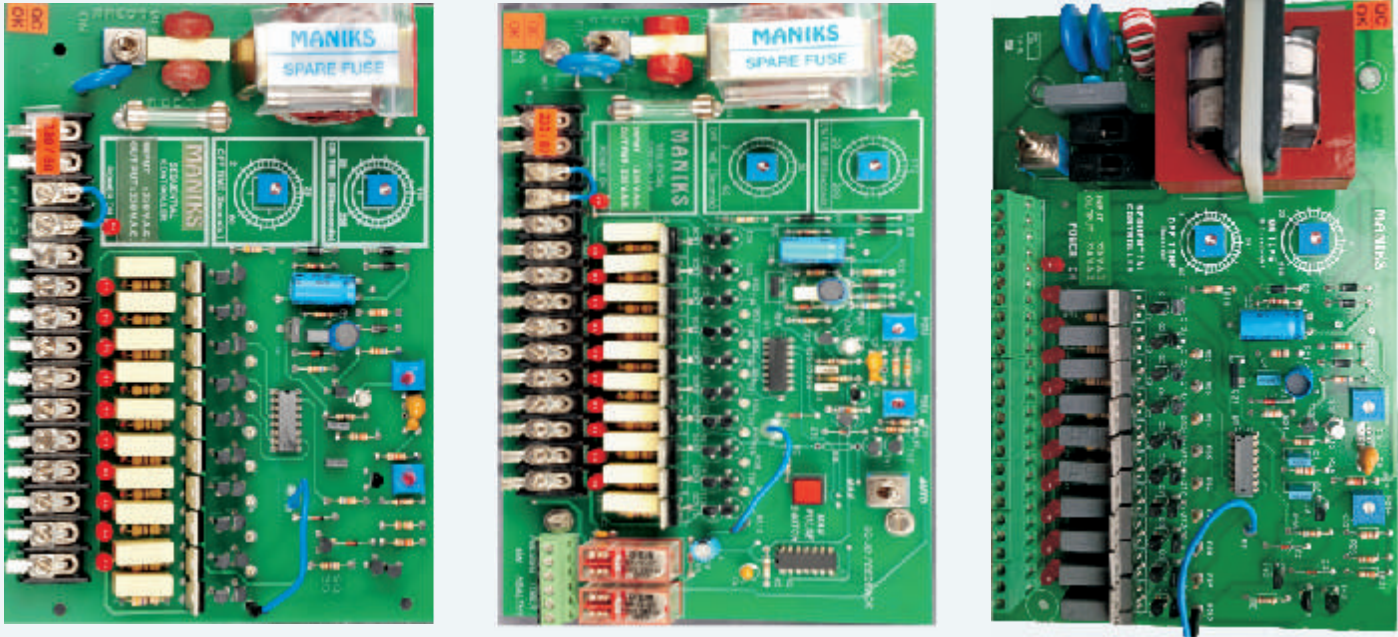# SOLID STATE SEQUENTIAL CONTROLLER

DESCRIPTION

The **MANIKS** Sequential Controller has been designed to operate the MANIKS pilot valves used on dust collector equipment. Light emitting diodes (LEDs) provide visual indication of which pilot valve is being energized as well as "Power On" indication. The number of sequenced steps is adjustable from 2 through 10.Controls are provided to adjust the length of time between valves being de-energized (Pulse Frequency / Off time) and the length of time that the valve is energized (Pulse Duration / On time). Silicon semiconductor components control all timing and logic functions.

Two independent methods of starting and stopping the Controller are provided. The first method will automatically stop the sequence and reset the Controller to the first valve position whenever A. C. power is removed and then reconnected.

The second method is by a remote control contact connected to the terminals provided. When the remote contact is opened, the sequence stops. When the remote contact is reclosed, the sequence continues from the *previous* position.

OPERATION

The catalog SQP-1 Sequential Controller provides timed sequential energization of connected loads. When power is applied to the Controller, the "Power On" light emitting diode (LED) provides visual indication and pilot valve number 1 is immediately energized. "Output 1" LED provides visual indication of this event.

