Catalogue

Open Loop Hall Effect AC/DC Current Sensors

Transducers with PCB Mounting

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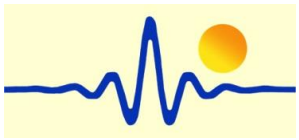

Contents

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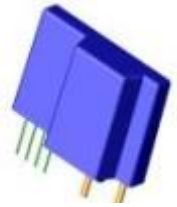
Hall Effect AC/DC Current Sensor CYHCS003



Electrical Data/Input

Primary Nominal RMS Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=±15V (±12V)	Primary Conductor Ø (mm)	Part Number
3	± 9 (±6)	0.6	CYHCS-C0030
5	± 15 (±10)	0.8	CYHCS-C0050
10	± 30 (±20)	1.0	CYHCS-C0100
15	± 45 (±30)	1.6	CYHCS-C0150
20	± 60 (±40)	1.6	CYHCS-C0200
25	± 75 (±50)	1.6	CYHCS-C0250
30	± 90 (±60)	1.6	CYHCS-C0300
35	± 105 (±70)	1.6	CYHCS-C0350
40	± 120 (±80)	1.6	CYHCS-C0400
45	± 135 (±90)	1.6	CYHCS-C0450
50	± 150 (±100)	1.6	CYHCS-C0500

Supply Voltage	V_{cc}= ±15V (±12V) ± 5%,
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage at I_r, T_A=25°C:	V_{out} = 4V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

Accuracy

Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0%
Electric Offset Voltage, T_A=25°C,	V_{oe} <40mV
Hysteresis Offset Voltage ($I_r \rightarrow 0$)	V_{om} <15mV
Thermal Drift of Offset Voltage,	V_{ot} <2mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1k Hz)	t_r < 3μs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

Ambient Operating Temperature,	T_A = -10°C ~ +80°C
Ambient Storage Temperature,	T_S = -25°C ~ +85°C

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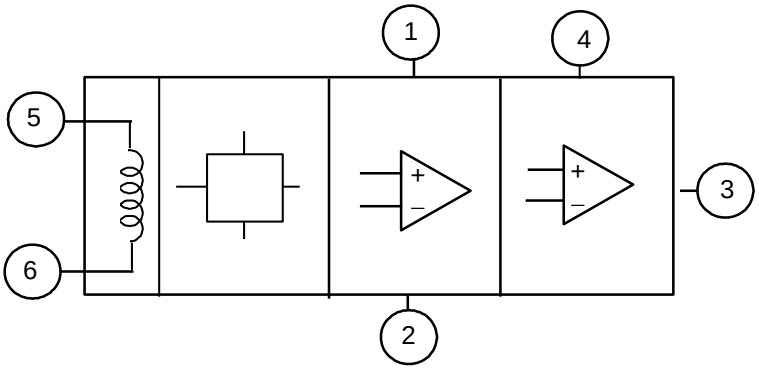
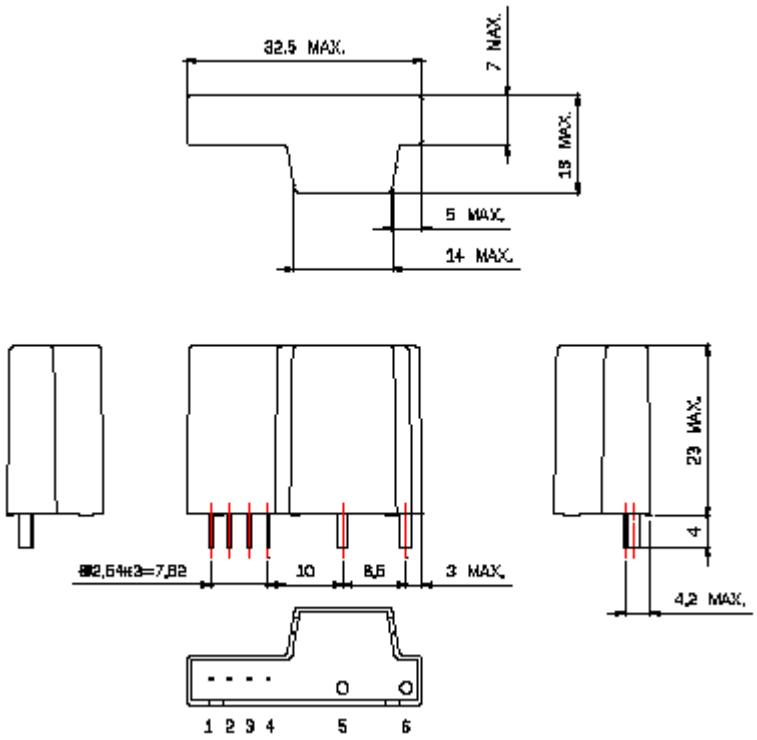
Functional Block Diagram (below 30A)



1. V +
2. V –
3. Output
4. Ground
5. Coil Input +
6. Coil Input –

PIN Definition (below 30A)



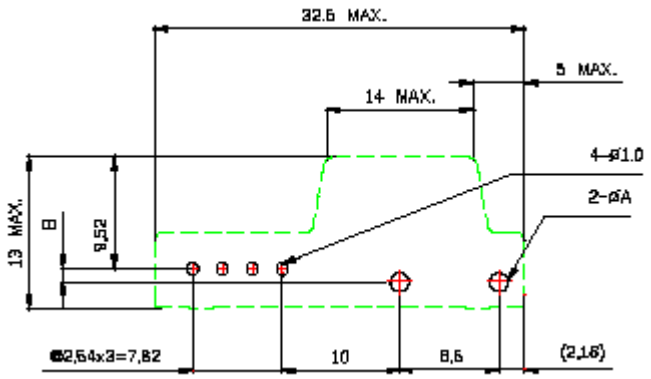
Terminal Pin Identification

1. V+
2. V–
3. Output
4. Ground
5. Coil Input +
6. Coil Input –

Primary Conductor Terminal

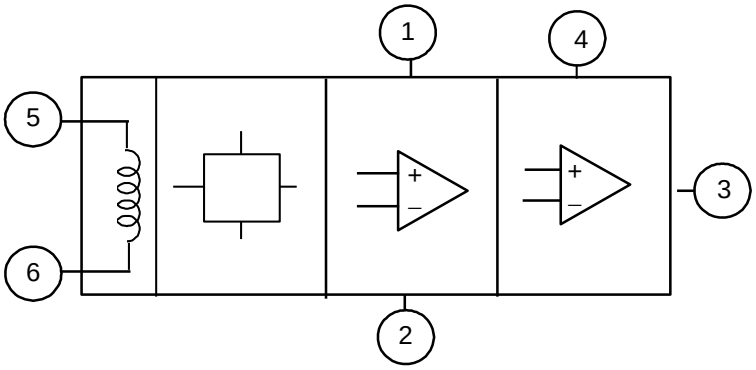
CYHCS-C0030	Ø 0.6
CYHCS-C0050	Ø 0.8
CYHCS-C0100	Ø 1.0
CYHCS-C0150	Ø 1.6
CYHCS-C0200	Ø 1.6
CYHCS-C0250	Ø 1.6

Hole Recommend (below 30A)



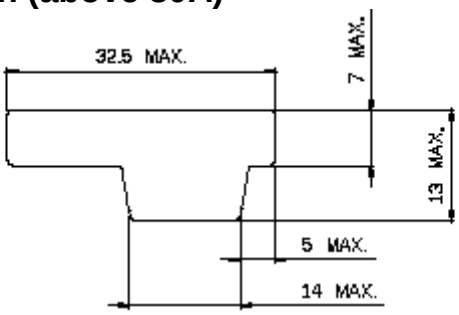
Part Name	Ø A(mm)	B(mm)
CYHCS-C0030	1.0	1.225
CYHCS-C0050	1.2	1.325
CYHCS-C0100	1.4	1.425
CYHCS-C0150	2.0	1.725
CYHCS-C0200	2.0	1.725
CYHCS-C0250	2.0	1.725

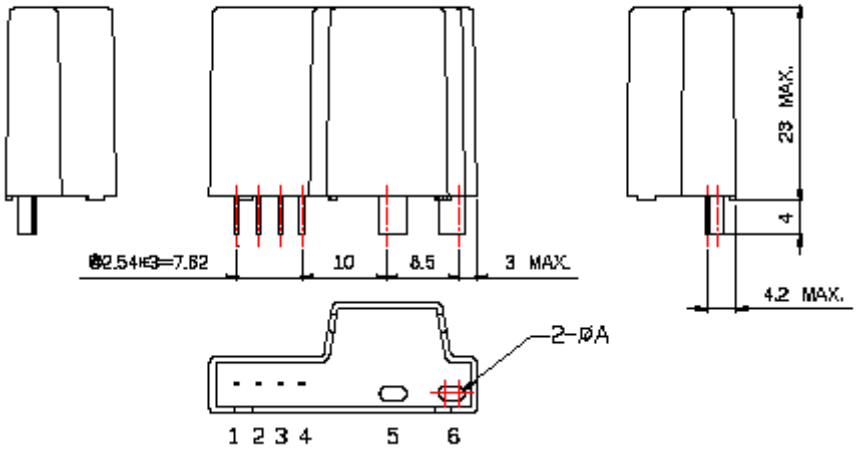
Functional Block Diagram (above 30A)



1. V+
2. V –
3. Output
4. Ground
5 Coil Input +
6 Coil Input –

PIN Definition (above 30A)



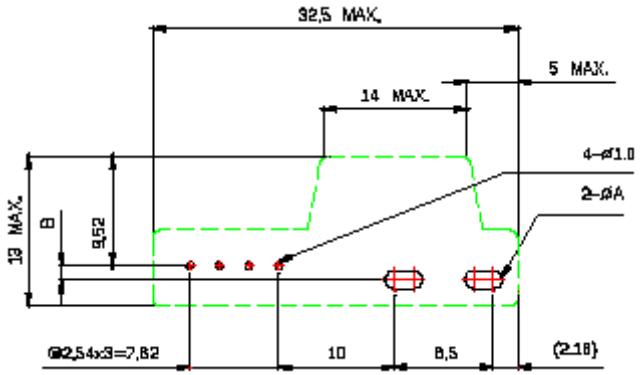


Terminal Pin Identification
1. V+
2. V–
3. Output
4. Ground
5. Coil Input +
6. Coil Input –

