



SITEC Srl
Elettronica Industriale
Via Antonio Tomba , 15 Loc. Tomasoni
36078 Valdagno (VI) - ITALY
Tel. +39 0445 431576 Fax. +39 0445 439588
Internet: www.sitecsrl.it E-mail info@sitecsrl.it



MICROPROCESSOR TIMER FOR SPIRAL MIXER 72x72 USER MANUAL

Description

Sitec timers allow a quick and clear time setting and are provided with accurate and reliable electronic circuits.

Time is set by means of a handy ring nut which can be easily operated even when wearing gloves.

The visual display consists of three high luminosity displays and an 11-LED bar.

The degree of protection on the front panel is IP65 and so it guarantees an excellent protection from powders and liquid spray.

It is possible to have timers with front silk screen prints with 10- or 20-scale (seconds, minutes or hours), also customized.

Their characteristics make them very suitable for those practical uses requiring the control of two work times.

Power supply is shielded in order to comply with the regulations on emission of and insensitivity to electromagnetic interference.

As to outputs, the timers are provided with two 16A power relays; this allows to control directly also the contactors (for the control of 20 KW motors) without requiring the use of support relays.

The timers are provided with two opto-insulated inputs: a start input (to start the count) and a memory input (if the start signal fails, it saves the counting value reached).

It is possible to select the working mode by means of configuration microswitches placed on the back of the box.

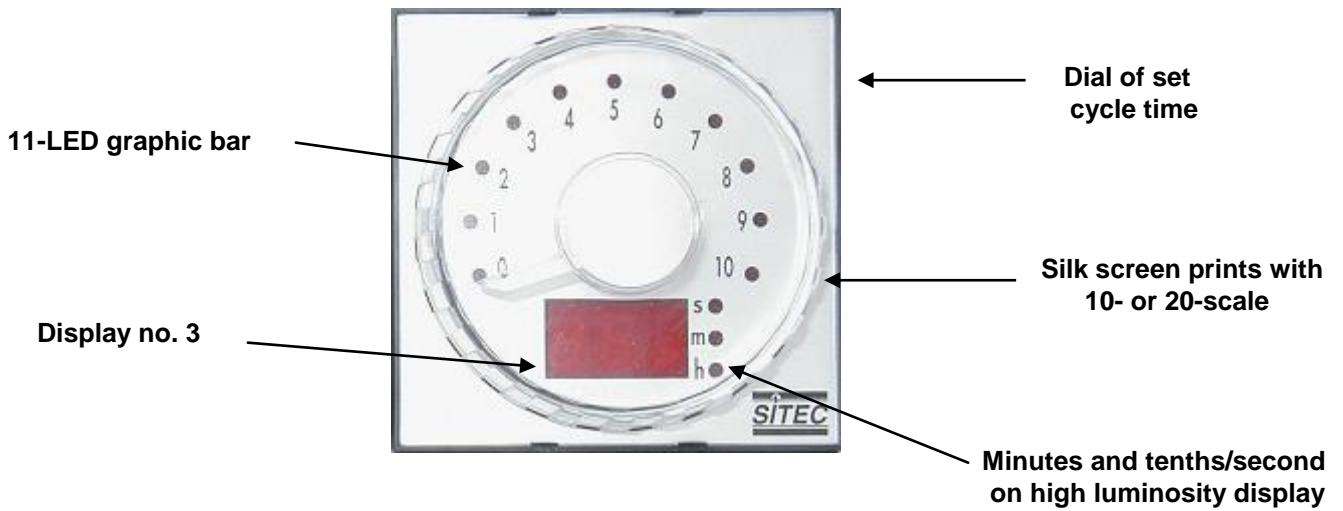
The single ring nut is also available as spare part. It can be easily replaced by unscrewing a screw.

Specifications for kneading machines

These timers have been specially designed for the control of kneading machines with two work times.