The pilot valve will remain energized for the length of time as indicated by the setting of the "Pulse Duration / On time" control. Note that the calibrated dials are for approximate settings only and if exact times are required, they must be measured.

Pilot valve number 2 will automatically be energized at some time interval after pilot valve number 1 has been de-energized. This length of time will be as indicated by the setting of the "Pulse Frequency / Off time" control, "Output 2" LED will provide visual indication that this event is occurring. The Controller will continue to sequentially energize the pilot valves until the power is removed.

Additional Parameters for feedback type as follows

A   1) System Ok / Timer Healthy - Potential free 'NO' relay contact.

   2) Sequence 'ON' / D.P. Low - Potential free 'NO' relay contact.

B 1) Auto Mode - Channels activated in sequence as per 'On' and 'Off ' time.

   2) Manual mode - Output channels are activated by pressing push button on
      PCB near Auto / Manual switch channel in sequence

OUT LINE AND WIRING DIAGRAM
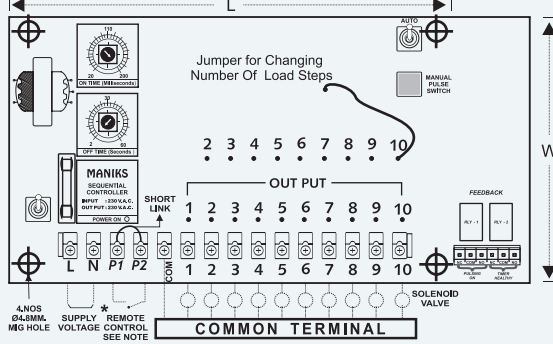
*Note : P1&P2 can be connected externally through remote switch after disconnecting original short link for remote control . Remote contact must be potential free.

DIMENSIONS

STANDARD TIMER PCB			
Timer	Length(L)	Width(W)	Height((H)
10 ch	194 mm	137 mm	50 mm
18 ch	280 mm	137 mm	50 mm
40 ch	280 mm	235 mm	50 mm

TIMER PCB WITH FEEDBACK & AUTO/MANUAL		
Length(L)	Width(W)	Height((H)
225 mm	137 mm	50 mm
310 mm	137 mm	50 mm
280 mm	235 mm	50 mm

SPECIFICATIONS :

A)

SUPPLY VOLTAGE	230VAC	110VAC	24VDC
Input Fuse	1.5 A.	3A.	3A.

B) Pulse Frequency /
Range Adjustability : Standard : 2 to 60 seconds.
Special Requirements : 1) 4 to 120 Sec.
2) 6 to 180 Sec.

C) Pulse Duration /
Range Adjustability : Standard :- 20 to 200 milliseconds
Special Requirements : 1) 40 to 400 milliseconds
2) 100 to 1000 milliseconds

D) Number of Sequence Steps:
1) 2 through 10 , adjustable in field (Factory set at 10)
2) 2 through 18 , adjustable in field (Factory set at 18)
3) 2 through 27 , adjustable in field (Factory set at 27)
4) 2 through 40 , adjustable in field (Factory set at 40)

E) Operating Temperature Range : 0^0 C to 50^0 C.

F) Repetitive Accuracy on Time Sequence : $\pm 5\%$

(**NOTE:** Solid-state elements require that minimum continuous current per sequence step must not be less than 0.050 amperes. Consult Factory for special rating requirements including operation below 0.050 amperes)

G) Current Rating per Sequence Step:

VOLTAGE	MAX INRUSH CURRENT	CONSTANT CURRENT
230 VAC	4 Amp . (50 Hz.)	2 Amp.(50 Hz.)
110 VAC	4 Amp . (50 Hz.)	2 Amp.(50 Hz.)

H) Special Requirements for Voltages (DC Kit Type) :
Following variations can be given in 10 channel , 18 channel , 40 Channel as well as with FEEDBACK Types.