Primary Conductor Terminal

CYHCS -C0300	Ø 1.6
CYHCS -C0350	Ø 1.6
CYHCS -C0400	Ø 1.6
CYHCS -C0450	Ø 1.6
CYHCS -C0500	Ø 1.6

Hole Recommend (above 30A)



Part Name	Ø A(mm)	B(mm)
CYHCS-C0300	2.0	1.725
CYHCS-C0350	2.0	1.725
CYHCS-C0400	2.0	1.725
CYHCS-C0450	2.0	1.725
CYHCS-C0500	2.0	1.725

Hall Effect AC/DC Current Sensor CYHCS004

Electrical Data/Input

Primary Nominal RMS Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=±15V (±12V)	Primary Conductor Ø (mm)	Part number
3	± 9 (±6)	0.6	CYHCS-D0030
5	± 15 (±10)	0.8	CYHCS-D0050
10	± 30 (±20)	1.0	CYHCS-D0100
15	± 45 (±30)	1.6	CYHCS-D0150
20	± 60 (±40)	1.6	CYHCS-D0200
25	± 75 (±50)	1.6	CYHCS-D0250
30	± 90 (±60)	2.0	CYHCS-D0300
35	± 105 (±70)	2.0	CYHCS-D0350
40	± 120 (±80)	2.0	CYHCS-D0400
45	± 135 (±90)	2.0	CYHCS-D0450
50	± 150 (±100)	2.0	CYHCS-D0500

Supply Voltage	V_{cc}=±15V (±12V) ± 5%,
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage at I_r, T_A=25°C:	V_{out} = 4V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

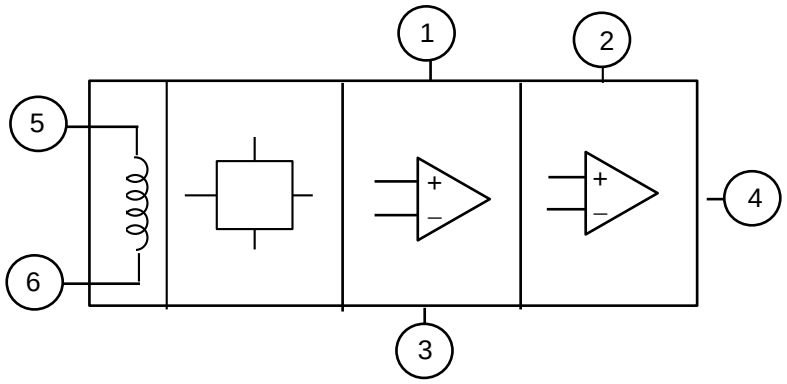
Accuracy

Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0%
Electric Offset Voltage, T_A=25°C,	V_{oe} <40mV
Magnetic Offset Voltage ($I_r \rightarrow 0$)	V_{om} <15mV
Thermal Drift of Offset Voltage,	V_{ot} <2mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1kHz)	t_r < 3µs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

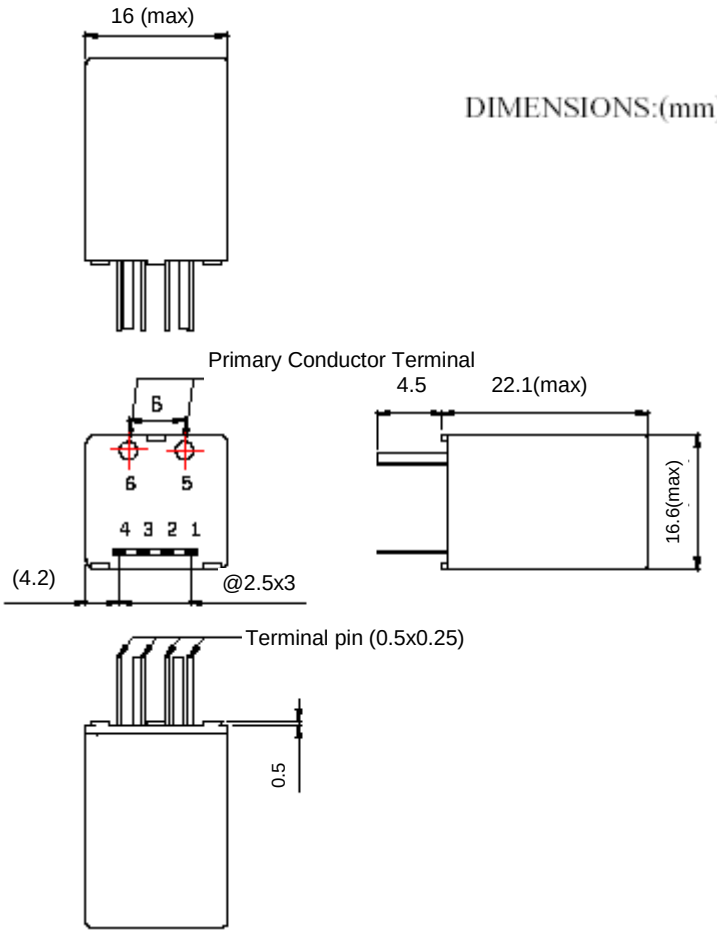
Ambient Operating Temperature,	T_A = -10°C ~ +80°C
Ambient Storage Temperature,	T_S = -25°C ~ +85°C

Functional Block Diagram



1. V –
2. Ground
3. *V*+
4. V_{output}
5. Coil Input +
6. Coil Input –

PIN Definition



Terminal PIN Definition

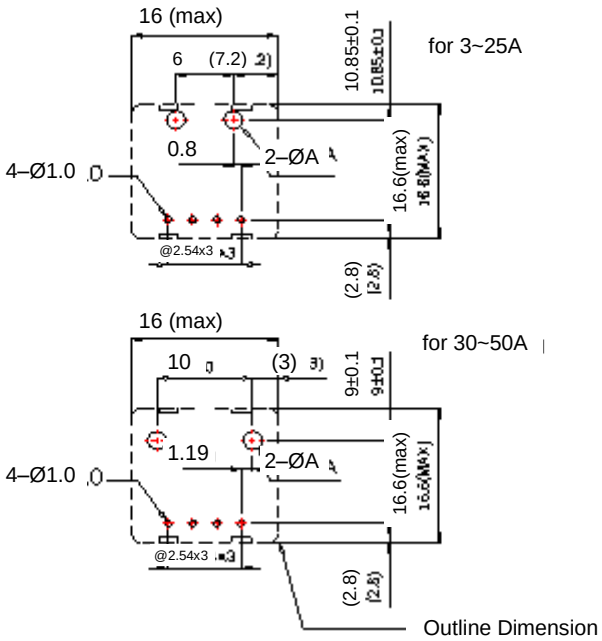
1. V-
2. Ground
3. V+
4. Output
5. Coil Input +
6. Coil Input -

Primary Conductor Terminal

CYHCS-D0030	Ø 0.6
CYHCS-D0050	Ø 0.8
CYHCS-D0100	Ø 1.0
CYHCS-D0150	Ø 1.6
CYHCS-D0200	Ø 1.6
CYHCS-D0250	Ø 1.6
CYHCS-D0300	Ø 2.2
CYHCS-D0350	Ø 2.2
CYHCS-D0400	Ø 2.2
CYHCS-D0450	Ø 2.2
CYHCS-D0500	Ø 2.2

Hole Recommend

Dimensions (mm)



Note: The input pin pitch (between pin 5 and 6) is 6mm for Primary Nominal RMS Current 3-25A and 10mm for Primary Nominal RMS Current 30-50A

Part Name	ØA(mm)	Part Name	ØA(mm)
CYHCS-D0030	1.0	CYHCS-D0300	2.6
CYHCS-D0050	1.2	CYHCS-D0350	2.6
CYHCS-D0100	1.4	CYHCS-D0400	2.6
CYHCS-D0150	2.0	CYHCS-D0450	2.6
CYHCS-D0200	2.0	CYHCS-D0500	2.6
CYHCS-D0250	2.0		

Hall Effect AC/DC Current Sensor CYHCS012

Electrical Data/Input

Primary Nominal RMS Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=±15V (±12V)	Primary Conductor Ø (mm)	Part number
3	± 9 (±6)	0.6	CYHCS-L0030
5	± 15 (±10)	0.8	CYHCS-L0050
10	± 30 (±20)	1.0	CYHCS-L0100
15	± 45 (±30)	1.6	CYHCS-L0150
20	± 60 (±40)	1.6	CYHCS-L0200
25	± 75 (±50)	1.6	CYHCS-L0250
30	± 90 (±60)	2.0	CYHCS-L0300
35	± 105 (±70)	2.0	CYHCS-L0350
40	± 120 (±80)	2.0	CYHCS-L0400
45	± 135 (±90)	2.0	CYHCS-L0450
50	± 150 (±100)	2.0	CYHCS-l0500

Supply Voltage	V_{cc}= ±15V (±12V) ± 5%
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage at I_r, T_A=25°C:	V_{out} = 4V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

