Descriptive Report

MASTER CONTRACT: 271907
REPORT: 80188894
PROJECT: 80188894

Edition 1: November 29, 2024; Project 80188894 - Shanghai
Prepared By: Magnus Chen
Authorized By: Tracy Geng

Contents:

PRODUCTS

Electric Energy Meter

Model(s)	Input Voltage (VAC)	Phase	Frequency (Hz)	Category	Input Power (W)
ADL200N-CT	110-240	Single phase	50/60	CAT III	2
ADL400N-CT	L-N: 110-277, L-L: 190-480	Three phase	50/60	CAT III	2

Notes:
1. The above model is permanently connected, Equipment Class II, Pollution Degree 2, Installation/ Measurement Category III.
2. Mode of operation: Continuous
3. Environmental Conditions: Operating temperature -40 to 70°C, Operating altitude up to 2000m max, Operating humidity 95%RH non-condensation.
4. The main supply cord sets are not provided with the equipment.

1st Floor, Building 4, Qilai Industrial City, 889 Yishan Road, Shanghai, 200233 China
Telephone: (86)21.33688282 Fax: (86)21.33688122 www.csagroup.org

APPLICABLE REQUIREMENTS

Standards Used	Description
CAN/CSA C22.2 No. 61010-1-12, UPD1:2015, UPD2:2016, AMD1:2018	Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements
ANSI/UL 61010-1 3rd Edition (2012), AMD1:2018	UL Standard for Safety Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements
CSA C22.2 No. 61010-2-030:18	Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 2-030: Particular requirements for equipment having testing or measuring circuits - Second Edition
UL 61010-2-030, 2nd Edition (2018)	UL Standard for Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 2-030: Particular Requirements for Equipment Having Testing or Measuring Circuits

MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

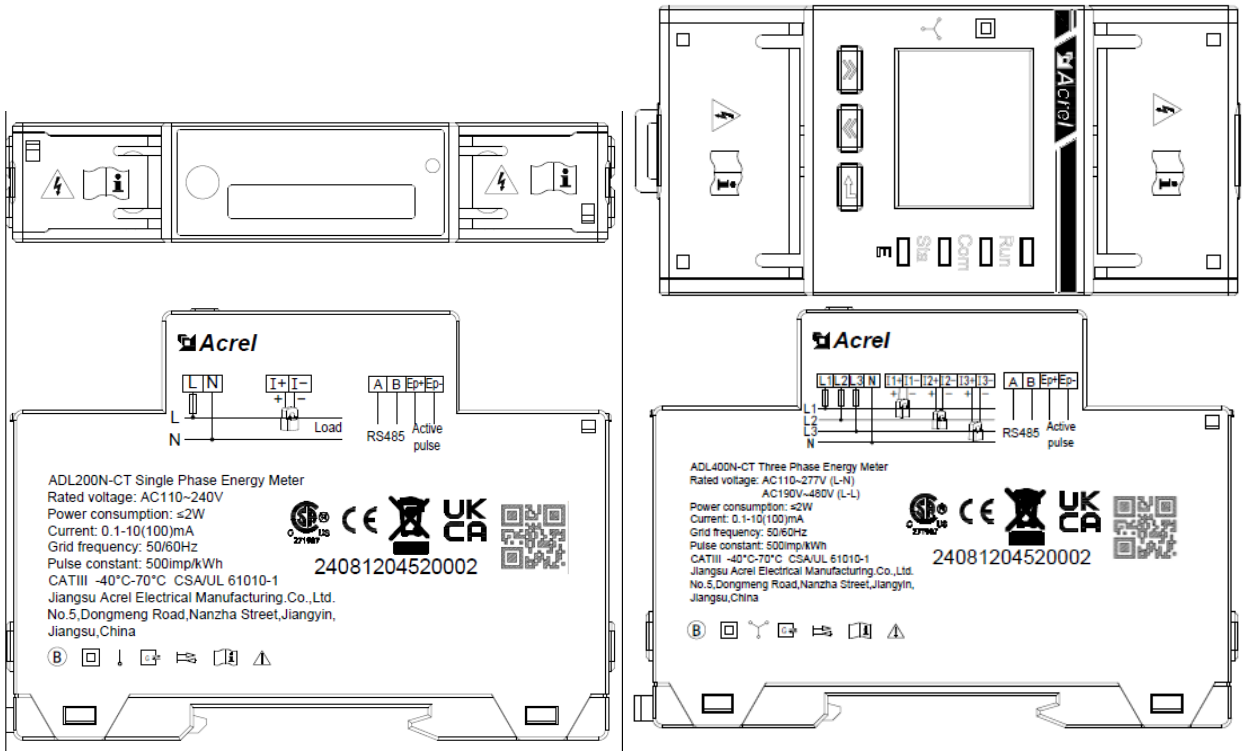
Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

