

# HTHY-SSD

## Digital Over-Current Relay



### Protection

Protective Item	Trip Time	Description
Over-current	O-Time	$I_s < I_n$
Phase Loss	3sec	$[(MAX - MIN) / MAX] \times 100 > 90$
Locked Rotor	0.5sec after elapse dt	$\geq 3$ times OC setting value

### Specification

Over-current Setting	Current	05	0.5 ~ 6A
		30	3 ~ 30A
		60	10 ~ 60A
	Starting delay time	D-Time	1 ~ 30sec
	Trip time	O-Time	0.5, 1 ~ 10sec
Reset			Manual / Electrical
Operating t-c characteristic		Over-current	Definite
Tolerance		Current	$I < 1A : \pm 0.05A, I \geq 1A : \pm 5\%$
		Time	$t \leq 3S : \pm 0.2s, t > 3s : \pm 5\%$
Environment	Temperature	Operation	-20 °C ~60 °C
		Store	-30 °C ~80 °C
	Humidity	30~85% RH non-condensing	
Control Power			<ul style="list-style-type: none"> <li>• 110 : 110VAC <math>\pm 15\%</math>, 50/60Hz</li> <li>• 220 : 220VAC <math>\pm 15\%</math>, 50/60Hz</li> <li>• 440 : 440VAC <math>\pm 15\%</math>, 50/60Hz</li> <li>• 24 : 240VAC/DC</li> </ul>
Contact Rating		2-SPST	3A / 250VAC , Resistive
Insulation	Between casing and circuit		Over 10 $\Omega$ , DC500V
Dielectric Strengthth	Between casing and circuit		2000VAC 60Hz, 1min
	Between open contacts		1000VAC 60Hz, 1min
	between circuit		2000VAC 60Hz, 1min
Installation			35mm Din Rail or Panel Mounting

- MCU(Micro Controller Unit) based / 2-CT Type
- Real Time Processing / Higher Preceision
- Current Setting Renge - 05Type : 0.5 ~ 6A / 30Type : 3 ~ 30A / 60Type : 10 ~ 60A
- Digital display : trip cause / easy troubleshooting
- Reset : Manual (instantaneous) / Electrical (remote)
- Load selection by DIP switch : Single phase(1P) / Three phase(3P)
- Fail safe(N) / Non-fail safe(R)

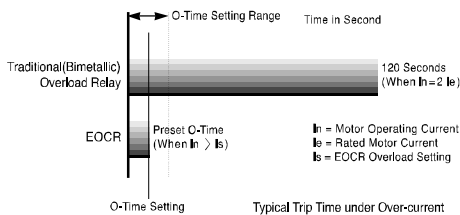
# Electronic Overload Relays

## Features

- Compact Design
- Multiple Protection Functions
- Wide Current Adjustment Range (10:1)
- Ammeter Function
- Trip Indication LED
- High Accuracy
- Manual Instantaneous Reset
- Electrical Remote Reset
- Test Function
- Ambient Insensitive
- Low Energy Consumption
- Fail-safe Operation (No Volt Release)

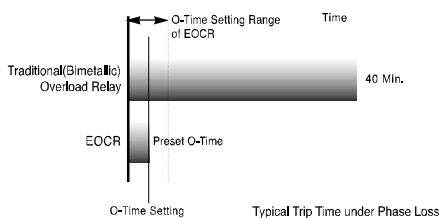
## Over-current Protection

Over-current protection is provided by tripping the relay when motor operating current ( $I_n$ ) exceeds over-current setting ( $I_s$ ) of HTHY for a period greater than the preset operating time (O-Time).



## Phase Loss Protection

During a phase loss, the motor winding current may increase by 150% or more. As the motor winding current increases, the winding temperature may also increase and possibly damage the winding insulation. The quick trip time on HTHY helps to prevent over-current damage to the windings.



## Ammeter Function & Trip Indication

Indication LED on the dial plate provides trip indication and ammeter functions. The LED starts to flash at the point where motor current is equal to current setting level ( $I_s$ ), so user can verify motor current by reading the LOAD adjustment scale on the dial plate. This also provides an accurate current setting. The LED is illuminated when motor current exceeds current setting (Overload Status). After tripping has occurred, the LED stays on until the relay is reset. The trip indication is also an important feature of a multiple relay & contactor (starter) installation.

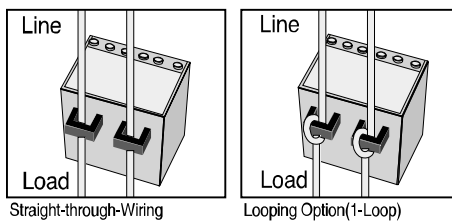
## Wide Adjustment Range

HTHY has a wide current adjustment range of over 10:1. It enables three type models to cover a wide range from 0,1A up to 600A thus reducing the number and type of relays that must be inventoried for spare purposes.

## Looping Option

Some motor size may require only one-third or one-fourth of particular HTHY current range. These installations can be accommodated by looping the motor wire 2 or 3 times through the integral current transformers of the HTHY. This reduces the number and type of relays inventoried for spare purposes. Each additional loop will increase the current measured as indicated by the following chart.

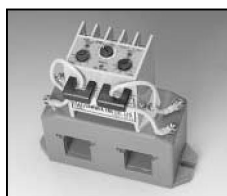
	No. of Loops	Time of Passing	Current Set. Range(A)
05 Type	0	1	0,50 - 6,0A
	1	2	0,25 - 3,0A
Looping Option	2	3	0,17 - 2,0A
	3	4	0,12 - 1,5A
	4	5	0,10 - 1,2A



## External Current Transformer Option

Ordering option - 05 type of each model fitted to an external current transformer can achieve higher ampere ranges. (Ext. CT Option)

Type	Current Ratio of Ext. CT	Current Setting Range
05	-	0,5 - 6A
Ext. CT Option	100	100:5
	200	200:5
	300	300:5
	400	400:5
	500	500:5
	600	600:5



External CT Option

## Manual Instantaneous Reset

Pushing RESET button on the dial plate or interrupting power supply provides a manual instantaneous reset. Electrical remote reset is also provided by the panel-mounted RESET button.

## Low Energy Consumption

HTHY-SS uses only 250mA of power, much less than thermal bimetallic overload relays. The result is significant cost savings over the life of relays (over 20 times cost saving).

## E-SS



- 2 Integral Current Transformers
- Electronic Shear-pin Function
- Independently Adjustable Starting Trip Delay (D-Time) & Operating Time (O-TIME)

## Protection

Protective Item	Operating (Trip) Time
Over-current	O-TIME
Phase Loss	O-TIME
Locked Rotor	O-TIME + D-TIME

## Specification

Current Setting	Type	Range
	05	0,5 - 6A
	30	3 - 30A
	60	5 - 60A
	100~ (over 60A)	Ext. CT Option
Time Setting	Start	D-TIME
	Trip	O-TIME
Control Voltage (50/60Hz)	24	24VAC/DC
	220	90 - 260VAC
	440	320 - 480VAC
Contact Rating	Mode	1-SPDT(1C)
	Rating	3A/250VAC Resistive
	Status	Normally Energized
Time-Current Characteristic	Definite	
Operating (Trip) Indication	2-LED	
Mount	35mm Din-rail / Panel	

## Typical Wiring