INPUT VOLTAGE	OUTPUT VOLTAGE
230 VAC	24 VDC
110 VAC	24 VDC
230 VAC	110VAC

I) Mountings : Consult Factory for mounting details .

ORDERING INFORMATION FOR MICRO- CONTROLLER BASED BAG FILTER TIMER

A + B + C + D + E + F + G = ORDERING CODE

A	B	C	D	E	F	G
SOILD STATE TIMER SERIES	NO.OF CHANNELS	OUTPUT DEVICE	SUPPLY PROTECTION	INPUT SUPPLY	SOLENOID SUPPLY	ENCLOSURE TYPE
S:SOLID STATE TIMER WITHOUT FEEDBACK	10-10 CHANNEL		— : WITHOUT SUPPLY PROTECTION	230 VAC	230 VAC	E0 : WHEN ORDERING PCB
	18-18 CHANNEL					E5 : WITH IP55 CLASS ENCLOSURE
SFBAM :SOLID STATE TIMER WITH FEEDBACK AUTO MANUAL	27-27 CHANNEL	T- TRIAC	S : WITH SPIKE PROTECTOR	110 VAC	110 VAC	E6 : WITH IP65 CLASS ENCLOSURE
	40-40 CHANNEL			24 VDC	24 VDC	EF : FLAME PROOF ENCLOSURE
						NOTE : SS ENCLOSURE AVAILABLE ON SPECIAL REQUEST

EXAMPLES FOR ORDERING CODES

EXAMPLE 1) TO ORDER : 10CHANNEL TRIAC SOLID STATE TIMER WITH OUT SUPPLY PROTECTION WITH INPUT SUPPLY 230VAC, OUTPUT SUPPLY 110VAC & IP65 ENCLOSURE

S10T230110E6

EXAMPLE 2) TO ORDER : 18CHANNEL WITH FEEDBACK AUTO MANUAL TRIAC SOLID STATE TIMER WITH SPIKE PROTECTOR ,INPUT SUPPLY 230VAC, OUTPUT SUPPLY 24VDC & IP65 ENCLOSURE .

SFBAM18TS23024E6

NOTE : Individual fuze protection for solenoid on request.

Micro Controller Based Bag Filter Timer
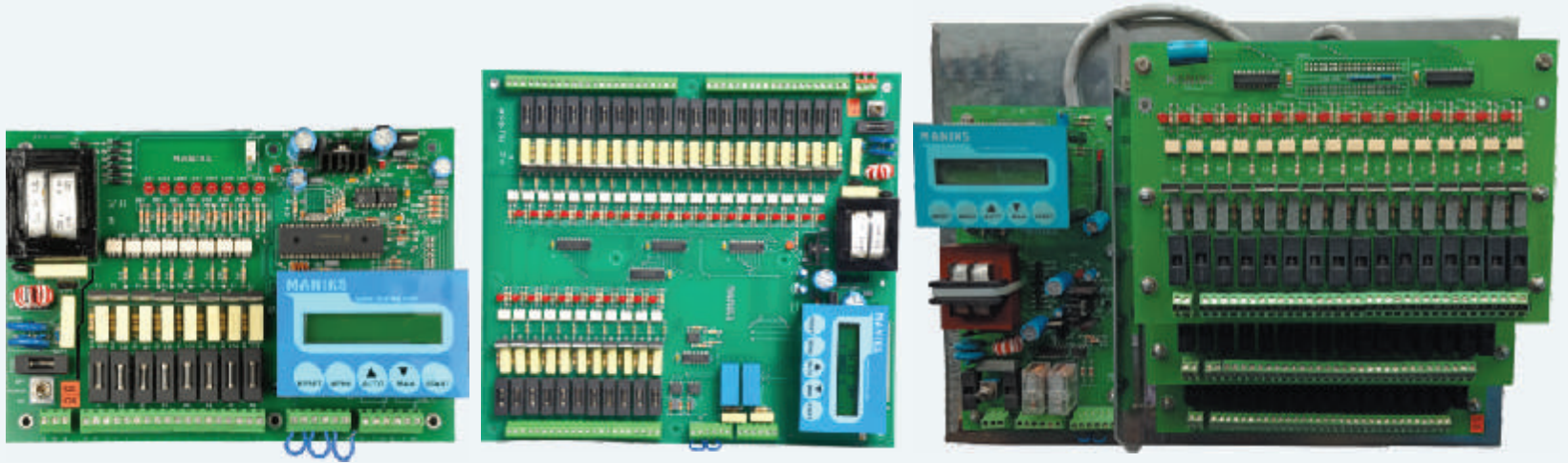
DESCRIPTION