The following markings appear on the product:

1. Submittor's identification (company name and/or file number and/or registered tradename);
2. Marking on the unit that indicates the manufacturing location if the equipment is manufactured at more than one factory location;
3. Model designation;
4. Electrical ratings;
5. Date of manufacture: Month and year of manufacture or date code. If a serial number is used instead of date of manufacture, a record of serial numbers shall be kept traceable to date of manufacture. (Not related to date of sale);
6. The products listed are eligible to bear the CSA Mark shown with adjacent indicators ‘C’ and ‘US’ for Canada and US, or with adjacent indicator ‘US’ for US only, or without either indicator for Canada only: , or , or ;
7. Neutral is identified by the letter "N"
8. The symbol IEC 60417 No 5172 identifying Class II equipment, protected by double or reinforced insulation
9. The caution symbol ISO 7000 No 0434A is marked on nameplate
10. Electric shock hazards are identified with symbol on nameplate

Nameplate:



DOCUMENTATION:

Equipment is accompanied by the following documentation. Unless noted otherwise, the information is provided in print format.

General:

Technical specifications, instructions for use and details of where technical assistance may be obtained if required.

Equipment Ratings:

This includes equipment supply, description of I/O connections, duty cycle and operating environmental conditions.

1. Pollution degree 2;
2. Installation/Measurement category III;
3. Altitude 2000m;
4. Operating humidity 95% RH (non-condensing)
5. Electrical supply: 50/60Hz, 2W
   ADL200N-CT: 110-240Vac
   ADL400N-CT: L-N: 110-277Vac, L-L: 190-480Vac
6. Indoor use statement;
7. Temperature -40°C to 70°C;
8. Statement advising that mains supply voltage fluctuations are not to exceed ± 10 % of the nominal supply voltage

Equipment Installation:

This includes instructions for assembly and mounting, location requirements.

PERMANENTLY CONNECTED EQUIPMENT requires the special considerations to satisfy the CEC, NEC and the Canadian deviations in the standard, including overcurrent and fault protection as required.

For safety reasons, a fuse with a rated current of 5A needs to be connected to the voltage input terminal.

Equipment intended for use with field installed current transformers, where the transformer is intended to be installed in panel boards or switchgears, shall include the following statements:

a) ″Always open or disconnect circuit from power-distribution system (or service) of building before installing or servicing current transformers″.

b) ″The current transformers may not be installed in equipment where they exceed 75 percent of the wiring space of any cross-sectional area within the equipment″.

c) ″Restrict installation of current transformer in an area where it would block ventilation openings″.

d) ″Restrict installation of current transformer in an area of breaker arc venting″.

e) ″Not suitable for Class 2 wiring methods″ and ″Not intended for connection to Class 2 equipment″.

f) ″Secure current transformer and route conductors so that the conductors do not directly contact live terminals or bus″.

g) The word ″WARNING″ and the following or equivalent statement: ″To reduce the risk of electric shock, always open or disconnect circuit from powerdistribution system (or service) or building before installing or servicing current transformers″.


Use Copper Conductors Only


the specific manufacturers name and model designations of the current transformers that have been tested for use with the equipment

Equipment Operation:

This includes explanations of operating controls and warning symbols used, and instructions for interconnection, replacement of consumables (e.g. paper) and cleaning and decontamination as required.

1. List of accessories which meet the manufacturer’s specifications to be used;
2. Guidance on how to determine that the equipment is functioning correctly;
3. Statement that, if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Equipment Maintenance and Service:

This includes instructions for preventative maintenance, inspection and cleaning, replacement of parts, etc.

1. Instructions on the following subjects shall be provided for service personnel, as necessary
   (NOTE: Instructions for service personnel need not be supplied, but should be made available to service personnel).

Verification of the safe state of the equipment after service

Nameplate adhesive label material approval information:

N/A, laser engraving.

ALTERATIONS

a) Markings and documentation, as noted above, appear on and with each unit respectively.

