REVISIONS				
REV.	DESCRIPTION		ECN NO.	DATE
Pre-01	FIRST RELEASE FOR RFQ#F2022-00853.		N/A	03/02/23

Special Characteristic Symbols

●	SAFETY
◒	CRITICAL
◱	IMPORTANT

In case of contradicting requirements the following priority is valid:

- legal requirements

- specification

- drawing

- other applicable documents

Automotive Application **HALOGEN-FREE** **ELV**

A35V00144F Lead free and RoHS compliant per EU Directive 2011/65/EU

Alcom electronics A STELIAU TECHNOLOGY COMPANY

Singel 3 | B-2550 Kontich | Belgium| Tel.+32(0)3 458 30 33
info@alcom.be | www.alcom.be
Rivium 1e straat 52 | 2909 LE Capelle aan den IJssel | The Netherlands
Tel.+31(0)10 288 25 00 | info@alcom.nl | www.alcom.nl

PAGE 7 IS FOR INTERNAL ONLY

TITLE
AMOD,RCD, CURRENT SENSOR

WARNING !

ALL SHEETS OF THIS DOCUMENT ARE CONTROLLED DOCUMENTATION AND ARE NOT TO BE RELEASED OUTSIDE OF E&E OR ITS SUB-CONTRACTORS WITHOUT AUTHORIZATION.

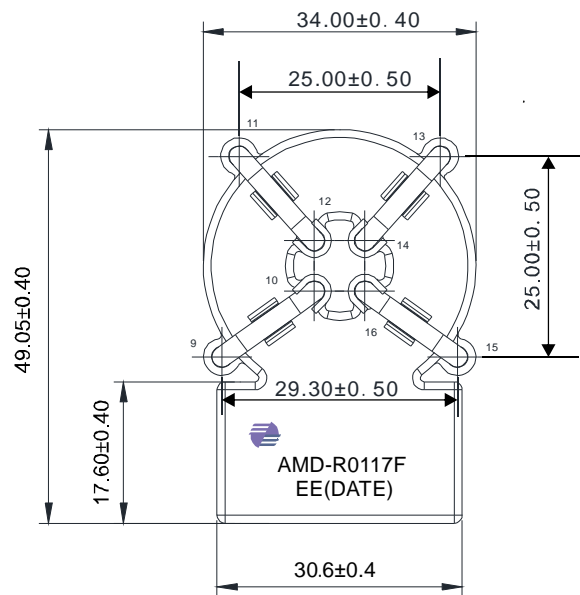UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCH/mm.

TOLERANCE ARE:

INCH	mm	ANGLE
.XXX ± .005	.XX ± .13	X.X ± 0.3
.XX ± .02	.X ± .5	X. ± 1

APPROVALS		DATE
DRAWN BY	K.DENG	03/02/23
PROJ. ENG	K.DENG	03/02/23
APPROVED BY	J.YANG	03/02/23
Q.A.	W.ZHANG	03/02/23

E & E Magnetic Products Ltd.

DRAWING NO./MODEL	REV
AMD-R0117F	Pre-01

SCALE DO NOT SCALE	PAGE 1	OF 7

Top view

34.00±0.40
25.00±0.50
25.00±0.50
49.05±0.40
17.60±0.40
29.30±0.50
30.6±0.4

11   13
12
14
10
9   16   15

AMD-R0117F
EE(DATE)

