
1	OFF	Relay 1 & 2 *Normal Mode Operation*
	ON	Relay 1 & 2 *Exclusive Mode Operation*
2	OFF	Relay 3 & 4 *Normal Mode Operation*
	ON	Relay 3 & 4 *Exclusive Mode Operation*
3.	OFF	Relay 5 & 6 *Normal Mode Operation*
	ON	Relay 5 & 6 *Exclusive Mode Operation*
4.	OFF	Relay 7 & 8 *Normal Mode Operation*
	ON	Relay 7 & 8 *Exclusive Mode Operation*

Normal Mode Operation :- Relay 1 and Relay 2 work as Independent Relays

At the rear end L becomes relay 1 Contact &
F becomes relay 2 Contact.

Exclusive Mode Operation: - If Relay 1 is ON, Relay 2 will remain OFF and vice versa. Always works in pair (for motor operation).

At the rear end L is relay 1 contact used for revering the motor
F is relay 2 contact used for forwarding the motor.

Operation in Exclusive Mode for Relay 1& 2.

1) Keep the dip Switch 1 to ON position.
2) Use Relay 1 connector '4 Pin Captive Screw' for motor. (Do not use Relay 2 Connector if motor used).
3) Connect common of motor to N.
   Connect Forward wire to F
   Connect Reverse wire to L
   Connect Earth to E
4) Press Key'1' for reverse motor drive and press Key'2' for forward motor drive.

- **Similarly for Relay 3& 4, Relay 5& 6, Relay 7 & 8.**
- **For Operation in normal mode. Do not use F of Relay 1, Relay 3, Relay 5, Relay 7.**

B. Unit Identity Code Selection (Only For RS232 C Command)

DIP SWITCH 5	DIP SWITCH 6	DIP SWITCH 7	UNIT IDENTIFIER CODE
OFF	OFF	OFF	!
OFF	ON	OFF	#
ON	OFF	OFF	@
ON	ON	OFF	$
OFF	OFF	ON	&
ON	OFF	ON	;

C. Front Keys Operation

DIP SWITCH 8		
OFF	PRESS to ON or OFF	Toggle Mode (Normal Operation)
ON	PRESS to ON & Release to OFF	

Note: If DIP Switch 8 is ON – at Power ON all the relays will be OFF

OPERATION :

At Power ON, all the relay status remains as per last selected when powered OFF (using battery backed memory feature).

A. Manual Mode

Keep the select switch on rear panel to **NORMAL** Mode.

- **Local Keypad**

Controls the required output from the front panel keypad pressing the individual keypad will toggle the respective relay output (ON or OFF).

Note: - Pressing any key for more than 2 seconds will OFF all the relays.

- **Remote contact closure/Remote keypad**

Rear panel has a D9 male connector to connect Milestone's remote keypad or any other remote contact closure that can be operated from a distance of 50 meters.

The connector diagram for D9 male connector is as follows:

D-9 MALE Pin No.	RELAY DRIVER
1	1
2	2
:	:
:	:
8	8
9	COMMON GND

Note: Particular relay can be operated by shorting respective pin to pin 9 through contact switch or by using Milestone's remote keypad.

B. Remote RS232 interface

Keep the select rear panel to **RS 232** Mode**.** D9 female connector from rear panel is used for selecting the relay drive through RS232C Interface.

D-9 FEMALE	SIGNAL
3	Rx

5	GRD

The simple commands used for selecting the relays are

RELAY	DECIMAL (Set by DIP Switch 5,6 &7)	HEX
1 ON	1! (or #, @, $, &, :, %)	31, 21
2 ON	2! (or #, @, $, &, :, %)	32, 21
:	:	:
8 ON	8! (or #, @, $, &, :, %)	38, 21
1 OFF	a! (or #, @, $, &, :, %)	61,21
:	:	:
8 OFF	h! (or #, @, $, &, :, %)	68,21
All OFF	0! (or #, @, $, &, :, %)	30,21
All ON	O! (or #, @, $, &, :, %)	4F,21
Relay 2,4,6,8 ON	x! (or #, @, $, &, :, %)	78,21
Relay 1,3,5,7 ON	y! (or #, @, $, &, :, %)	79,21
1,2 ON	T! (or #, @, $, &, :, %)	54,21
3,4 ON	U! (or #, @, $, &, :, %)	55,21
5,6 ON	V! (or #, @, $, &, :, %)	56,21
7,8 ON	W! (or #, @, $, &, :, %)	57,21
1,2 OFF	t! (or #, @, $, &, :, %)	74,21
3,4 OFF	u! (or #, @, $, &, :, %)	75,21
5,6 OFF	v! (or #, @, $, &, :, %)	76,21
7,8 OFF	w! (or #, @, $, &, :, %)	77,21

1) Communication parameters are 9600 baud, 8-bit, 1 stop bit and no parity.

2) If “%” command is given instead of!, @, # , $, & ; then it override the Dip Switch for !or @ or # or $ or & or ;.