FACTORY TESTS

Applicable Factory Test (indicate by X)	Type of Factory Test
X	Dielectric Voltage Withstand Test: (a) Test voltages are raised to the specified value within 5 sec and maintained for 2 sec. (b) Test voltage is specified below for Installation Category III. For equipment to be supplied by other mains sources, refer to table F.1. (c) The factory test may be done at existing room temperature; equipment is not normally energized. Warning: The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury. For units rated above 150V and up to 300V: The equipment at the conclusion of manufacture, before shipment, shall withstand without breakdown, the application of 2200V ac or 3100V dc between mains TERMINALS and ACCESSIBLE conductive parts.

SPECIAL INSTRUCTIONS FOR FIELD SERVICES

1. Component descriptions marked with either the "(INT)" or "(INT*)" identifiers may be substituted with other components providing the requirements specified under the notes in the "Description" are complied with.

COMPONENT SPECIAL PICKUP

1. Component descriptions marked with the identifier "(CT)" are subject to annual pickup and Conformity Testing.

DESCRIPTION

Notes:

1. Component Substitution
   a) Critical components (those identified by mfr name, cat no), which are NOT identified with either "INT" or "INT*" are not eligible for substitution without evaluation and report updating
   b) The term "INT" means a "Certified" and/or "Listed" (or a "Recognized" and/or "Accepted") component may be replaced by one "Certified" and/or "Listed" by another certification organization accredited by the appropriate accreditation body or scheme requirements to the correct standard, for the same application; providing the applicable country identifiers are included and requirements in item "d" below are complied with.
   c) The Term "(INT*)" means a "Recognized" and/or "Accepted" component may be replaced by a component that is CSA Certified. The applicable country identifiers shall be included, the requirements in item "d" below as well as any "conditions of suitability" for the component (as recorded in this descriptive report) shall be complied with;
   d) Components which have been substituted, must be of an equivalent rating, configuration (size, orientation, mounting) and the applicable minimum creepage and clearance distances are to be maintained from live parts to bonded metal parts and secondary parts.
   e) Substitution of a "Certified" and/or "Listed" component with a component that is "Recognized" or "Accepted" is not permitted without evaluation and report updating.
   f) Substitution of a "Recognized" and/or "Accepted" component by one that is not CSA Certified is not permitted without a proper evaluation as well as a report update because the Conditions of Acceptance of the original component may be different than the Conditions of Acceptance of the substitute component.

General:

DIN-Rail Mounted Electric Energy Meter, Models ADL200N-CT and ADL400N-CT. Which collects energy generation/consumption data and delivers it via RS485.

Accessories:

Current Transformer

Model AKH-0.66-K-Φ10, Rated 80A/26.67mA

Model AKH-0.66-K-Φ16, Rated 120A/40mA

Model AKH-0.66-K-Φ24T, Rated 200A/66.67mA

Model AKH-0.66-K-Φ36T, Rated 300A/100mA

The equipment is provided with the following construction details:

Equipment particulars:	
Type of item .....:	Measurement
Connection to MAINS supply.....:	Permanent
Overvoltage category .....:	III
POLLUTION DEGREE.....:	2
Means of protection.....:	Class II (isolated)
Environmental conditions .....:	Normal / Extended (Specify): up to 2000m altitude, 95%RH non-condensation, -40 to +70°C operating ambient

For use in wet locations.....:	No
Equipment mobility.....:	Rail Mounted
Operating conditions.....:	Continuous
Overall size of equipment (W x D x H) .....:	ADL200N-CT: 18 mm x 65 mm x 90 mm ADL400N-CT: 45 mm x 65 mm x 90 mm
Mass of equipment (kg).....:	ADL200N-CT: 28g ADL400N-CT: 143g
Marked degree of protection to IEC 60529.....:	N/A

