

# DATA SHEET

## Hall Effect Current Sensor

**PN : HCS-LT305M/S**

**IPN = 300A - 400A - 500A**

### Features

- Closed loop
- High accuracy
- Supply voltage :  $\pm 15$  to  $\pm 24$  V DC
- Current output
- Through hole primary
- Can be customized

Good linearity  
 Fast response time  
 Low temperature drift  
 High anti-jamming capability  
 Strong current overload



### Applications

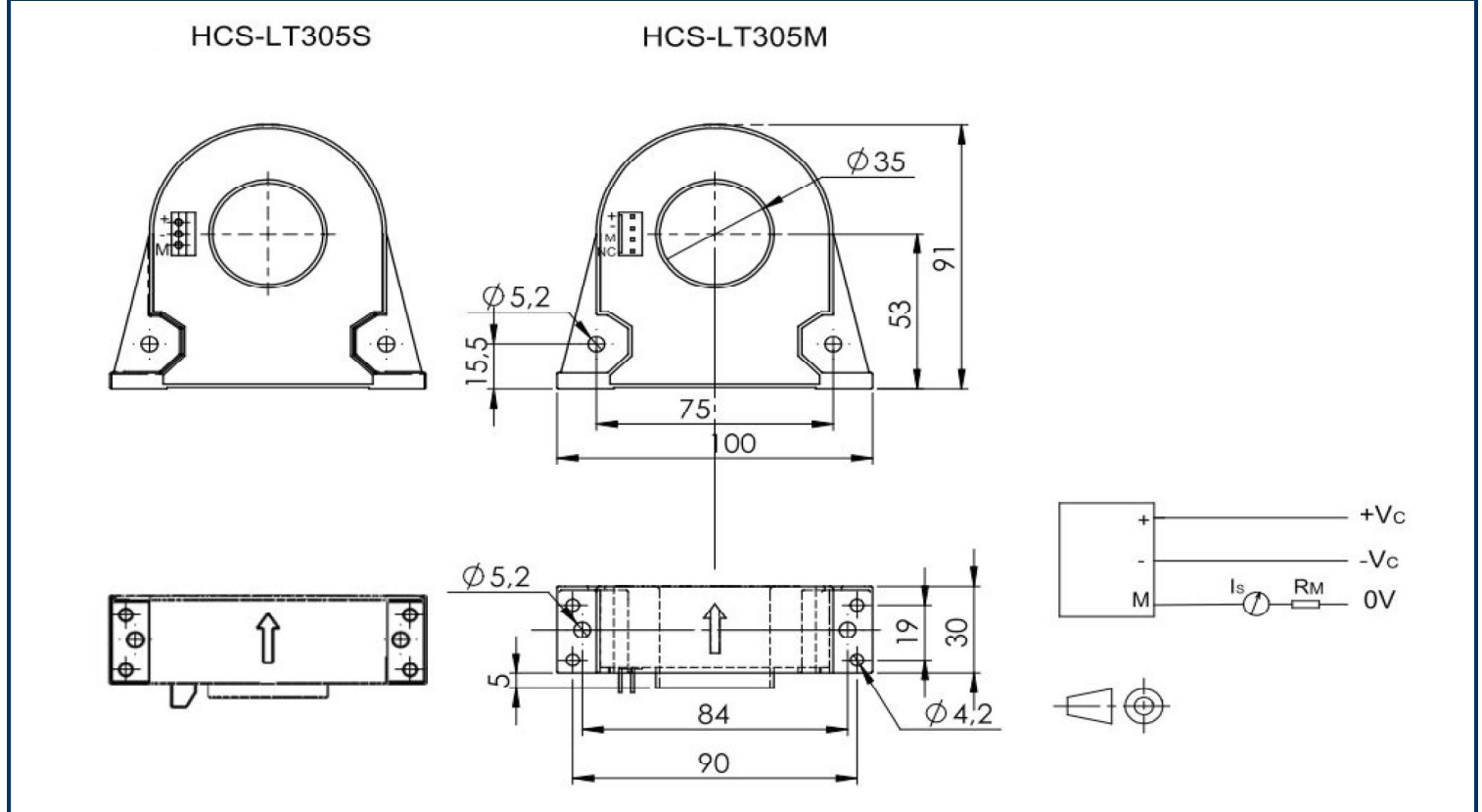
- AC/DC variable speed motor driver
- Battery applications
- Uninterruptible power supplies (UPS)
- Power supplies for welding applications
- Switching power supplies (SMPS)