More particularly:

- They endure powders
- They are provided with memory function
- They are very resistant to voltage fluctuations (the 24V model continues to operate also with 18V voltage)
- They guarantee the transition from the first to the second speed also in very critical situations (the speed change signal remains active for a second)
- They control the pan reversal from the first to the second speed through a pan stop of 1,5 seconds (they avoid abrupt reversal)
- They allow the machine manual operation without adding any external selector switch
- They do not require support relays as they are provided with 16A internal relays
- They make it possible to make electric systems at reduced costs (they simplify wiring)
- They have proved to be extremely reliable



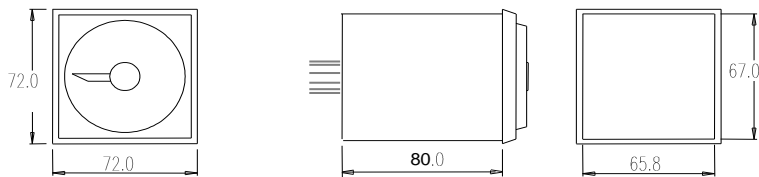
Power supply : 24 VAC/DC +/-10% 50/60 Hz 250mA
End scale available : 10,20,30

Temperature Limits: Operation mode → -10 +60 °C
 Store → -25 +70 °C

Relays : Electric life → 5x10⁵ op.
 Meccanical life → 1x10⁷ op.
 Max load Current → 16 A
 Max Voltage → 250 Vac

Input: 1 start counter + 1 memory counter
Output: 2 relays 16 A. (TR1,TR2)

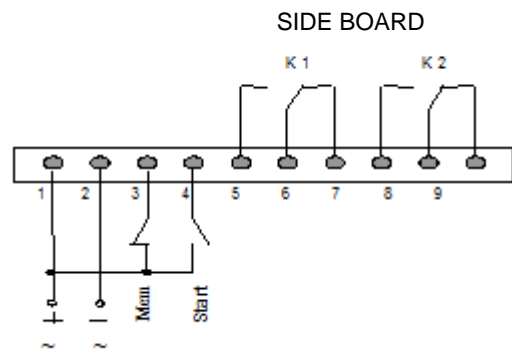
Dimensions:



hole on panel: 68(h) x 67 mm
 connector projection: 20 mm
 embed length: 100 mm
 connector: undecal model
 Display: no. 3

Connector connection

- no. 1 Power supply (+/~)
- no. 2 Power supply (-/~)
- no. 3 Memory command
- no. 4 Start command
- no. 5 R1 NA
- no. 6 R1 common
- no. 7 R1 NC
- no. 8 R2 NA
- no. 9 R2 common
- no. 10 R2 NC



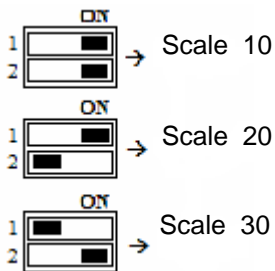
EXTERNAL COMMANDS

Matching connector timer with socket undecal (option)

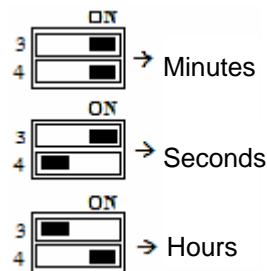


DESCRIZIONE	PINS CONNECTOR TIMER UNDECAL	PINS SOCHET UNDECAL
Power supply (+/)	1	11 - 1
Power supply (-/)	2	A1 - 2
Memory command	3	14 - 3
Start command	4	12 - 4
R1 NA	5	22 - 5
R1 common	6	21 - 6
R1 NC	7	24 - 7
R2 NA	8	32 - 8
R2 common	9	34 - 9
R2 NC	10	A2 - 10

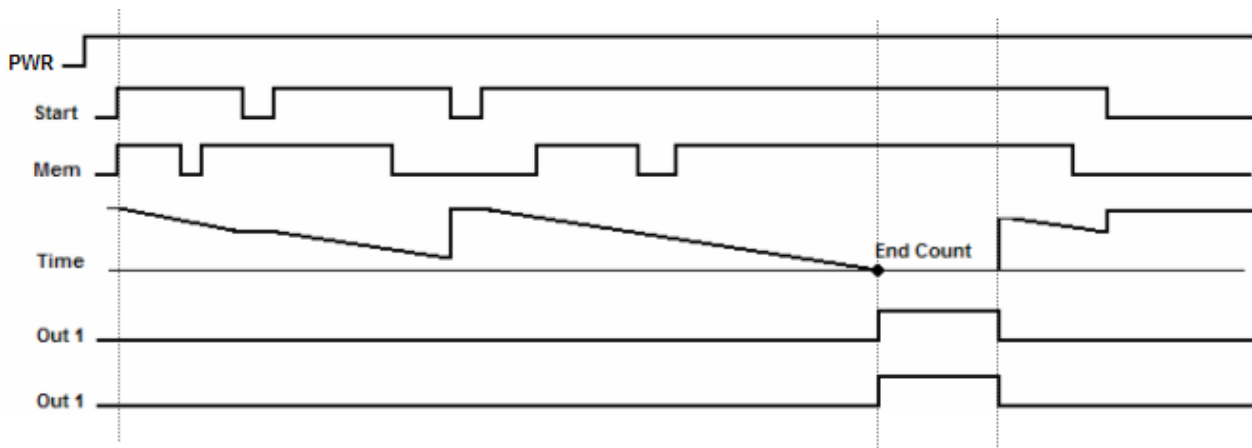
Time scale selection (DIP 1,2)