List of critical component

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
Models ADL200N-CT						
-	Front panel (transparent screen plastic and flip on terminal)	MITSUBISHI ENGINEERING-PLASTICS CORP	S-3000VR	V-2, Min 2mm thick, 115 ºC	C22.2 No. 0.17 UL94, UL746B	cURus E41179
-	Housing	ZHEN JIANG CHI MEI CHEMICAL CO LTD	PC-6610	V-0, Min 2mm thick, 115 ºC	C22.2 No. 0.17 UL94, UL746B	cURus E194560
RS485、EP	Terminal Block	PHOENIX CONTACT GmbH & Co. KG	BC-500X10- 2	30 – 14 AWG, 300 V, 10 A,	C22.2 No. 158 UL 1059	cURus E60425
L, N, I+, I-	Terminal Block	GAOZHENG GROUP	-	M3 screw	-	-
-	PWB (INT)	Palwonn Electronics (Shenzhen) Co Ltd	M3	Minimum V-0, 130ºC, CTI>=175	CSA No. 0.17 UL796	cURus E230435
C55	Electrolytic Capacitors	Interchangeable	Interchangeable	Electrolytic type, min.400V, Min.2.2uf, Min. 105 ºC	-	
T1	Transformer	GuangDong Misun Technology CO.,LTD	EPC13	Class B	-	-
-Insulation system	-Insulation system	SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD	KZHD-130	Class B	UL 1446	UR E497824
	-Bobbin	CHANG CHUN PLASTICS CO LTD	T200HF	Min 0.38mm thick, V-0, 150°C	C22.2 No. 0.17 UL94, UL746B	cURus E59481
	-Alternative Bobbin	SUMITOMO BAKELITE CO LTD	PM9820	Min 0.16mm thick, V-0, 150°C	C22.2 No. 0.17 UL94, UL746B	cURus E41429

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
winding between pin F1-F2, 9-10	-Triple insulated wire	SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD	TIW-B	130°C	UL2353	UR E357240
winding between pin F1-F2, 9-10	-Alternative insulated wire	HEYUAN KOSHEN INSULATOR CO LTD	TIW-B1	130°C	UL2353	UR E365580
winding between pin 2-4	-Magnet wire	PACIFIC ELECTRIC WIRE & CABLE CO LTD	UEF1/U	155°C	UL 1446	UR E201757
winding between pin 2-4	-Alternative magnet wire	GUANGDONG SUNTEK WIRE CO.,LTD	xUEW155	155°C	UL 1446	UR E234867
winding between pin 2-4	-Alternative magnet wire	BO LUO DIAN XING METAL WIRE CO LTD	xFSW	155°C	UL 1446	UR E511777
-	-Tape	DONGGUAN SHIN YAHUA ELECTRONIC CO LTD	CT280	130°C	UL510A	UR E324093
-	-Alternative tape	SHEN ZHEN XINHUAHUI ELECTRONIC CO LTD	HMT803	130°C	UL510A	UR E328315
-	-Tube	CHANGYUAN ELECTRONICS GROUP CO, LTD	CB-TT-L	200°C	UL 224	UR E180908
-	-Alternative tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL	200°C	UL 224	UR E156256
-	-Varnish	YUE YANG GREEN TECHNOLOGY CO LTD	JX-1150	155°C	UL1446	UR E303754

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
-	-Alternative varnish	DONG GUAN SHI PAI HUA CHUANG MATERIAL FTY	H907-HF-Z	130°C	UL1446	UR E304477
U1, U2, U3	Optical Isolator	LITE-ON TECHNOLOGY CORP	LTV-816	Isolation voltage 5300 V, max. operating temperature 115 ºC	CSA CA No.5A UL1577	cURus E113898
U6	Optical Isolator	EVERLIGHT ELECTRONICS CO LTD	EL1019	Isolation voltage 5000 V, max. operating temperature 110 ºC	CSA CA No.5A UL1577	cURus E214129
C2	Y Capacitor	Sichuan TRX Technology Co.,Ltd.	TRX	Y1 Capacitor, 2.2nF	CAN/CSA E60384-14 UL 60384-14	cURus E315719
-	LCD	JIANGSU SMARTWIN ELECTRONICS TECHNOLOGY CO.,LTD	SDH-M15367-RP-2	3.3V-WB-30.2X9.7-A-SDH-M15367-RP-2 -40°C~+70°C 3.3V	--	--
D10-D13	Bridge Diode	Yangzhou Yangjie Electronic Technology Co., Ltd.	EM520	1A,1600V	-	-
IC1	PWM	Power Integrations, Inc.	TNY286	-	-	-
R39, R40	Burden resistor	-	-	Each resistor 2Ω Power：MAX:0.125W	-	-
J5	Insulation of Connectors	MITSUI CHEMICALS INC	E630N(e1)(r5)	Min 0.75mm thick, V-0, RTI110	CSA-C22.2 N0. 0.17 UL94, UL746B	cURus E52579
J9	Connectors	CHANG CHUN PLASTICS CO LTD	4830	Min 3.0mm thick, V-0, RTI120	CSA-C22.2 N0. 0.17 UL94, UL746B	cURus E59481

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
RTV1	SURGE-PROTECTIVE DEVICES	HUNAN JINYANG ELECTRIC CO LTD	MZ11-06D150-500RM/7D471	SPD Type 4CA, MCOV 300V	C22.2 No. 269.4 UL 1449	E481249