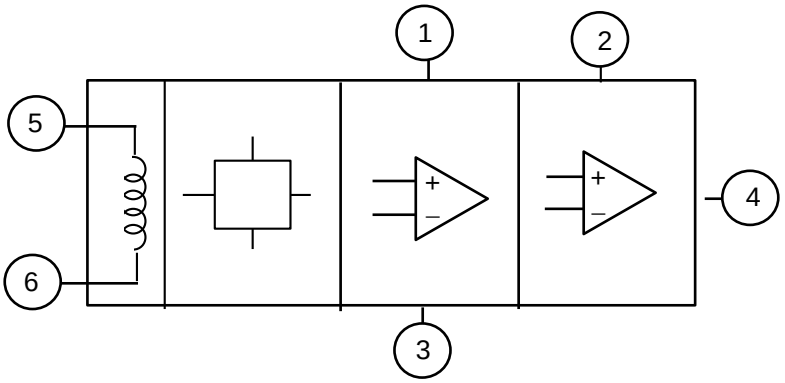
Accuracy

Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0%
Electric Offset Voltage, T_A=25°C,	V_{oe} <40mV
Magnetic Offset Voltage ($I_r \rightarrow 0$)	V_{om} <15mV
Thermal Drift of Offset Voltage,	V_{ot} <1.5mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1kHz)	t_r < 3µs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

Ambient Operating Temperature,	T_A = -10°C ~ +80°C
Ambient Storage Temperature,	T_S = -25°C ~ +85°C

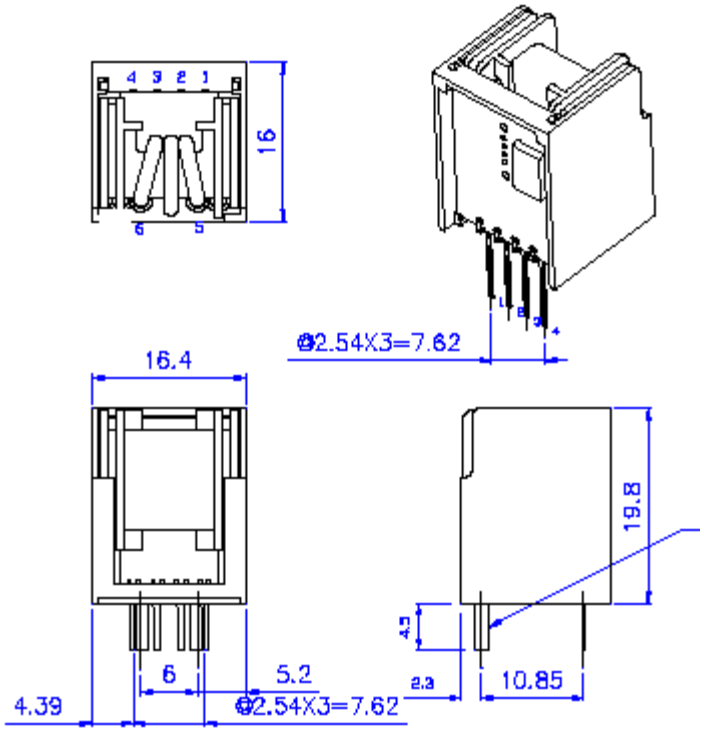
Functional Block Diagram



1. V –
2. Ground
3. *V+*
4. V_{output}
5. Coil Input +
6. Coil Input –

PIN Definition

Dimensions (mm) Tolerance: ±0.3mm

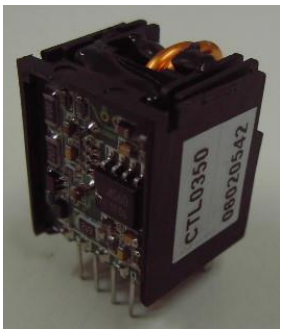


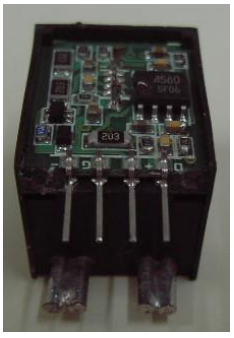
Terminal PIN Definition

1. V-
2. Ground
3. V+
4. Output
5. Coil Input +
6. Coil Input -

Primary Conductor Terminal

CYHCS-L0030	Ø 0.6
CYHCS-L0050	Ø 0.8
CYHCS-L0100	Ø 1.0
CYHCS-L0150	Ø 1.6
CYHCS-L0200	Ø 1.6
CYHCS-L0250	Ø 1.6
CYHCS-L0300	Ø 1.6
CYHCS-L0350	Ø 1.6x2
CYHCS-L0400	Ø 1.6x2
CYHCS-L0450	Ø 1.6x2
CYHCS-L0500	Ø 1.6x2



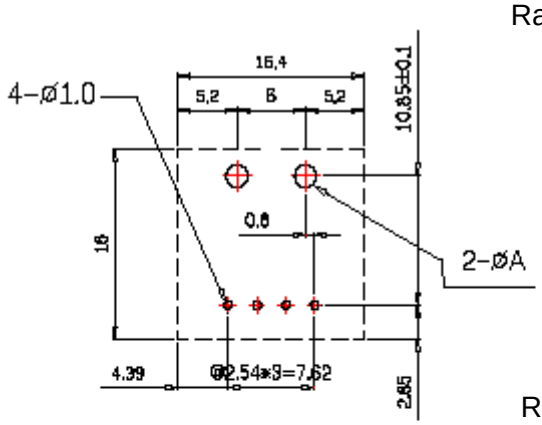


Hole Recommend

Dimensions (mm)

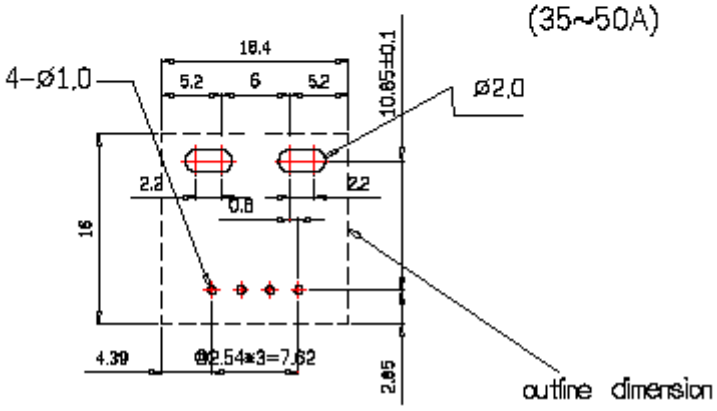
Rated Input Current

(3~30A)



Rated Input Current

(35~50A)



Part Name	ØA(mm)
CYHCS-L0030	1.0
CYHCS-L0050	1.2
CYHCS-L0100	1.4
CYHCS-L0150	2.0
CYHCS-L0200	2.0
CYHCS-L0250	2.0

Hall Effect AC/DC Current Sensor CYHCS013-A

Electrical Data/Input

Primary Nominal RMS Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=5V	Primary Conductor ΦA (mm)	Part Name
3	± 9	0.6	CYHCS-M0030-A
5	± 15	0.8	CYHCS-M0050-A
10	± 30	1.0	CYHCS-M0100-A
15	± 45	1.6	CYHCS-M0150-A
20	± 60	1.6	CYHCS-M0200-A
25	± 75	1.6	CYHCS-M0250-A
30	± 90	1.6	CYHCS-M0300-A
35	± 105	1.6x2	CYHCS-M0350-A
40	± 120	1.6x2	CYHCS-M0400-A
45	± 135	1.6x2	CYHCS-M0450-A
50	± 150	1.6x2	CYHCS-M0500-A

Supply Voltage	V_{cc}= 5V ± 5%,
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage at I_r, T_A=25°C:	V_{out} = V_{EO}±0.625V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

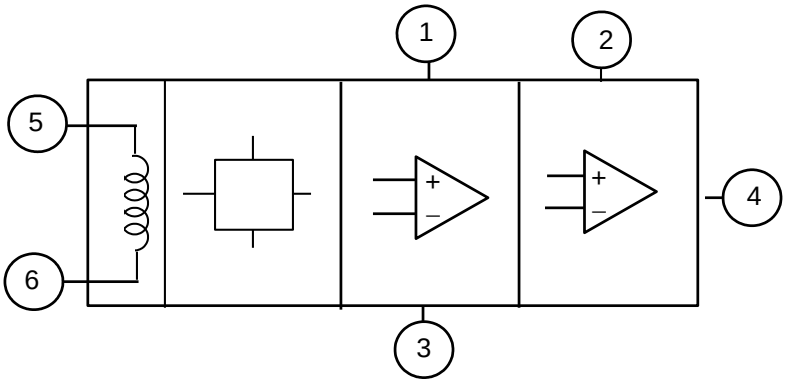
Accuracy

Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0%
Electric Offset Voltage, T_A=25°C,	V_{EO} =2.5V±50mV
Hysteresis Offset Voltage (I_r →0)	V_{om} <20mV
Thermal Drift of Offset Voltage,	V_{ot} <2mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1kHz)	t_r < 3μs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

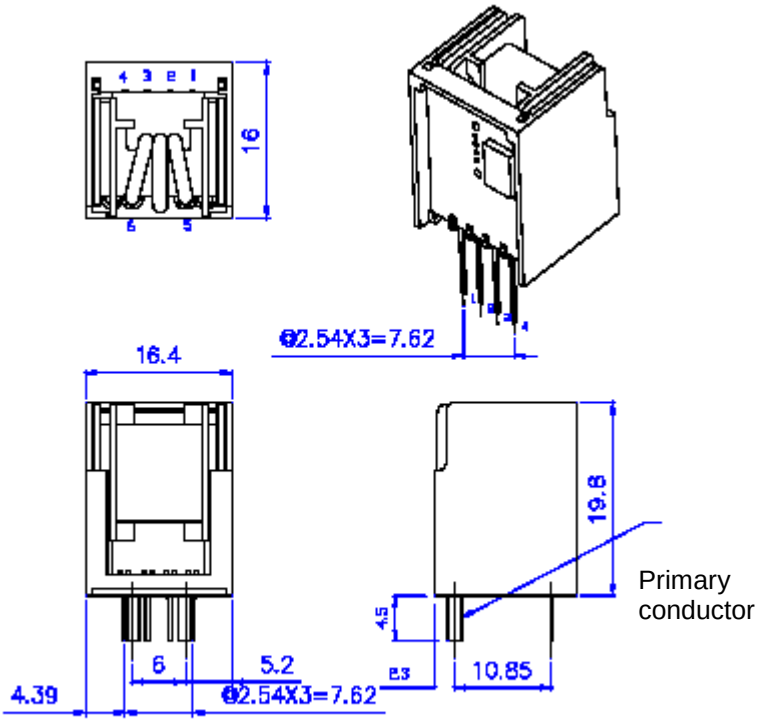
Ambient Operating Temperature,	T_A = -10°C ~ +80°C
Ambient Storage Temperature,	T_S = -25°C ~ +85°C

