

## 5. Absolute maximum ratings

### 5-1. Environmental characteristics

Parameter	Min	Max	Units
Operating temperature range	-40	+85	°C
Storage temperature range	-40	+85	°C

### 5-2. Electrical characteristics

Parameter	Min	Max	Units
Supply voltage	-0.3	6.0	V
Primary rated voltage		250	V
Maximum input voltage of digital output		Vdd+0.3	V
Maximum sink current of digital output		10	mA
Input voltage of TEST (LOW)	0	0.6	V
Input voltage of TEST (HIGH)	2.5	Vdd	V

## 6. Specifications

### 6-1. Electrical characteristics

Unless otherwise specified, each electrical operating condition is TA = 25°C, Vdd = 5 V.

Parameter	Symbol	Min.	Typ.	Max.	Units	Comments
Primary nominal current	In			80/40	A	1phase/3phase
Supply voltage	Vdd	4.75	5.0	5.25	V	
Current consumption	Ic		13		mA	Ip = 0mA
DC6mA detection current	I <sub>dn</sub> (DC)	3	4.5	6	mA	-40 to 85°C
AC30mA detection current	I <sub>dn</sub> (AC)	15	17.5	20	mA	-40 to 85°C, 55Hz
Frequency characteristic of I <sub>dn</sub> (AC)		-2	-1		%	@45Hz/55Hz
			+1	+2	%	@65Hz/55Hz
Recovery level			I <sub>dn</sub> /2			
DC Fault response time			140	1000	ms	I <sub>p</sub> = DC6mA
			12	250	ms	I <sub>p</sub> = DC60mA
			3	15	ms	I <sub>p</sub> = DC300mA
AC Fault response time			100	250	ms	I <sub>p</sub> = AC30mArms
			40	100	ms	I <sub>p</sub> = AC60mArms
			5	15	ms	I <sub>p</sub> = AC150mArms
			3	15	ms	I <sub>p</sub> > AC 5Arms
Sensitivity (pin 3)	G		40		V/A	-40 to 85°C
Offset voltage (pin 3)	Vo		2.25		V	-40 to 85°C
Measurement range(pin 3)	I <sub>p</sub>	-50		50	mA	
Frequency range (pin 3)	fBW	DC		150	Hz	-3dB *Note1

\* Parameter without Max or Min values are designed values, are not guaranteed values.

Note1: Please refer to Appendix 1 for frequency characteristics of Pin3.

### 6-2. ESD

Judgment: Idn (DC) within Specification of 6-1 items after ESD test

Parameter	Judge
Electrostatic Discharge Voltage Human-body model (HBM) R=1.5kΩ, C=100pF, U=+/-2kV	Passed
Electrostatic Discharge Voltage Charged-device model (CDM) U=+/-800V	Passed

### 6-3. EMC

Judgment: DC Alarm and AC Alarm do not malfunction during noise stimulation

Parameter	Conditions	Judge
IEC 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity	30V/m, 80MHz – 1GHz 80%AM 1kHz	Passed
ISO 11452-2 (ALSE) electrical disturbances from narrowband radiated electromagnetic energy	50V/m 200MHz – 800MHz 80%AM 1kHz, 800MHz – 2GHz PM	Passed
ISO 11452-4 (BCI) Electrical disturbances from narrowband radiated electromagnetic energy	100mA 20MHz – 200MHz 80% AM 1kHz	Passed

### 6-4. Dielectric strength

Parameter	Conditions	Value
$U_{W, \text{prim-sec}}$	Impulse(1.2us/50us), PIN1-6 vs insulated primary wire, 5 pulse -> polarity +, 5 pulse -> polarity -	5.5kVrms
$U_d$	Test voltage, 60s PIN1-6 vs insulated primary wire	1.5kVrms
$U_{PDx1.5}$	Partial discharge voltage, PIN1-6 vs insulated primary wire *acc. to table 24	1.2kVrms
$U_{PDx1.875}$	Partial discharge voltage, PIN1-6 vs insulated primary wire *acc. to table 24	1.5kVrms

\* IEC 61800-5-1:2007

Note2:

The case is Insulation material group III.

When designing the primary wire, be careful of clearance and creepage distance from the input/output terminal.

Note3: Please See Appendix2 for recommended wire configuration