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
Models ADL400N-CT						
-	Front panel (transparent screen plastic and flip on terminal)	MITSUBISHI ENGINEERING-PLASTICS CORP	S-3000VR	V-2, Min 2mm thick, 115 ºC	C22.2 No. 0.17 UL94, UL746B	cURus E41179
-	Housing	ZHEN JIANG CHI MEI CHEMICAL CO LTD	PC-6610	V-0, Min 2mm thick, 115 ºC	C22.2 No. 0.17 UL94, UL746B	cURus E194560
RS485, EP (Grey terminal)	Terminal Block	PHOENIX CONTACT GmbH & Co. KG	BC-500X10-2 GY	30 – 14 AWG, CU ONLY, FW 2, Tightening Torque 5 Lb.In., Max. 300 V, Max 10 A, Use Group D, 105 degree C	UL 1059	E60425 (XCFR2/ XCFR8)
L1, L2, L3, N, I+, I- (Green terminal)	Terminal Block	Anytek Technology Corp.	VJ	12-30, Sol/Str, CU ONLY, FW 2, Torque, in-lbs (N-m) 3.5 (0.4) , Max. 300,Max 10 A , Use Group B, D, CA 2 (120), 4	UL 1059	E202113
-	PWB	Palwonn Electronics (Shenzhen) Co Ltd	M3	Minimum V-0, 130ºC, CTI>=175	CSA No. 0.17 UL796	cURus E230435

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
C1, C2	Electrolytic Capacitors	Interchangeable	Interchangeable	Electrolytic type, min.450V, Min.10uf, Min. 105 ºC	-	-
T1	Transformer	WUXI WATTECH ELECTRONIC TECHNOLOGY CO.,LTD	TDEI 5.784.197A	Class A	-	-
-	-Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	Phenolic, black, V-0,150 ºC, minimum 0.43 mm thick, CTI=3	CSA No. 0.17 UL94, UL746B	cURus E59481
winding between pin 1-2, 9-10	-Triple insulated wire	GREAT LEOFLON INDUSTRIAL COL LTD	TRW(B)	130 ºC	UL2353	UR E211989
winding between pin 5-6	-Magnet wire	Interchangeable	Interchangeable	155 °C, ANSI Type MW79C/MW80C	UL 1446	UL (OBMW2)
	-Tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT*(b)(g)	Rated 130 ºC, CTI=2	UL510A	UL / E165111 (OANZ2)
	-Tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL	150V 200°C	UL 224	UL /E156256 (YDPU2)
	-Varnish	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	T-4260(a)	Min. 130°C	UL1446	UL / E228349
U1, U2, U3, U4	Optical Isolator	LITE-ON TECHNOLOGY CORP	LTV-816	Isolation voltage 5300 V, max. operating temperature 115 ºC	CSA CA No.5A UL1577	cURus E113898
C7	Y Capacitor	Suzhou Jiarong Electronic Technology Co Ltd	RA	2.2nF, Y1 capacitor	CAN/CSA E60384-14 UL 60384-14	cURus E525281

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
-	LCD	JIANGSU SMARTWIN ELECTRONICS TECHNOLOGY CO.,LTD	SDH-M15201-RP-5	3.3V-GB-26.5X27.00-A-SDH-M15201-RP-5- -40℃～80℃ 3.3V	--	--
J3, J4	Connectors	MITSUI CHEMICALS INC	E430N(#) (r3)	V-0, min. 3.0mm thick, 120ºC	CSA No. 0.17 UL94, UL746B	cURus E52579
-	Panel Button plastic	JIANGSU PEARL SILICONE RUBBER MATERIAL CO LTD	HD-87XX	Gray, min 1.1mm thick, V-0, 150°C	CSA No. 0.17 UL94, UL746B	cURus E231325
D1, D2, D6, D7, D10, D12, D14, D15	Bridge Diode	Yangzhou Yangjie Electronic Technology Co., Ltd.	EM520	1A,1600V	-	-
IC1	PWM	Power Integrations, Inc.	TNY286	-	-	-
VT1	MOSFET	Bridgelux WuXi R&D CO.,LTD	BZT52C15	-	-	-
R21, R23, R27, R28, R33, R34	Burden resistor	-	-	Each resistor 2 Ω Power：MAX:0.125W	-	-