The **MANIKS** Controllers of this series are micro controller based units which can be programmed to suit clients actual requirements. There are two basic modes of operation : a)Program Mode b)Manual Mode

In "program Mode" the unit can be programmed to follow desired set of instructions and in "Manual Mode "we can operate out put (Pilot Valves) sequentially. This controller has been designed to operate the pulse solenoid valves used on dust collector equipments.

The controller has been provided with **SEEPROM** to retain programmed values of various parameters in case of power failure. The programmed values automatically get stored in **SEEPROM**. This **SEEPROM** will last up to 1million read/write operations and the stored data will be retained up to many years.

These controllers are available in 8 CHANNEL,16 CHANNEL,32 CHANNEL ,48 CHANNEL variation

The Micro Controller provides timed sequential energization of connected loads. When power is applied to the controller, pilot valve will remain energized for the length of time as indicated by the setting of the "ON"control.

By keeping MENU key on key board pressed for approx 3 Sec.We can select **"PROGRAM MODE"** for modification in values of various parameters.

SPECIFICATIONS

A)

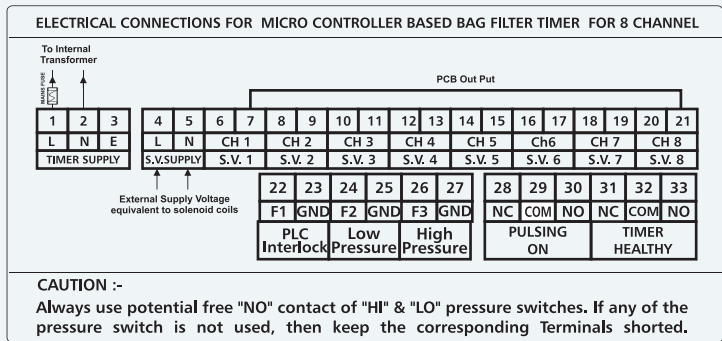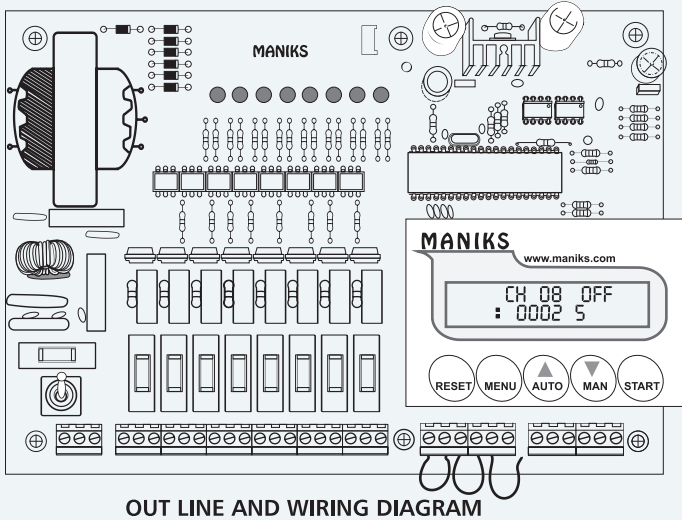| Supply Voltage	230VAC	110VAC
Input Fuse	300m A.	300m A.