Functional Block Diagram



1. Ground or floating
2. Ground
3. *V+*
4. V_{output}
5. Coil Input +
6. Coil Input –

PIN Definition



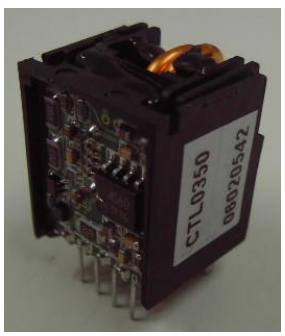
Primary conductor

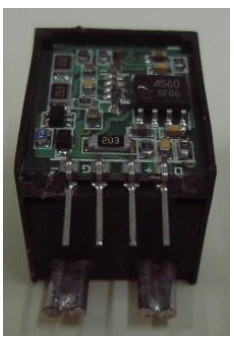
Terminal PIN Definition

1. Ground/floating
2. Ground
3. V+
4. Output
5. Coil Input +
6. Coil Input -

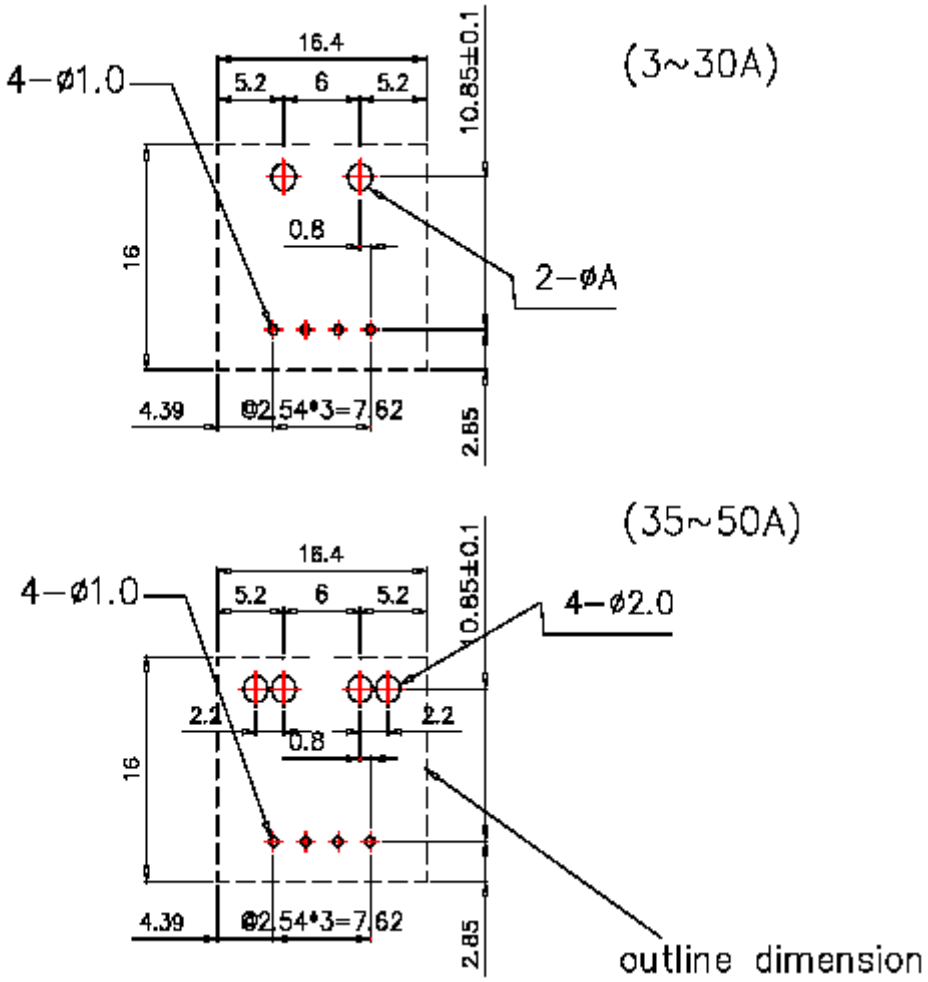
Primary Conductor Terminal

CYHCS-M0030-A	Φ 0.6
CYHCS-M0050-A	Φ 0.8
CYHCS-M0100-A	Φ 1.0
CYHCS-M0150-A	Φ 1.6
CYHCS-M0200-A	Φ 1.6
CYHCS-M0250-A	Φ 1.6
CYHCS-M0300-A	Φ 1.6
CYHCS-M0350-A	Φ 1.6x2
CYHCS-M0400-A	Φ 1.6x2
CYHCS-M0450-A	Φ 1.6x2
CYHCS-M0500-A	Φ 1.6x2





Hole Recommend



Part Name	ΦA(mm)
CYHCS-M0030-A	1.0
CYHCS-M0050-A	1.2
CYHCS-M0100-A	1.4
CYHCS-M0150-A	2.0
CYHCS-M0200-A	2.0
CYHCS-M0250-A	2.0
CYHCS-M0300-A	2.0

Relation between Input Current and Output Voltage

Take the sensor CYHCS-M0100-A as sample, the relation between the input current and output voltage is shown in the table 1, Fig.1 and Fig. 2

Table 1. Relation between the input current and output voltage

Input current (A)	-30	-20	-10	-5	0	5	10	20	30
Output voltage (V)	0.625	1.25	1.875	2.188	2.5	2.813	3.125	3.75	4.375

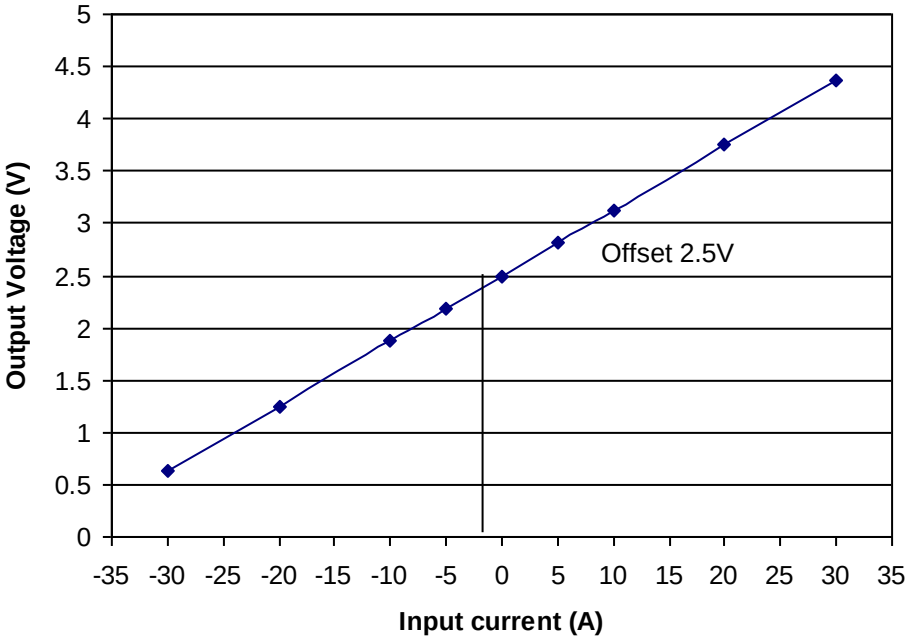


Fig. 1 Relation between the input current (DC) and output voltage (DC)

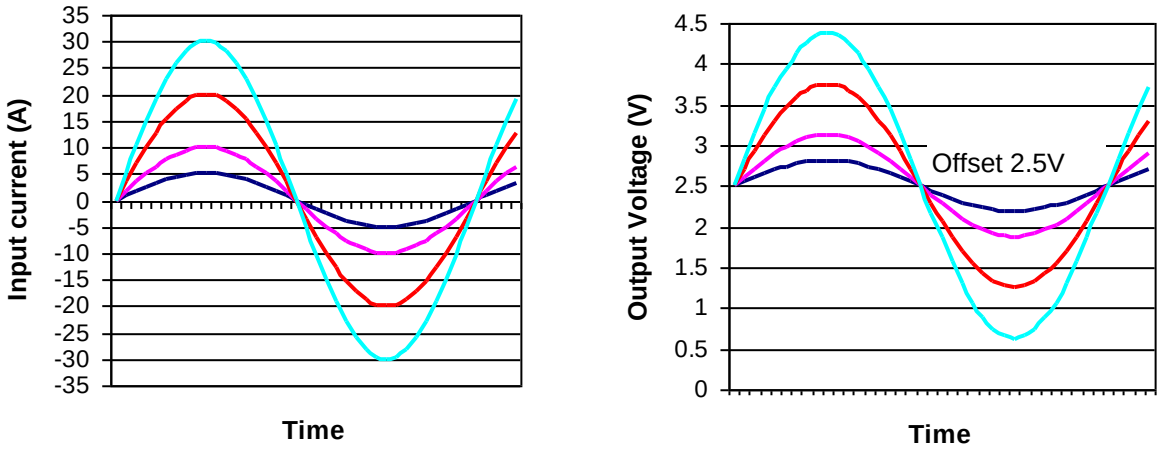


Fig. 2 Relation between the input current (AC) and output voltage (AC)

