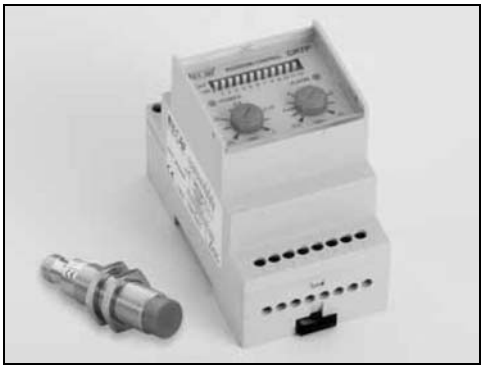
ELECTRONIC ROTATION CONTROL

WORKING PRINCIPLE
This device measures the time gap between two signals from a sensor on a revolving or cycling mechanism. When the time gap becomes greater then the pre-set value, the device signals a drop in velocity or full stop of the mechanism's movement.
The rotation controls come in two types CRTP, which has the controls separate and requires a sensors or CRT30 that has the sensors and controls in one housing.

These units are ideal for control of slipping transport belts, chain breakage, power interruption or overloads etc. Applications include belt transport, chain elevators, mills, grinders, pumps, kneading mixers and other situations where movement control of revolving or cycling mechanisms is necessary.

CRTP
This device is composed of a central electronic unit that mounts on a Din rail and an inductive, capacitive or photoelectric sensor. Since the sensor is separate, any number of sensors can be used allowing for this unit to operate in a number of applications.

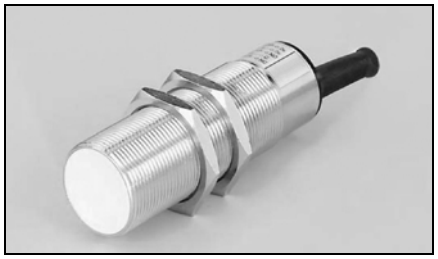


PROGRAMMABLE FUNCTIONS, CRTP
1) TIME AND RPM T1
The time/RPM ranges from 0.03 - 512 sec / 0.1 - 2400 RPM distributed on nine scales that are selected by means of the front mounted dipswitches. The selected scale is adjusted by means of a potentiometer T1.
It is possible by summing two or more scales to obtain full scale values, which are different from the standard ones. This is obtained by placing the switch with the values pre-selected in the ON position (Example: switches. 2 and 4 ON position, corresponds to a full scale of 144 seconds). This operation can also be carried out on the RPM scale. For the conversion, time/RPM see chart 1 at page 53.

2) INITIAL DELAY T2
Is an initial delay period before the unit becomes active, 0.3-10 sec. This allows the rotating parts to reach their normal working speed.
3) FUNCTION A-B
When the CRTP gives out a signal of standstill or slowing down, it is possible to have two types of functions that can be selected by switch number 10 ON/OFF.
A: In order to reactivate the unit it is necessary to switch the power supply off and then on to reset.
B: The unit can be reactivated by means of the first impulse that arrives from the sensor or by means of the reset. This is obtained with the switch in the OFF position.

4) SENSOR - NAMUR - NPN - PNP
It is possible to select via the switch number 11 in the ON/OFF position the type of logic for the sensing unit. In the ON position, it is possible to connect NPN sensors and in the OFF position PNP and NAMUR sensors.
5) ROTATION CONTROL - SHAFT STAND STILL
Switch number 12 controls these functions.
5a) ROTATION CONTROL - SWITCH OFF
With power applied, the relay switches and maintains this position as long as the impulses from sensors are received within the set time. If within that time no impulse is received the relay changes state giving an alarm condition, in the case of lack of power supply the relay changes state (see working diagram) giving the alarm condition (slowdown or stopping).
5b) SHAFT STAND STILL CONTROL - SWITCH ON
In this situation, the relay works in exactly the opposite way. The relay activates when no impulse arrives within the set time thus showing the shaft standstill condition. In the case of loss of power supply the relay changes state thus giving the alarm condition (shaft movement).