Accessories

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
Current Transformer	Current Transformer	Acrel	AKH-0.66 K-Φ10	80A/26.7mA	CSA/UL 61010-1	Tested in unit
-Enclosure	Enclosure	SABIC JAPAN L L C	945(GG)	Min 1.0mm, V-0, RTI120	UL 94 UL 746C CSA-C22.2 N0. 0.17	cURus E207780
-Bobbin	Bobbin	SABIC JAPAN L L C	945(GG)	Min 1.0mm, V-0, RTI120	UL 94 UL 746C	cURus E207780

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
					CSA-C22.2 N0. 0.17	
-Winding	Winding	NINGBO JINTIAN NEW MATERIAL CO LTD	QA-x/155	155°C	UL1446	cURus E227047
-Lead Wire INT	Lead Wire	Wuxi Swell Electric Co Ltd	1007	24AWG, 300V, 80°C, VW-1	CSA No. 127 UL 758	cURus E484530
-Transient Voltage Suppressor	Transient Voltage Suppressor	VISHAY	P6KE6.8CA	Bidirectional, breakdown voltage 6.45 to 7.14V, clamp voltage 10.5V, 175°C	CSA/UL 61010-1	Tested in unit
-Heat Shrinkable Bushing	Heat Shrinkable Bushing	GUANGZHOU KAIHENG NEW MATERIAL CO LTD	K-102	600V, 125°C, VW-1	C22.2 No. 198.1 UL224	cURus E321827
-Insulation Tape	Insulation Tape	JINGJIANG HENG HE RUBBER INDUSTRY CO LTD	PETH	130°C	UL510A	UR E219145
Current Transformer	Current Transformer	Acrel	AKH-0.66-K-Φ16	120A/40mA, Critical component list of this CT is same with AKH-0.66 K-Φ10	CSA/UL 61010-1	Tested in unit
Current Transformer	Current Transformer	Acrel	AKH-0.66-K-Φ24T	200A, 66.67mA	CSA/UL 61010-1	Tested in unit
-Enclosure	Enclosure	SABIC JAPAN L L C	945(GG)	Min 1.0mm, V-0, RTI120	UL 94 UL 746C CSA-C22.2 N0. 0.17	cURus E207780
-Winding	Winding	NINGBO JINTIAN NEW MATERIAL CO LTD	QA-x/155	155°C	UL1446	cURus E227047
-Lead Wire INT	Lead Wire	CHUANG FENG CABLE CO LTD JIANGSU	2464	22AWG, 300V, 80°C, VW-1	CSA No. 127 UL 758	cURus E334268

Unique component reference or location	Application / function	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity evidence of acceptance
-Transient Voltage Suppressor	Transient Voltage Suppressor	HANGZHOU DONGWO ELECTRONIC TECHNOLOGY CO.,LTD	P4KE6.8CA	Bidirectional, breakdown voltage 6.46 to 7.14V, clamp voltage 10.5V, 175℃	CSA/UL 61010-1	Tested in unit
-Heat Shrinkable Bushing	Heat Shrinkable Bushing	GUANGZHOU KAIHENG NEW MATERIAL CO LTD	K-102	600V, 125℃, VW-1	C22.2 No. 198.1 UL224	cURus E321827
-Insulation Tape	Insulation Tape	JINGJIANG HENG HE RUBBER INDUSTRY CO LTD	PETH	130℃	UL510A	UR E219145
Current Transformer	Current Transformer	Acrel	AKH-0.66-K-Φ36T	300A/100mA, Critical component list of this CT is same with AKH-0.66-K-Φ24T	CSA/UL 61010-1	Tested in unit

TEST HISTORY

Project 80188894

cCSAus certification of Electric Energy Meter

The tests summarized below were witness tested with satisfactory results on models ADL200N-CT and ADL400N-CT.

Detailed test results are on file at CSA.

Test Location: CCIC-CSA International Certification Co. Ltd. Shanghai Branch/ Floor 1, Building 4, Qilai Industrial City, 889 Yishan Road, Shanghai 200233, China

Test Requirements:
CAN/CSA-C22.2 No. 61010-1-12, UPD1: 2015, UPD2: 2016, AMD1: 2018;
UL 61010-1, 3rd Ed (2012), AMD1: 2018;
CAN/CSA-C22.2 No. 61010-2-030:18;
UL61010-2-030 Second Edition.