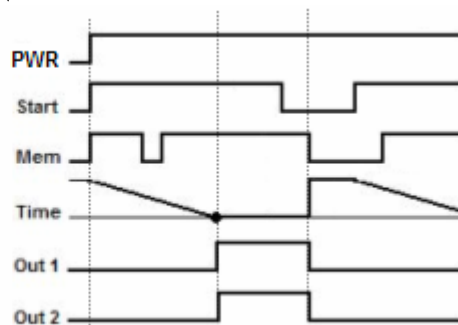
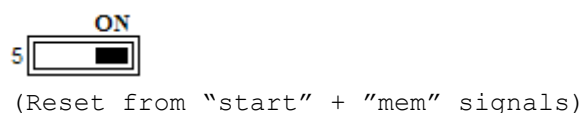
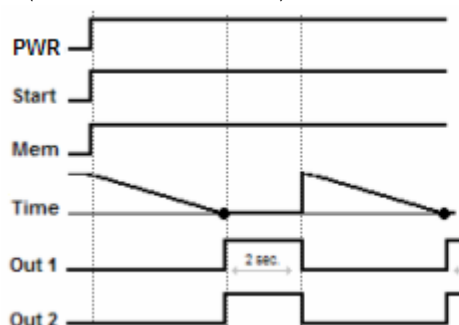
Units time selection (DIP 3,4)



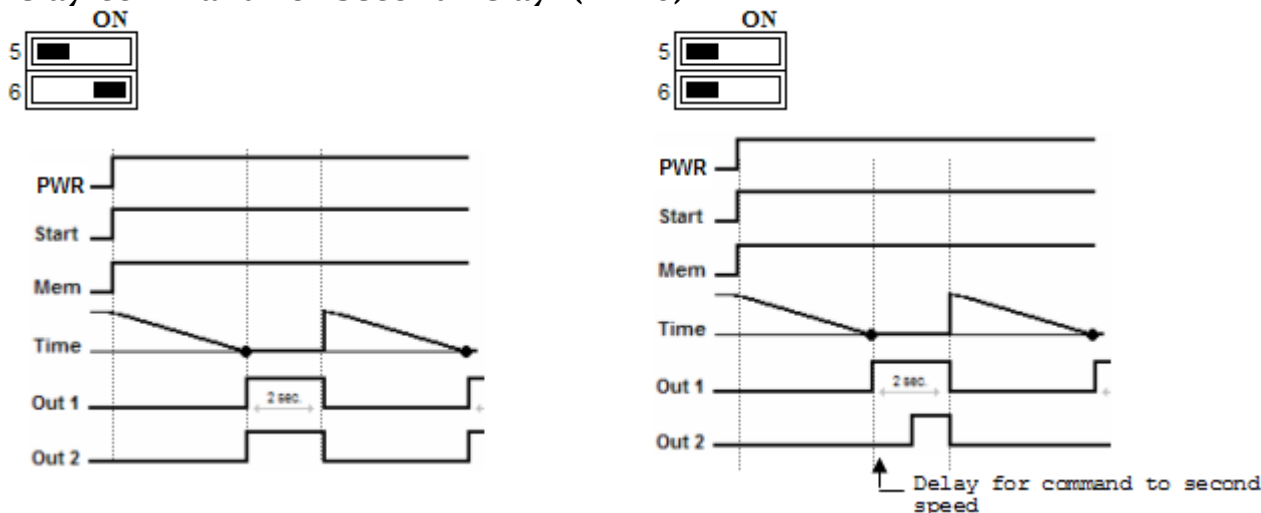
Time diagram counter cycle



Selection Automatic Restart (DIP 5)



Delay command for second relay (DIP 6)



Operation description (24V AC/DC model)

The Sitec timer is provided with a 24 V AC/DC power supply input, a count start input and a count memory input. As to outputs, the timer is provided with two 16A power relays.