Hall Effect AC/DC Current Sensor CYHCS013-B

Electrical Data/Input

Primary Nominal RMS Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=12V	Primary Conductor Φ (mm)	Part Number
3	± 6	0.6	CYHCS-M0030-B
5	± 10	0.8	CYHCS-M0050-B
10	± 20	1.0	CYHCS-M0100-B
15	± 30	1.6	CYHCS-M0150-B
20	± 40	1.6	CYHCS-M0200-B
25	± 50	1.6	CYHCS-M0250-B
30	± 60	1.6	CYHCS-M0300-B
35	± 70	1.6x2	CYHCS-M0350-B
40	± 80	1.6x2	CYHCS-M0400-B
45	± 90	1.6x2	CYHCS-M0450-B
50	± 100	1.6x2	CYHCS-M0500-B

Supply Voltage	V_{cc}= 12V ± 5%,
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage at I_r, T_A=25°C:	V_{out} = V_{EO}±2V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

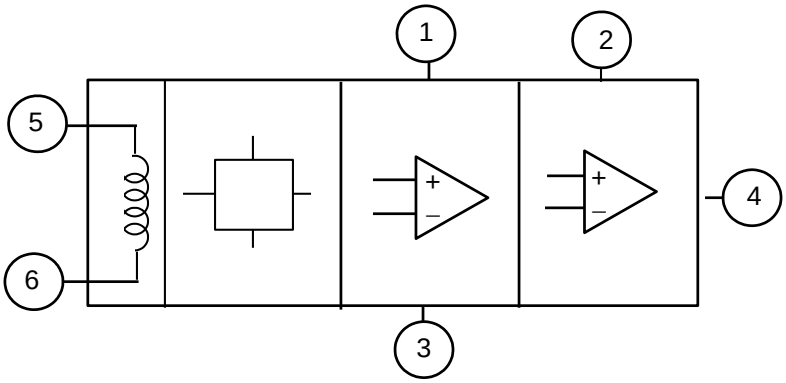
Accuracy

Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0%
Electric Offset Voltage, T_A=25°C,	V_{EO} =5.0V±50mV
Hysteresis Offset Voltage (I_r →0)	V_{om} <20mV
Thermal Drift of Offset Voltage,	V_{ot} <2mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1kHz)	t_r < 3µs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

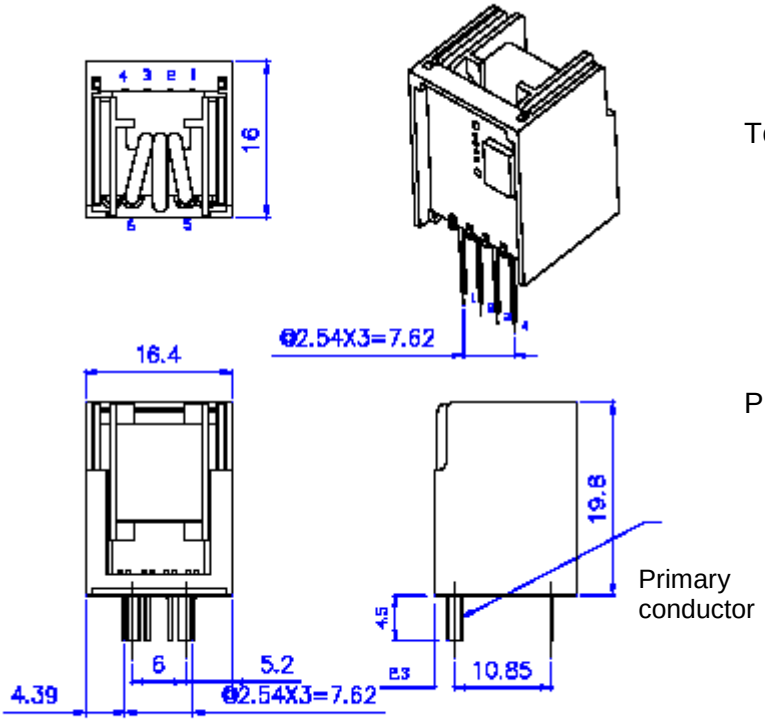
Ambient Operating Temperature,	T_A = -10°C ~ +80°C
Ambient Storage Temperature,	T_S = -25°C ~ +85°C

Functional Block Diagram



1. Ground or floating
2. Ground
3. *V+*
4. V_{output}
5. Coil Input +
6. Coil Input –

PIN Definition

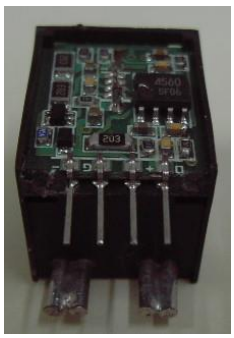


Terminal PIN Definition

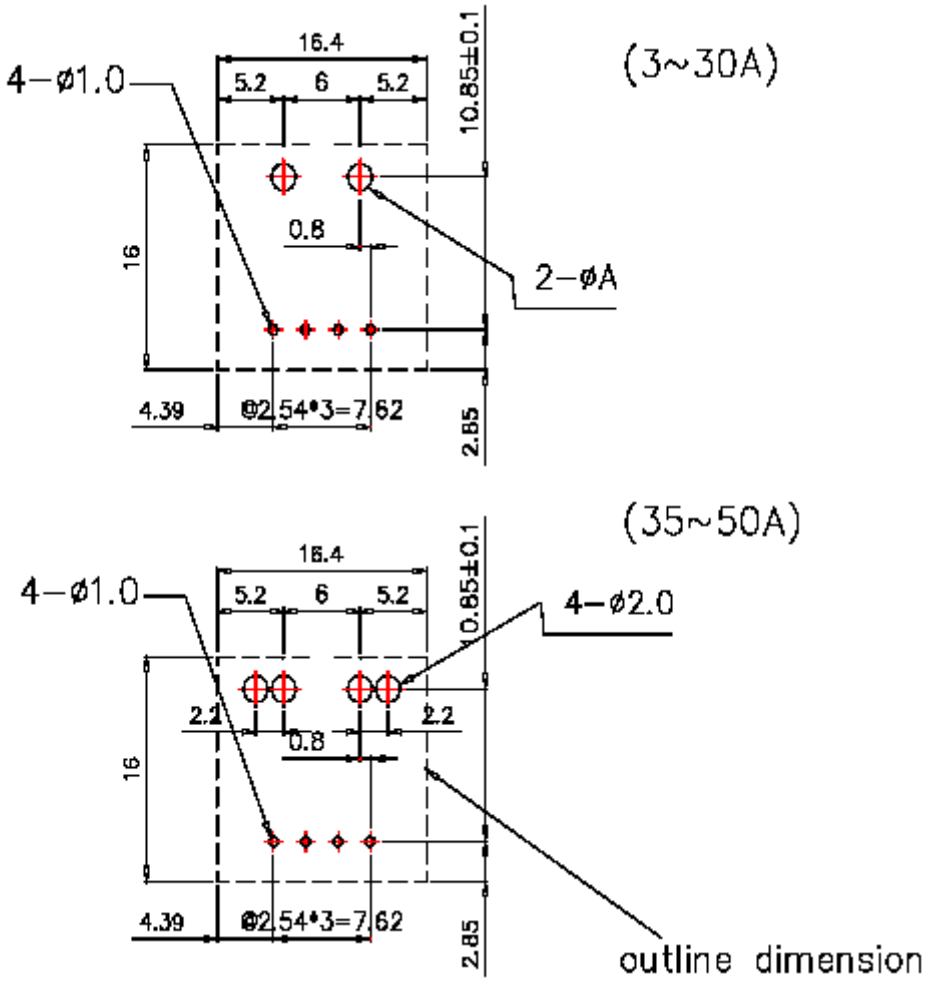
1. Ground/floating
2. Ground
3. V+
4. Output
5. Coil Input +
6. Coil Input -

Primary Conductor Terminal

CYHCS-M0030-B	Φ 0.6
CYHCS-M0050-B	Φ 0.8
CYHCS-M0100-B	Φ 1.0
CYHCS-M0150-B	Φ 1.6
CYHCS-M0200-B	Φ 1.6
CYHCS-M0250-B	Φ 1.6
CYHCS-M0300-B	Φ 1.6
CYHCS-M0350-B	Φ 1.6x2
CYHCS-M0400-B	Φ 1.6x2
CYHCS-M0450-B	Φ 1.6x2
CYHCS-M0500-B	Φ 1.6x2



Hole Recommend



Part Name	ΦA(mm)
CYHCS-M0030-B	1.0
CYHCS-M0050-B	1.2
CYHCS-M0100-B	1.4
CYHCS-M0150-B	2.0
CYHCS-M0200-B	2.0
CYHCS-M0250-B	2.0
CYHCS-M0300-B	2.0

Relation between Input Current and Output Voltage

Take the sensor CYHCS-M0100-B as sample, the relation between the input current and output voltage is shown in the table 1, Fig.1 and Fig. 2

Table 1. Relation between the input current and output voltage

Input current (A)	-20	-15	-10	-5	0	5	10	15	20
Output voltage (V)	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0

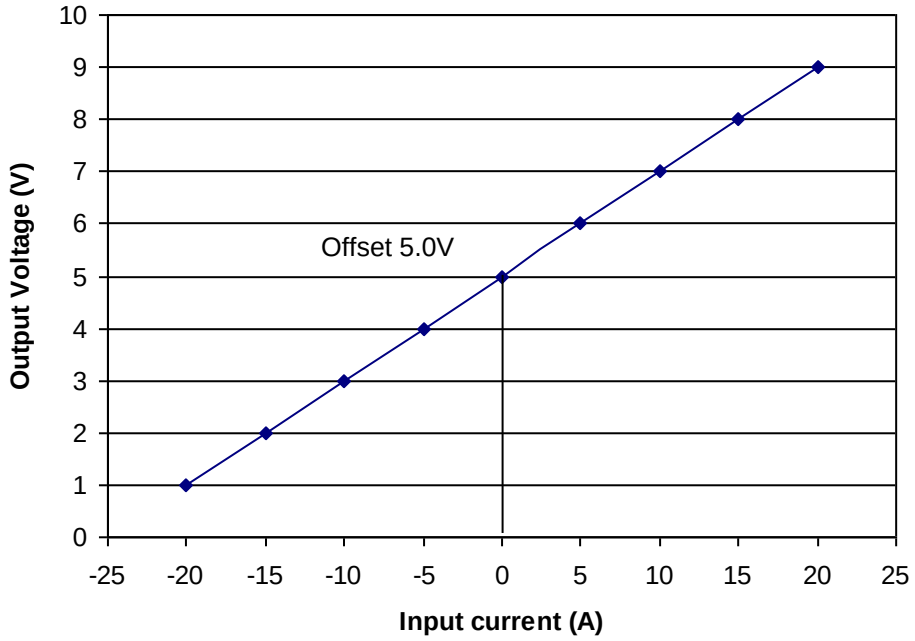


Fig. 1 Relation between the input current (DC) and output voltage (DC)