B) Coil Voltage :   230VAC / 110VAC

C) Number of Channels :   8,16,32,48

D) On - Time :   1 ms to 9999 ms

E) Off - Time :   1 ms to 9999 ms

F)Pause Time :   1 ms to 9999 ms

OUT LINE AND WIRING DIAGRAM

MANIKS
www.maniks.com

CH 08 OFF
: 0002 S

RESET MENU AUTO MAN START

ELECTRICAL CONNECTIONS FOR MICRO CONTROLLER BASED BAG FILTER TIMER FOR 8 CHANNEL

To Internal Transformer

PCB Out Put

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
L	N	E	L	N		CH 1		CH 2		CH 3		CH 4		CH 5		Ch6		CH 7		CH 8
TIMER SUPPLY			S.V.SUPPLY			S.V. 1		S.V. 2		S.V. 3		S.V. 4		S.V. 5		S.V. 6		S.V. 7		S.V. 8

External Supply Voltage equivalent to solenoid coils

22	23	24	25	26	27	28	29	30	31	32	33
F1	GND	F2	GND	F3	GND	NC	COM	NO	NC	COM	NO
PLC Interlock		Low Pressure		High Pressure		PULSING ON			TIMER HEALTHY		

CAUTION :- Always use potential free "NO" contact of "HI" & "LO" pressure switches. If any of the pressure switch is not used, then keep the corresponding Terminals shorted.

STANDARD PCB DIMENSIONS

Timer	Length(L)	Width(W)	Height(H)
08 ch	225 mm	155 mm	55 mm
16 ch	310 mm	137 mm	55 mm
32 ch	300 mm	235 mm	55 mm
48 ch	300 mm	235 mm	55 mm

G) Inter Locks : (Potential Free Contacts)
a) PLC can be bypassed by keeping terminals shorted / In program by selecting " NO"
b) LO- Pre (LOW-Pressure) can be bypassed by keeping terminals shorted / In program by selecting " NO"
c) HP- Pre (High-Pressure)

H) Feed backs provided : Potential Free "NO" Contacts :
a) Pulsing On **b)** Timer On

I) Enclosure : SIEMENS GRAY Powder coated Canopy Type (equivalent to IP 55)

J) Display : LCD Display

K) Mountings : Consult Factory for mounting details.

NOTE: Solid-state elements require that minimum continuous current per sequence step must not be less than 0.050 amperes. Consult Factory for special rating requirements including operation below 0.050 amperes)

ORDERING INFORMATION FOR MICRO- CONTROLLER BASED BAG FILTER TIMER

A + B + C + D + E = ORDERING CODE

	A	B	C	D	E
	TIMER SERIES	OUTPUT DEVICE	INPUT SUPPLY	SOLENOID SUPPLY	ENCLOSURE TYPE
	M8 - 8 CHANNEL MICRO-CONTROLLER				E0 : WHEN ORDERING PCB ONLY
	M16 - 16 CHANNEL MICRO-CONTROLLER		230 VAC	230 VAC	E5 : WITH IP55 CLASS ENCLOSURE
	M32 - 32 CHANNEL MICRO-CONTROLLER	T- TRIAC	110 VAC	110 VAC	E6 : WITH IP65 CLASS ENCLOSURE
	M42- 42 CHANNEL MICRO-CONTROLLER		24 VDC	24 VDC	EF : FLAME PROOF ENCLOSURE
	M48 - 48 CHANNEL MICRO-CONTROLLER				NOTE : SS ENCLOSURE AVAILABLE ON SPECIAL REQUEST

EXAMPLES FOR ORDERING CODES

1) TO ORDER 16CHANNEL TRIAC MICRO-CONTROLLER WITH INPUT SUPPLY 230VAC, OUTPUT SUPPLY 230VAC & IP65 ENCLOSURE
M16T230230E6

2) TO ORDER 8CHANNEL TRIAC MICRO-CONTROLLER WITH INPUT SUPPLY 230VAC, OUTPUT SUPPLY 24VDC & FLAME PROOF ENCLOSURE **M8T23024EF**

Note : For output 24 VDC output devices will be transistors only.