## ELECTRICAL DATA

HCS-LT305M/S-...		300A	400A	500A	
Nominal rms current $I_{PN}$ (A)		300	400	500	
Sensed current range $I_{PM}$ (A) with $V_C = \pm 24$ V		$\pm 900$	$\pm 1200$	$\pm 1500$	
and $R_M$ ( $\Omega$ ) =		43	39	30	
Measuring resistance with $V_C =$	$\pm 15$ V	@ $\pm I_P$ max (A)	300	400	500
		$R_M$ max( $\Omega$ ) =	110	110	100
		@ $\pm I_P$ max (A)	600	800	1000
		$R_M$ max( $\Omega$ ) =	36	36	25
	$\pm 18$ V	@ $\pm I_P$ max (A)	300	400	500
		$R_M$ max( $\Omega$ ) =	130	130	120
		@ $\pm I_P$ max (A)	600	800	1000
		$R_M$ max( $\Omega$ ) =	51	51	39
Coil turns ratio K ( $P^{LY} : S^{LY}$ )		1:3000	1:4000	1:5000	
Secondary coil resistance $R_S$ ( $\Omega$ )		31	35	45	
Rated output current $I_{SN}$ (mA)		100			
Supply voltage $V_C$ (Vdc)		$\pm 15^{\pm 5\%}$ to $\pm 24^{\pm 5\%}$			
Static current consumption $I_{C0}$ (mA)		$\leq 25$			
Current consumption $I_C$ (mA)		$25 + I_S$			

ACCURACY DYNAMIC PERFORMANCE			GENERAL & ISOLATION CHARACTERISTICS		
Accuracy $X_G @ I_{PN}, T=25^{\circ}\text{C}$	$\pm 0,5$	%	Operating temperature	-40 to +85	$^{\circ}\text{C}$
Zero offset Current $I_O @ I_P=0, T=25^{\circ}\text{C}$	$\leq \pm 0,2$	mA	Storage temperature	-40 to +125	$^{\circ}\text{C}$
Current offset drift $I_O @ -40^{\circ}\text{C}$ to $85^{\circ}\text{C}$	$\leq \pm 0,5$	mA	Weight	295	g
Linearity error $\epsilon_L$	$< 0,1$	% FS	Insulation voltage (50Hz, 1mm)	6	KV
di/dt accurately followed	$> 100$	A/ $\mu\text{s}$			
Response time $t_r$	$< 1$	$\mu\text{s}$			
Bandwidth (-3db)	DC to 100	kHz			

## DIMENSIONS



## MECHANICAL CHARACTERISTICS

General tolerance	$\pm 0,5$ mm	
Through hole dimension	$\varnothing 35$ mm	
Transducer fastening	Holes $\varnothing 5,2$ or $\varnothing 4,2$ mm	
Terminal connection	HCS-LT305M	Molex 5045-04A
	HCS-LT305S	Terminal block 3 screw, 5mm pitch

### Cautions :

- $I_S$  is positive when  $I_P$  flows in accordance with the arrow direction (see the top of the sensor);
- Primary conductor temperature should not exceed  $100^{\circ}\text{C}$ ;
- Best dynamic performances (di/dt and response time) are achieved with a single electrical conductor completely filling the through hole;
- To achieve the best magnetic coupling, the primary winding must be wound around the top edge of the sensor;
- For the required connection circuit, see the drawing above.

**WARNING : Incorrect wiring may cause damage to the sensor.**