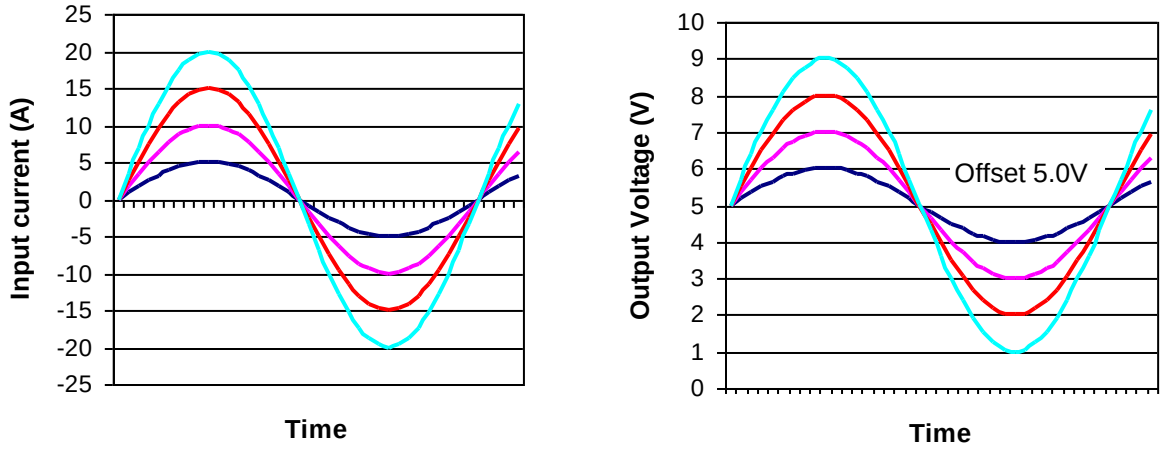


Fig. 2 Relation between the input current (AC) and output voltage (AC)

Hall Effect AC/DC Current Sensor CYHCS013-C

Electrical Data/Input

Primary Nominal RMS Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=15V	Primary Conductor Φ (mm)	Part Number
3	± 6	0.6	CYHCS-M0030-C
5	± 10	0.8	CYHCS-M0050-C
10	± 20	1.0	CYHCS-M0100-C
15	± 30	1.6	CYHCS-M0150-C
20	± 40	1.6	CYHCS-M0200-C
25	± 50	1.6	CYHCS-M0250-C
30	± 60	1.6	CYHCS-M0300-C
35	± 70	1.6x2	CYHCS-M0350-C
40	± 80	1.6x2	CYHCS-M0400-C
45	± 90	1.6x2	CYHCS-M0450-C
50	± 100	1.6x2	CYHCS-M0500-C

Supply Voltage	V_{cc}= 15V ± 5%,
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage at I_r, T_A=25°C:	V_{out} = V_{EO}±2V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

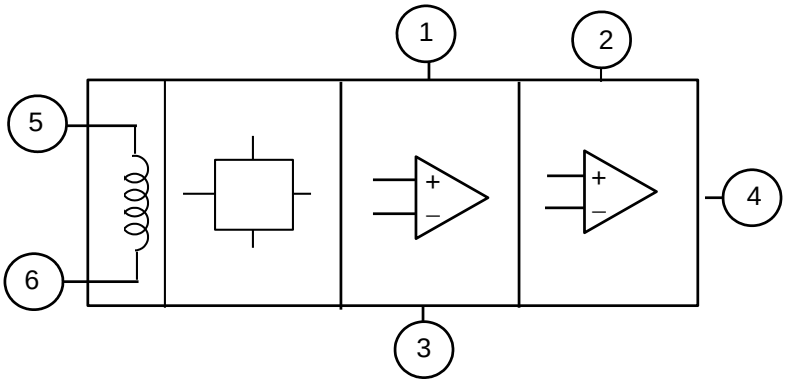
Accuracy

Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0%
Electric Offset Voltage, T_A=25°C,	V_{EO} =5.0V±50mV
Hysteresis Offset Voltage (I_r →0)	V_{om} <20mV
Thermal Drift of Offset Voltage,	V_{ot} <2mV/°C
Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1kHz)	t_r < 3µs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

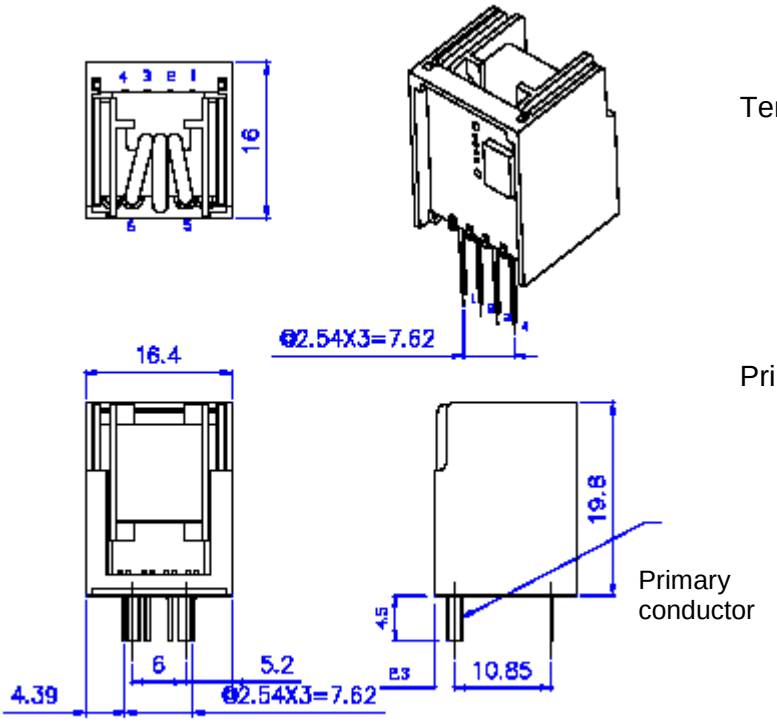
Ambient Operating Temperature,	T_A = -10°C ~ +80°C
Ambient Storage Temperature,	T_S = -25°C ~ +85°C

Functional Block Diagram



1. Ground or floating
2. Ground
3. *V+*
4. V_{output}
5. Coil Input +
6. Coil Input –

PIN Definition



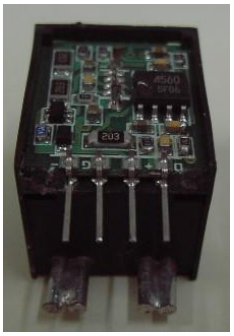
Primary conductor

Terminal PIN Definition

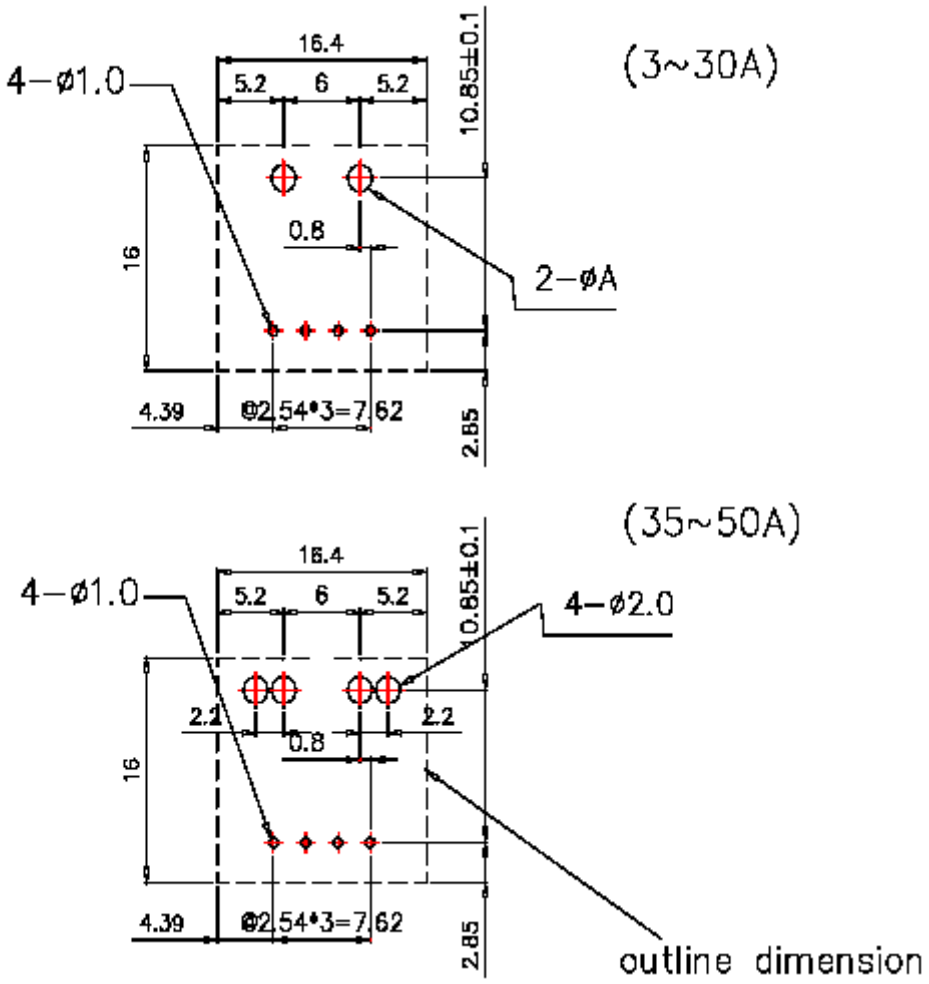
1. Ground/floating
2. Ground
3. V+
4. Output
5. Coil Input +
6. Coil Input -