The timer counts down starting from the time set by the operator by means of the front ring.

The count is made to start by the count start control.

At count end and with the appropriate settings of the internal dip-switch, the Sitec timer allows :

- contemporary switching of relays K1 and K2
- switching of relay K1 and after a delay time of relay K2
- switchings as in a) or b) above, count reset and reset of switching contacts

The count memory control stops the count (and the value reached is saved) if the count start control is cut off.

The count is made to start again from the saved value by the count start control.

A typical electric diagram of the timer for kneading machines (on page 6 of 6) is described here below.

Two timers are generally used: one with 10-scale and one with 20-scale.

The first timer (timer 1) makes the pan of the kneading machine rotate at the first speed for the time set.

The second timer (timer 2) makes the pan rotate at the second speed for the time set.

The electromechanical diagram allows an automatic, semiautomatic or manual operation of the equipment.

The electromechanical diagram consists of :

- the emergency push button SB1 which sets the machine in emergency state.
- The stop push button SB2 to stop the machine.
- The selector switch SA2(X) with two fixed positions, a NO. contact and a N.C. contact, allows the machine operation forward/backward when SA2(1) is closed and SA2(2) is open, or only backward with SA2(1) open and SA2(2) closed.
- The selector switch SA1(X) with three fixed positions and two N.C. contacts allows the following operations:
 - automatic : SA1(1) closed and SA1(2) closed
 - semiautomatic : SA1(1) open and SA1(2) closed
 - manual: SA1(1) open and SA1(2) open
- The pan jog push button SB5 allows the manual movement of the pan, forward or backward according to the position of the selector switch SA2(X)

➤ Automatic operation:

The automatic operation is on if SB1 is not in emergency, the limit switch "micro pan protection" is closed (pan door closed), SA1(1) is closed and SA1(2) is closed.

The cycle is started by pressing the start push button SB3: the machine then operates at the first speed for the time set on timer 1 and then reverses the rotation and operates at the second speed for the time set on timer 2.

The operation stages are described here below:

By pressing SB3 the relay KM1 is energized. The contact KM1 (1) holds the relay KM1 in its energized condition.

The second contact KM1(2) energizes the contactor KM4.

KM1 controls the spiral rotation motor.

KM4 controls the pan rotation motor.

The third contact KM1(3) starts the count of timer 1 which determines the rotation time of the machine at the first speed.

At zero count the relay KT1 of timer 1 switches the contacts and first opens KT1(1) which stops the pan rotation by deenergizing KM4 and then KT1(2), which deenergizes KM1 and energizes the contactors KM2 and KM3: the machine then operates at the second speed.

The contact KM2(1) holds the contactor itself in its energized condition.

The contact KM2(2) energizes the contactor KM5 which makes the pan rotate backward.

The contact KM2(3) starts the count of timer 2.

At zero count the relay KT2 of timer 2 switches the contacts.

KT2(1) stops the operation of the spiral at the second speed by deenergizing the contactors KM2 and KM3.

When deenergized, KM2 opens the contact KM2(1) which stops the pan rotation and KM2(2) which resets the count of timer 2.

➤ Semiautomatic operation:

The selector switch SA1 must have the contact SA1(1) open and the contact SA1(2) closed.

In this mode the contactors KM2 and KM3 of the spiral rotation at the second speed are disabled. The machine then operates only in one direction.

The push button SB3, which starts the machine at the first speed, energizes KM1. The NO. contact KM1(1) holds KM1 in its energized condition.

The contact KM1(2) energizes the contactor KM4.

KM1 controls the spiral rotation motor.

KM4 controls the pan rotation motor.

The third contact KM1(3) starts the count of timer 1 which determines the machine rotation time at the first speed.

At zero count the relay KT1 of timer 1 switches the contacts and first opens KT1(1) which stops the pan rotation by deenergizing KM4 and then KT1(2), which deenergizes KM1 .

The contactors KM2 and KM3 are cut off because SA1(1) is open.

➤ Manual operation:

In the manual operation SA1(2) must be open to cut off the operation of the timers and SA1(1) must be closed to allow the operation at the second speed.

The contact KM1(2) energizes the contactor KM4

KM1 controls the spiral rotation motor.

KM4 controls the pan rotation motor.

By pressing the push button SB4, KM1 is deenergized and the machine operation at the first speed is stopped, while KM2 and KM3 are energized and the machine operation at the second speed is started.

TYPICAL APPLICATION DIAGRAM