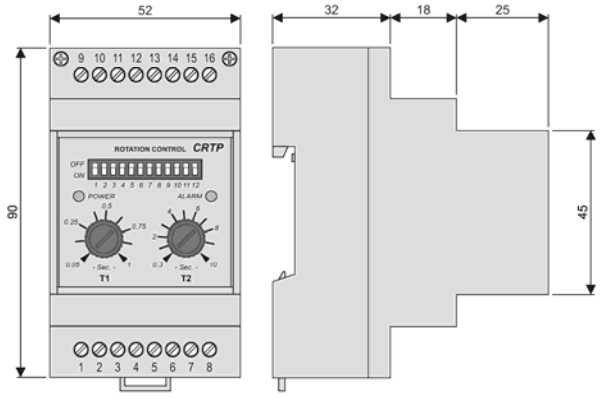
CRT30
The CRT30 is a combination of a 30mm diameter inductive sensor and rotation control device. The operating distance of the sensor is between 4 and 6 mm on metallic material. The wide power supply range (18-50 DC and 18-240 AC), various programmable functions, and output relay make of this device suitable for a variety of applications.



PROGRAMMABLE TYPES AVAILABLE
CRT30-R10L = 6-150 RPM detectable by means of trimmer. Functions A and B available by means of selector.
CRT30-R10V = 120-3000 RPM detectable by means of trimmer. Functions A and B available by means of selector.
CRT30-R10L/V = two range of RPM can be detected (6-150 RPM and 120-3000RPM) and selected by means of trimmer regulator. Function B pre-programmed and fixed.
Function types A-B: when CRT30 detects full stop or velocity decrease you can have two working functions (excluding type CRT-R10 L/V):
A: In order to reactivate the unit it is necessary to switch the power supply off and then on to reset.
B: The device re-activates itself automatically as soon as the number of rotations exceeds alarm range.

PROGRAMMABLE ELECTRONIC ROTATION AND STOP CONTROL

PROGRAMMABLE FUNCTIONS
RPM RANGE PROGRAMMABLE FROM 0.1 TO 2400 Imp./min.
COMPATIBLE WITH INDUCTIVE, CAPACITIVE, PHOTOELECTRIC AND HALL SENSORS
12Vdc OUTPUT TO POWER SENSORS
RELAY OUTPUT

MODEL	S3426D CRTP 24Vdc/ac	S3427D CRTP 110/220Vac
Dimensions: mm 1 mm = .03937” 1" = 25.4 mm CE		
Power Supply	24Vdc/ac	110/220Vac
Rotations Range	0.1 – 2400 RPM	
Time Range	.03 – 512 sec	
Initial Delay T2	0.3 – 10 sec.	
Function A	Programmable DIP SWITCH 10 = ON	
Function B	Programmable DIP SWITCH 10 = OFF	
Max Power Drain (relay on)	2 VA	3 VA
Output Power	12 Vdc	
Max supply current	50 mA	
Relay	Form C, 5A –240VAC (resistive load)	
LED	Yes (Green- power, Red-alarm)	
Temperature	-20 to +60 °C	
Protection degree	IP40	
Housing	Plastic	
Mounting	35mm DIN rail	

CONVERSION TABLE RPM/TIME AND PROGRAMMABLE FUNCTIONS

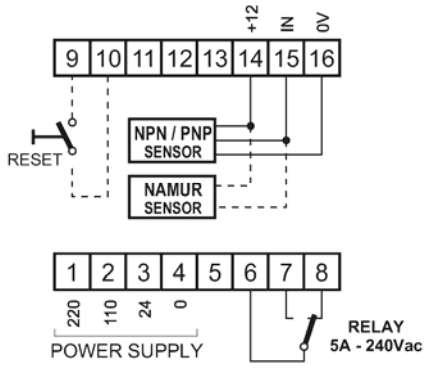
Chart 1

DIP SWITCH position	Number of RPM		T1 Seconds	
1	2,3	0,1	25,6	512
2	9,3	0,4	6,4	128
3	37,5	1,8	1,8	32
4	75	3,7	0,8	16
5	150	7,5	0,4	8
6	300	15	0,2	4
7	600	30	0,1	2
8	1200	60	0,05	1
9	2400	120	0,03	0,5
10	ON (A FUNCTION)		OFF (B FUNCTION)	
11	ON (NPN SENSOR)		OFF (PNP/NAMUR SENSORS)	
12	ON (SHAFT STANDSTILL)		OFF (ROTATION CONTROL)	