Primary Conductor Terminal

CYHCS-M0030-C Φ 0.6
CYHCS-M0050-C Φ 0.8
CYHCS-M0100-C Φ 1.0
CYHCS-M0150-C Φ 1.6
CYHCS-M0200-C Φ 1.6
CYHCS-M0250-C Φ 1.6
CYHCS-M0300-C Φ 1.6
CYHCS-M0350-C Φ 1.6x2
CYHCS-M0400-C Φ 1.6x2
CYHCS-M0450-C Φ 1.6x2
CYHCS-M0500-C Φ 1.6x2



Hole Recommend



Part Name	ΦA(mm)
CYHCS-M0030-C	1.0
CYHCS-M0050-C	1.2
CYHCS-M0100-C	1.4
CYHCS-M0150-C	2.0
CYHCS-M0200-C	2.0
CYHCS-M0250-C	2.0
CYHCS-M0300-C	2.0

Relation between Input Current and Output Voltage

Take the sensor CYHCS-M0100-C as sample, the relation between the input current and output voltage is shown in the table 1, Fig.1 and Fig. 2

Table 1. Relation between the input current and output voltage

Input current (A)	-20	-15	-10	-5	0	5	10	15	20
Output voltage (V)	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0

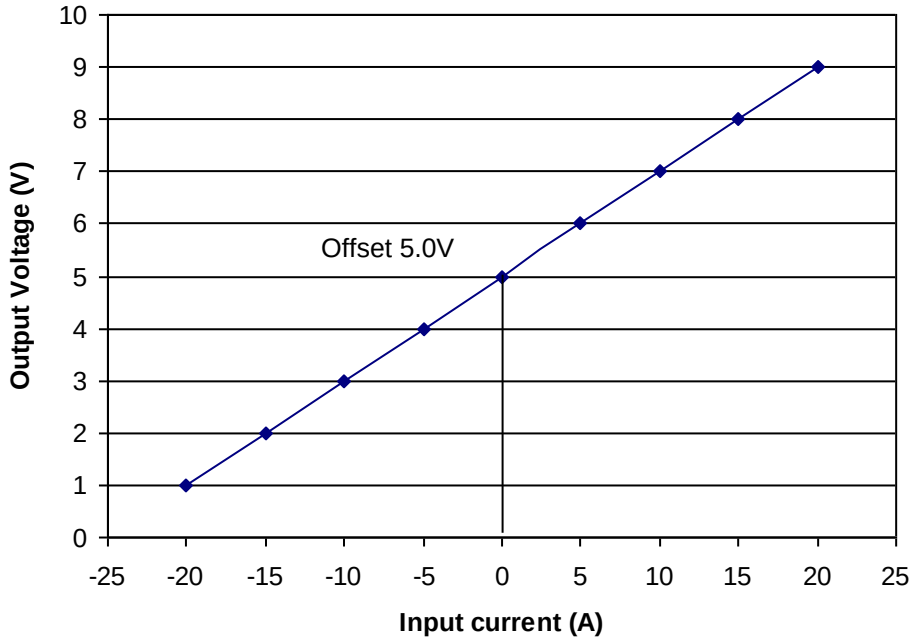


Fig. 1 Relation between the input current (DC) and output voltage (DC)

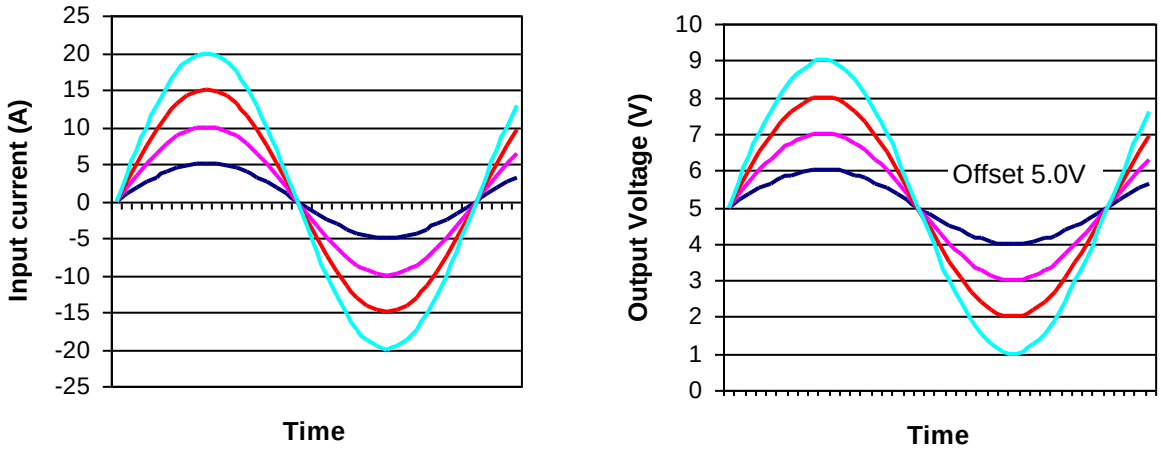


Fig. 2 Relation between the input current (AC) and output voltage (AC)

Hall Effect AC/DC Current Sensor CYHCS-K7S

This Hall Effect current sensor is based on open loop principle and can be used for measurement of DC and AC current, pulse currents etc. The output of the transducer reflects the real wave of the current carrying conductor.

Product Characteristics	Applications
• Excellent accuracy	• General Purpose Inverters
• Very good linearity	• AC/DC Variable Speed Drivers
• Small size and encapsulated	• Battery Supplied Applications
• Less power consumption	• Uninterruptible Power Supplies
• Current overload capability	• Switched Mode Power Supplies

Electrical Data/Input

Primary Nominal Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=5V	Primary Conductor Ø (mm)	Part number
5	± 10	0.8	CYHCS-K7S-05A
10	± 20	0.8	CYHCS-K7S-10A
15	± 30	0.8	CYHCS-K7S-15A
20	± 40	0.8	CYHCS-K7S-20A
25	± 50	1.4	CYHCS-K7S-25A
30	± 60	1.4	CYHCS-K7S-30A
40	± 80	1.6	CYHCS-K7S-40A
50	± 100	1.6	CYHCS-K7S-50A

Supply Voltage	V_{cc}= 5V ± 5%,
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage (Analog) at I_r, T_A=25°C:	V_{out} =2.5± 1V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

Accuracy

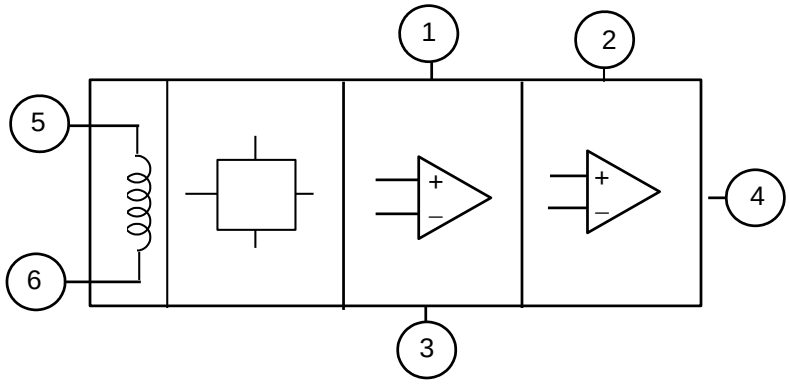
Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0% FS
Electric Offset Voltage, T_A=25°C,	V_{oe} <40mV
Magnetic Offset Voltage (I_r →0)	V_{om} <15mV
Thermal Drift of Offset Voltage,	V_{ot} <±1mV/°C

Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1kHz)	t_r < 1µs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

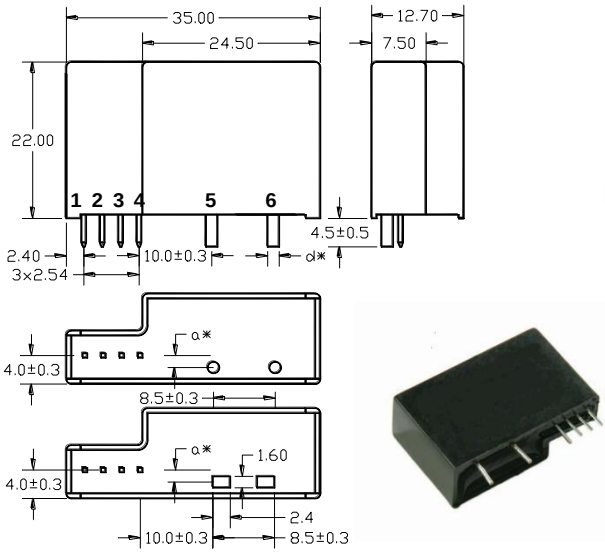
Ambient Operating Temperature,	T_A = -25°C ~ +85°C
Ambient Storage Temperature,	T_S = -40°C~ +100°C

Functional Block Diagram



1. V +
2. 0V
3. V_{output}
4. Ground
5. Coil Input +
6. Coil Input –

PIN Definition



1. V+
2. 0V
3. Output
4. Ground
5. Coil Input +
6. Coil Input -

Primary Conductor Terminal

Part number	a (mm)	d(mm)
CYHCS-K7S-05A	1.3	Ø 0.8
CYHCS-K7S-10A	1.4	Ø 0.8
CYHCS-K7S-15A	1.6	Ø 0.8
CYHCS-K7S-20A	1.6	Ø 0.8
CYHCS-K7S-25A	1.7	Ø 1.4
CYHCS-K7S-30A	1.7	Ø 1.4
CYHCS-K7S-40A	1.7	Ø 1.6
CYHCS-K7S-50A	1.7	Ø 1.6

