

# Electronic Overload Relays

## Selection of contactor according to starting duty (CLASS)

For normal starting and overload conditions, contactors are selected for "CLASS 10". In order that the contactors are not thermally overloaded during longer tripping times, the maximum rated operational current  $I_e$  must be reduced according to the CLASS setting.

$$I_{CLASS 5} = I_{CLASS 10} = I_e \quad I_{CLASS 15} = I_e \times 0.82 \quad I_{CLASS 20} = I_e \times 0.71 \quad I_{CLASS 25} = I_e \times 0.63 \quad I_{CLASS 30} = I_e \times 0.58$$

## Tripping devices with integral current transformer

Tripping devices **ZWA-6.3** through **ZWA-100** have an integral ring type current transformer. For motor currents less than 1.25 amps, the cables are looped through the ring openings. The number of loops is according to the Table shown below.

Number of loops (n)	5	4	3	2
Motor rated current $I_n$ (A)	0.25-0.3	0.31-0.41	0.42-0.62	0.63-1.24

The setting current  $I_e$  of the device is calculated  $I_e = n \times I_n$

## Tripping limits with 3-pole symmetrical overload

Response current:	> 110% of setting current < 120% of setting current
Response time:	< 20 min starting from cold
Tripping time when test button is actuated	5 sec
Reset time on tripping	5 min (no delay after test)

## Tripping times for ZWA overload relays

Tripping class	CLASS	5	10	15	20	25	30
For 3-pole symmetrical loading starting from cold							
Set current $I_e$	X 3	12.5	25	37	48	56	75
	X 4	7.5	17	27.5	35	41	50
	X 5	6.9	13	19	27.5	34	41
	X 6	5.2	10.2	16	20.2	27.5	35
	X 7.2	4.3	9	13	17.5	20	26
	X 8	4	8	11	16	19	24

## Incoming

A 1/A 2	Rated control voltage
T 1/T 2	
C 1/C 2	Thermistor sensor (supplied in short-circuit condition with bridge)
Y 1/Y 2	
	Ground fault: <b>SSW</b> connection
	Hand or Auto Reset

## Outgoing

95/96	NC contact	Overload/Thermistor
97/98	NO contact	Overload/Thermistor
05/06	NC contact	Ground Fault
07/08	NO contact	Ground Fault