Side view

3.50±0.50
0.70
2.50
12.85
17.85

Bottom view

14.68
12.53
11.40
4xØ2.50
3xØ1.35
13.67
6.30
47.60
29.54
6.30
6x1.90
4x1.90

1 2
3 4
5 6
7 8
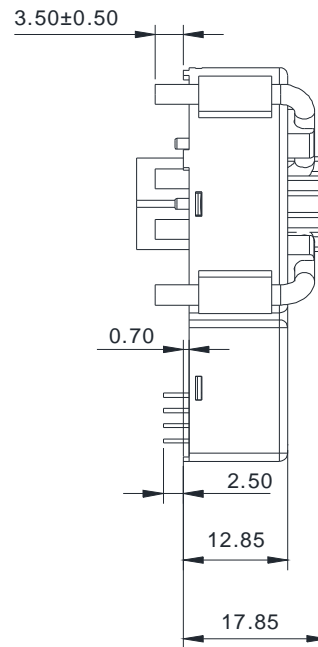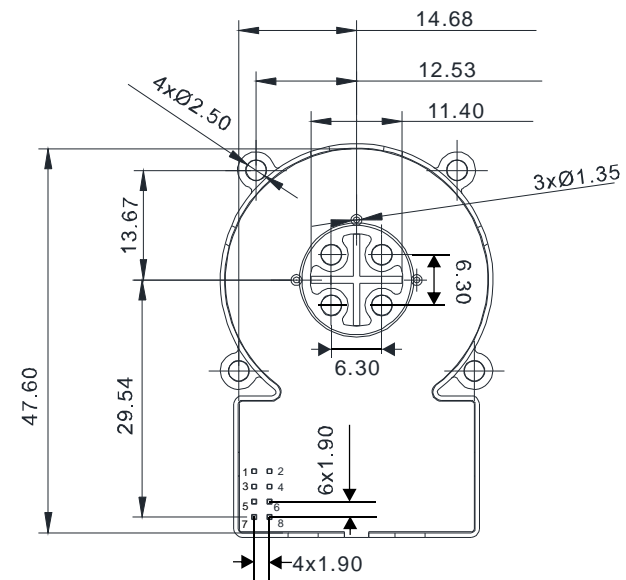
Connections
PIN1-8: 0.5X0.5mm
PIN 9-16: Ø2.5MM

MECHANICAL OUTLINE

1. Dimension are specified in mm.

2. Unless otherwise specified, all tolerance are ± 0.25.

3. "(DATE)" includes at least the manufacturing date code(in YYWW format) plus manufacturing site code.

E & E Magnetic Products Ltd.

DRAWING NO./MODEL		REV
AMD-R0177F		Pre-01

SCALE	PAGE	OF	
DO NOT SCALE	2		7

4: FEATURES

- · PCB mounted RCD module
- · Excellent accuracy
- · Fluxgate current sensor with toroidal core
- · Switching open-collector outputs
- · Compact design

5：APPLICATIONS

Mainly used for stationary and mobile applications:

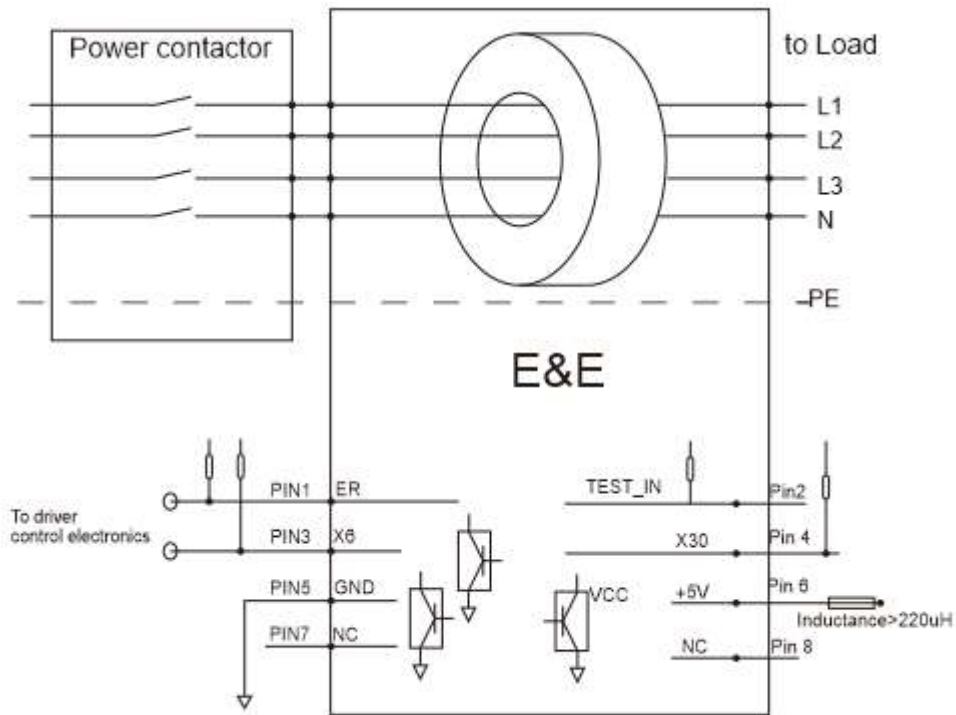- · IC-CPD acc. to IEC62752
- · Compliance With IEC62955

6：TYPICAL APPLICATION DIAGRAM:

General description of sensor function:

The Sensor is sensitive to AC and DC current and can be used for fault current detection in IC-CPD applications.