Relation between Input Current and Output Voltage

Take the sensor CYHCS-K7S-30A as sample, the relation between the input current and output voltage is shown in the table 1, Fig.1 and Fig. 2

Table 1. Relation between the input current and output voltage

Input current (A)	-60	-45	-30	-15	0	15	30	45	60
Output voltage (V)	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5

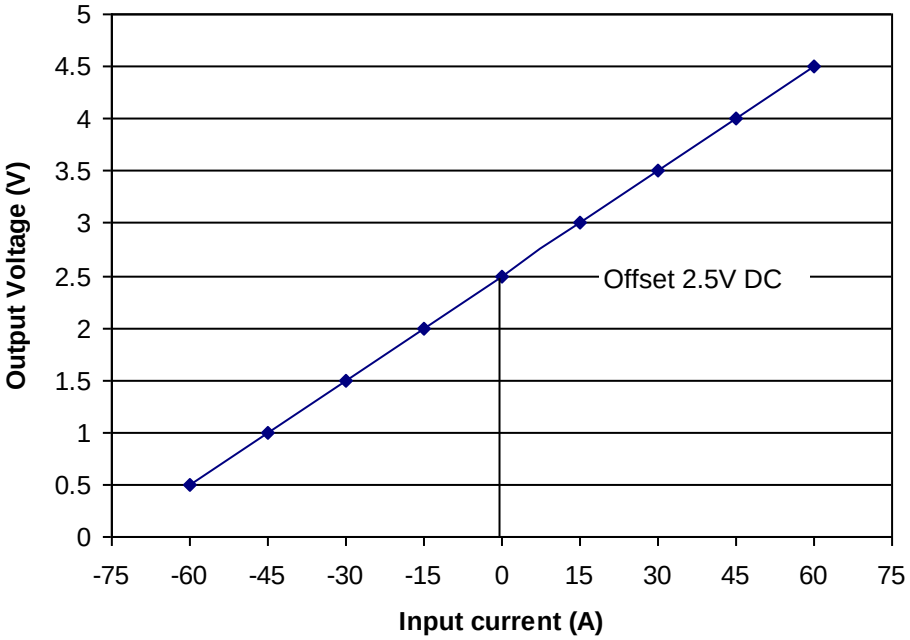


Fig. 1 Relation between the input current (DC) and output voltage (DC)

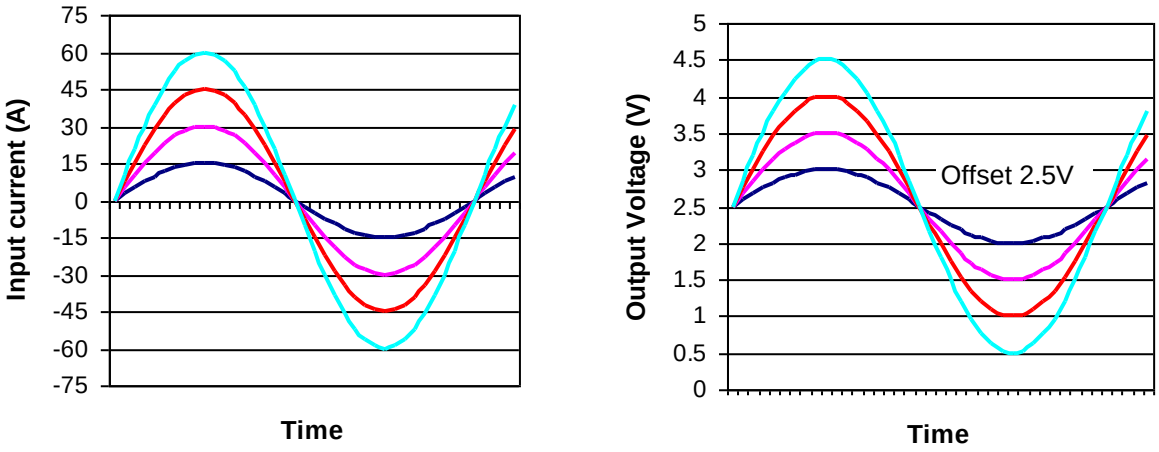


Fig. 2 Relation between the input current (AC) and output voltage (AC)

Hall Effect AC/DC Current Sensor CYHCS-K7

This Hall Effect current sensor is based on open loop principle and can be used for measurement of DC and AC current, pulse currents etc. The output of the transducer reflects the real wave of the current carrying conductor.

Product Characteristics	Applications
• Excellent accuracy	• General Purpose Inverters
• Very good linearity	• AC/DC Variable Speed Drivers
• Small size and encapsulated	• Battery Supplied Applications
• Less power consumption	• Uninterruptible Power Supplies
• Current overload capability	• Switched Mode Power Supplies

Electrical Data/Input

Primary Nominal Current I_r (A)	Primary Current Measuring Range I_p(A) at Vcc=15V	Primary Conductor Ø (mm)	Part number
5	± 10	0.8	CYHCS-K7-05A
10	± 20	0.8	CYHCS-K7-10A
15	± 30	0.8	CYHCS-K7-15A
20	± 40	0.8	CYHCS-K7-20A
25	± 50	1.4	CYHCS-K7-25A
30	± 60	1.4	CYHCS-K7-30A
40	± 80	1.6	CYHCS-K7-40A
50	± 100	1.6	CYHCS-K7-50A

Supply Voltage	V_{cc}= ±15V ± 5%,
Current Consumption	I_c < 20mA
RMS Voltage for 2.5kV AC isolation test, 50/60Hz, 1min,	V_{is} <10mA
Isolation Resistance at 500V DC	R_{is} >500 MΩ

Electrical Data/Output

Output Voltage (Analog) at I_r, T_A=25°C:	V_{out} =± 4V
Output Impedance:	R_{out} < 150Ω
Load Resistor:	R_L > 10kΩ

Accuracy

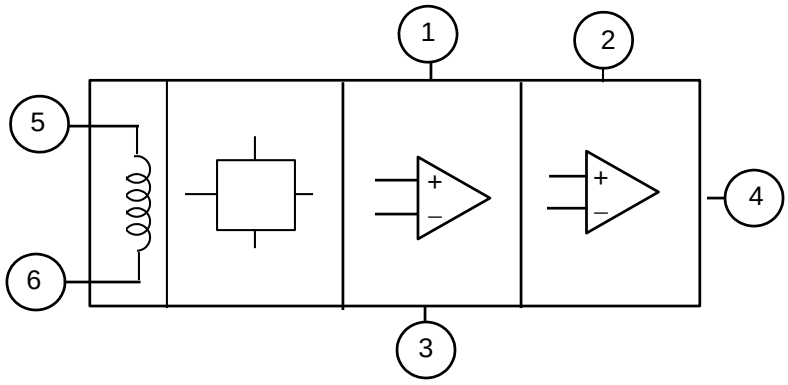
Accuracy at I_r, T_A=25°C (without offset),	X <1.0%
Linearity from 0 to I_r, T_A=25°C,	E_L <1.0% FS
Electric Offset Voltage, T_A=25°C,	V_{oe} <40mV
Magnetic Offset Voltage ($I_r \rightarrow 0$)	V_{om} <15mV
Thermal Drift of Offset Voltage,	V_{ot} <±1mV/°C

Thermal Drift (-10°C to 50°C),	T.C. < ±0.1% /°C
Response Time at 90% of I_P (f=1kHz)	t_r < 1µs
Frequency Bandwidth (-3dB),	f_b = 50 kHz

General Data

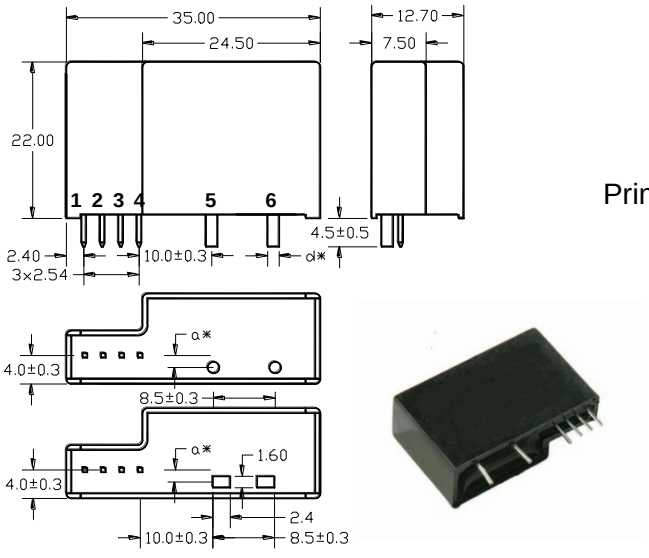
Ambient Operating Temperature,	T_A = -25°C ~ +85°C
Ambient Storage Temperature,	T_S = -40°C~ +100°C

Functional Block Diagram



1. V +
2. V -
3. V_{output}
4. Ground
5. Coil Input +
6. Coil Input –

PIN Definition



7. V+
8. V -
9. Output
10. Ground
11. Coil Input +
12. Coil Input -

Primary Conductor Terminal

Part number	a (mm)	d(mm)
CYHCS-K7-05A	1.3	Ø 0.8
CYHCS-K7-10A	1.4	Ø 0.8
CYHCS-K7-15A	1.6	Ø 0.8
CYHCS-K7-20A	1.6	Ø 0.8
CYHCS-K7-25A	1.7	Ø 1.4
CYHCS-K7-30A	1.7	Ø 1.4
CYHCS-K7-40A	1.7	Ø 1.6
CYHCS-K7-50A	1.7	Ø 1.6