IEC 61010-1 Check List:

Clause	Requirement + Test	Result – Remark	Test conducted		
			P	F	N/A
4.4.1	Fault tests	(see Form A.1) - TCP	X		
4.4.2.2	Protective Impedance	(See Form A.1, A.12 & A.15)			X
4.4.2.3	PROTECTIVE CONDUCTOR	(See Form A.6)			X
4.4.2.4	Equipment or parts for short-term or intermittent operation	(See Form A.1)			X
4.4.2.5	Motors	(See Form A.1 & A.26B)			X
4.4.2.6	Capacitors	(See Form A.1)			X
4.4.2.7.2	Short circuit	Form A.39 - TCP			X
4.4.2.7.3	Overload	Form A.40 - TCP			X
4.4.2.8	Outputs	(See Form A.1)	X		
4.4.2.9	Equipment for more than one supply	Form A.1			X
4.4.2.10a	Cooling: air-holes with filters shall be closed	(See Form A.1) - TCP			X
4.4.2.10b	Cooling: forced cooling by motor-driven fans shall be stopped	(See Form A.1) - TCP			X
4.4.2.11	Heating devices	Form A.1			X
4.4.2.12	Insulation between circuits and parts	Form A.1			X
4.4.2.13	Interlocks	Form A.1			X
4.4.2.14	Voltage Selector	(See Form A.1) - TCP			X

Clause	Requirement + Test	Result – Remark	Test conducted		
			P	F	N/A
4.4.3	Duration of tests	(See Form A.1)	X		
4.4.4	Conformity after application of fault conditions	(See Forms A.1; A.6 and A.18)	X		
5.1.3c)	MAINS supply	(See Form A.2) - TCP	X		
5.1.8	Field-wiring TERMINAL boxes	(See Form A.26A)			X
5.3	Durability of markings	(See Form A.3)	X		
6.2.1	Determination of ACCESSIBLE parts – General	(See Form A.5)	X		
6.2.2	Determination of ACCESSIBLE parts – Examination	(See Form A.5)	X		
6.2.3	Determination of ACCESSIBLE parts – Openings above parts that are hazardous live	(See Form A.5)			X
6.2.4	Determination of ACCESSIBLE parts – Openings for pre-set controls	(See Form A.5)			X
6.3.1	Levels in NORMAL CONDITION	(See Form A.5)	X		
6.3.2	Levels in SINGLE FAULT CONDITION	(See Form A.6)	X		
6.4.1b)	Primary means of protection	(See Form A.14/15/18) - TCP	X		
6.4.4	Impedance	(See Forms A.6 & A.15)			X
6.5.2.2	Cross-sectional area of bonding conductors	(See Forms A.7)			X
6.5.2.3	Tightening torque test	(See Forms A.8)			X
6.5.2.4	Bonding impedance of plug connected equipment	(See Forms A.9)			X
6.5.2.5	Bonding impedance of permanently connected equipment	(See Forms A.10)			X
6.5.2.6	Transformer PROTECTIVE BONDING screen	(See Form A.11)			X
6.4.3	BASIC INSULATION meet CLEARANCE, CREEPAGE DISTANCE and solid insulation requirements of 6.7	(See Form A.15)	X		
6.5.4	PROTECTIVE IMPEDANCE	(See Form A.1, A.12 & A.15)			X
6.5.6	Current- or voltage-limiting devices	(See Form A.13 & A.15)			X
6.6.1	Connections to external circuits	(See Forms A.14/15/18) - TCP	X		
6.6.2	Connections to external circuits – TERMINALS for external circuits	(See Form A.5)	X		
6.6.4	Connections to external circuits – TERMINALS for stranded conductors		X		
6.7	Insulation requirements	(See Forms A.14 & A.15) - TCP	X		
6.7	Clearances and Creepages	(See Form A.15/16/18) - TCP	X		
6.7.2.2.2	Reliability of potted components	(See Form A.17)			X