The Sensor detects AC and DC fault currents according to IEC62752:2016. In the event of a DC fault current, PIN 3 will change its state from a low level (GND) to high impedance state. In the event of an AC fault current, PINs 3 and 4 will change state from a low level (GND) to a high impedance state. Error conditions (e.g. an internal error) are signaled by PIN 1 (ERROR-OUT) which changes state to high impedance state.

DRAWING NO./MODEL	REV
AMD-R0117F	PRE-01
SCALE	PAGE
DO NOT SCALE	3 OF 7

X6(PIN3)	X30(PIN4)	ER(PIN1)	State
GND	GND	GND	Normal condition
High Impedance	GND	GND	≥6mADC
High Impedance	High Impedance	GND	≥30mArms
High Impedance	High Impedance	High Impedance	ERROR

PIN description:	
PIN no.	Description
PIN 1 --> ERROR-OUT (open collector output)	If no system fault is detected, the output PIN 1 is at low level (GND). If a system fault is detected, PIN is at high impedance state. In this case, PINs 3 and 4 will be set to a high impedance state too
PIN2-->TEST_IN(refer to figure)	A function test is activated if this PIN is connected to GND Attention: During the functional test no differential current shall flow. If a push-pull switch is used, the voltage range must be 0V..5V.
PIN 3 --> X6-OUT (open collector output)	If the residual current is below 6mA dc and no system fault occurs the output on PIN 3 is a low level (GND). In any other case output PIN 3 is in a high impedance state. If PIN 4 is high impedance, PIN 3 will also be set to high impedance.
PIN 4 --> X30-OUT (open collector output)	If the residual current is below the 30mA rms. and no system fault occur the output on PIN 4 is a low level (GND). In any other case PINs 3 and 4 are in a high impedance state.
PIN 5 --> GND	Ground connection
PIN 6 --> VCC	Positive supply voltage
PIN 7 --> N.C.	Not Connected
PIN 8 --> N.C.	Not Connected
PIN 9 -- PIN16	For primary wires connection

7： ELECTRICAL SPECIFICATION

Symbol	Parameter	Condition	min.	typ.	max.	Unit	remark
I_P	Primary rated current (1phase / 3phase)			32	40	A	
$I_{\Delta N,max}$	Measuring range (peak)		-300		300	mA	
f_{BW}	Frequency range		DC		2	kHz	
$I_{\Delta N1}$	Rated residual operating current 1		3.5	4.8	6	mA DC	
$I_{\Delta N2}$	Rated residual operating current 2		20	25	30[1]/ 420[2]	mA RMS	(1)f = DC to 150Hz (2) f = 150Hz to 2kHz
T_r	Response time	AC: In=1*IΔN2		150	300	ms	Interrupting Time according to IEC62752 (E)-1:2016 Table 2 + 3
		AC: In=2*IΔN2		90	150		
		AC: In=5*IΔN2		25	40		
		DC: In=1*IΔN1		300	10000		
		DC: In=10*IΔN1		90	300		
		DC: In=50*IΔN1		25	40		
$I_{\Delta RI1}$	Hysteresis recovery current level for IΔN1 (absolute value dc)			2.5		mA	X6 will remain in their states until IΔ is below the recovery threshold IΔRI1
$I_{\Delta RI2}$	Hysteresis recovery current level for IΔN2 (absolute value rms)			10		mA	X30 will remain in their states until IΔ is below the recovery threshold IΔRI2
V_{CC}	Supply voltage		4.8	5	5.2	V	
I_{CC}	Consumption current		TBD		TBD	mA	
T_A	Ambient operation temperature		-40		85	°C	

DRAWING NO./MODEL	REV
AMD-R0117F	PRE-01
SCALE	PAGE
DO NOT SCALE	5 OF 7

Elec & Eltek 依 利 安 達
E & E Magnetic Products Limited

Absolute maximum ratings

Symbol	Parameter	Condition	min.	typ.	max.	Unit	remark
V_{CE}	Collector-Emitter voltage (PINs 1, 3 and 4)				40	V	
I_C	Collector current (PINs 1, 3 and 4)				50	mA	
U_{MAX}	Maximum rated voltage of primary conductors				440	V	

Figure:

After activating the test sequence, the end product has to monitor the correct state of the outputs being used at the following points in time.