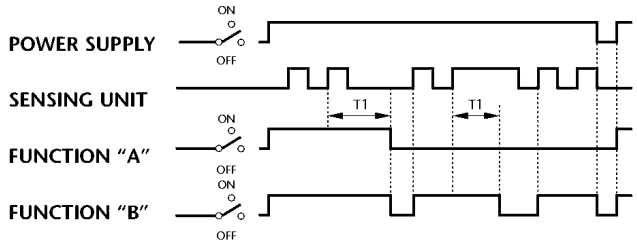
ON ↔ OFF

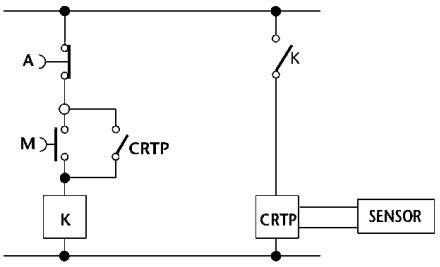
N.B. The positions from 1 – 9 (Preselection ON) program the time or RPM ranges.
Positions 10-11-12 program the available functions.

WIRING



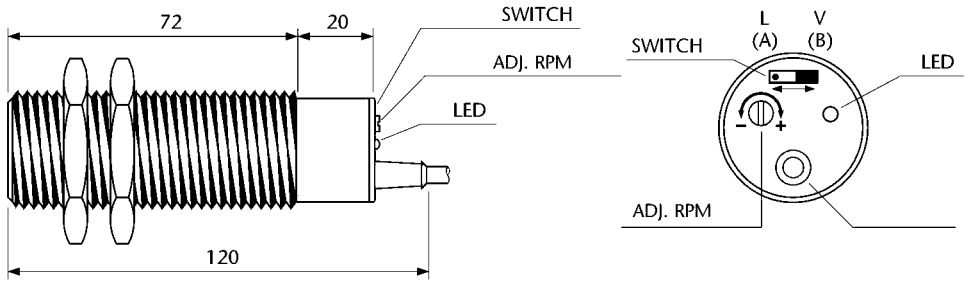
WORKING DIAGRAM



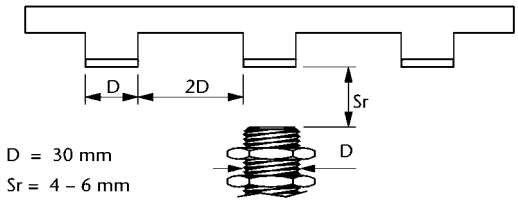


INDUCTIVE ROTATION CONTROL CRT30

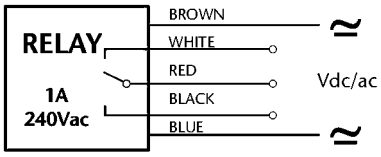
CONTROL UNIT AND SENSOR IN ONE UNIT
RELAY OUTPUT
VERSION WITH PROGRAMMABLE TIME RANGES OR OUTPUT FUNCTION

MODEL	S3431 CRT30 – R10L	S3433 CRT30 – R10V	S3432 CRT30 – R10L/V
			
Power Supply	18 – 50 Vdc / 18 – 240 Vac		
Rotations Range	Low (L) 6 – 150 RPM	High (V) 120 – 3000 RPM	Programmable by switch
Time Range	6 imp./min. Tr = 10 sec 150 imp./min. Tr = 0.4 sec	120 imp./min. Tr = 0,5 sec 3000 imp./min. Tr = 0,02 sec	Programmable by switch
Initial Delay	9 –15 sec		
Function A	Programmable by switch		No
Function B	Programmable by switch		Yes
Max Power Drain (relay on)	20 mA		
Relay	Form C, 1A –240Vac (resistive load)		
LED	Yes		
Temperature	-20 to +70 °C		
Protection degree	IP65		
Housing	Nickel-plated brass		
Connection	Cable PVC: L = 2 m		

INSTRUCTION FOR CORRECT INSTALLATION



WIRING



Multivoltage power supply
18–50 Vdc / 18–240 Vac

WORKING DIAGRAM