Clause	Requirement + Test	Result – Remark	Test conducted		
			P	F	N/A
6.7.2.2.4	Thin-film insulation				X
6.8	Procedure for dielectric strength tests	(See Forms A.14 & A.18) - TCP	X		
6.10.2.2	Cord anchorage	(See Forms A.5 & A.19)			X
7.2	Sharp Edges		X		
7.3.4	Limitation of force and pressure	(See Form A.20)			X
7.3.5	Gap limitations between moving parts	(See Form A.20)			X
7.4 a)	Stability – Other than hand-held	(See Form A.20A)			X
7.4 b)	Stability - >1m & > 25kg & all floor standing equip.	(See Form A.20A)			X
7.4 c)	Stability – Floor standing equipment – maximum moment	(See Form A.20A)			X
7.4 d)	Stability – caster or support load	(See Form A.20A)			X
7.4 e)	Stability –castor or support removal	(See Form A.20A)			X
7.5.2	Handles and grip	(See Annex 1)			X
7.5.3	Lifting devices and supporting parts	(See Annex 6) - TCP			X
8.2.1	ENCLOSURE rigidity test – Static Test	(See Form A.21A)	X		
8.2.2	ENCLOSURE rigidity test – Dynamic Test	(See Form A.21A)	X		
8.3.1	Drop test: Other equipment	(See Form A.21B)			X
8.3.2	Drop test: Hand-held EQUIPMENT and direct plug-in equipment	(See Form A.21B)			X
9.1	No spread of fire in NORMAL and SINGLE FAULT CONDITION	(See Forms A.1 & A.22)	X		
9.2	Eliminating or reducing the sources of ignition within the equipment	(See Forms A.14 & A.18)			X
9.3	Containment of the fire within the equipment, should it occur	(See Form A.22)	X		
9.4	Limited-energy circuit	(See Form A.24)			X
9.5	Requirements for equipment containing or using flammable liquids	(See Form A.25)			X
9.6	Overcurrent protection	(See Forms A.14 & A.15)			X
10	Temperature Measurements	(See Form A.26A) - TCP	X		
10.1	Surface temperature limits for protection against burns	(See Form A.26A) - TCP	X		

Clause	Requirement + Test	Result – Remark	Test conducted		
			P	F	N/A
10.2	Temperature of windings: Insulating material class of windings	(See Forms A.39 and Form A.40) - TCP	X		
10.3	Other temperature measurements	(See Form A.26A) - TCP			X
10.5.1	Integrity of CLEARANCES and CREEPAGE DISTANCES	(see Form A.16)	X		
10.5.2	Resistance to heat of non-metallic ENCLOSURES	(See Form A.27)			X
10.5.3 b)1)	Insulating Material: Ball pressure test	(See Form A.28)			X
10.5.3 b)2)	Insulating Material: Vicat softening test (ISO 306)	(See Form A.29)			X
11.2	Cleaning	(See Form A.30)	X		
11.3	Spillage	(See Form A.30)			X
11.4	Overflow	(See Form A.30)			X
11.5	Battery electrolyte				X
11.6	Specially protected equipment	(See Form A.30)			X
11.7.1	Maximum pressure	(See Form A.31)			X
11.7.2	Leakage and rupture at high pressure	(See Form A.31)			X
11.7.3	Leakage from low-pressure parts	(See Form A.32)			X
11.7.4	Overpressure safety device				X
12.2.1.2	Ionizing Radiation: Equipment intended to emit radiation	(See Form A.33)			X
12.2.1.3	Ionizing Radiation: Equipment not intended to emit radiation	(See Form A.34)			X
12.3	Optical Radiation				X
12.5.1	Sound level	(See Form A.35)			X
12.5.2	Ultrasonic pressure	(See Form A.35)			X
12.6	Laser sources				X
13.2.2	Batteries and battery charging	(See Form A.37)			X
14.2.1	Motor temperatures	(see Forms A.1 and A.26B)			X
14.3	Overtemperature protection devices	(See Form A.38) - TCP			X
14.6	MAINS transformers tested outside equipment	(see Forms A.39 and A.40)			X
14.8	Circuits used to limit TRANSIENT OVERVOLTAGES	(see Form A.41)			X
Note: TCP = Tested Under Current Project					

CAN/CSA-C22.2 No. 61010-1-12, UPD1: 2015, UPD2: 2016, AMD1: 2018;
UL 61010-1, 3rd Ed (2012), AMD1: 2018-National Deviations Check List:

Clause	Requirement + Test	Result - Remark	Test conducted		
			P	F	N/A
5.1.3	Measurement made at each rated voltage		X		
6.5.2.4	Canadian requirement for bonding voltage drop for cord-and-plug connected equipment				X
6.5.2.5	Canadian requirement for bonding voltage drop for permanently-connected equipment				X
6.7.2.2	Requirements for a.c. voltage test with duration of at least 1 minute		X		
6.7.3.4	Solid insulation		X		
6.10.1	Requirements for mains cords, mains connectors, and protective conductors		X		
6.10.3	Requirements for mains plugs and connectors				X
6.10.4DV	Requirements for permanent connection to mains		X		
6.11.5DV	Requirement for polarity of mains connections				X
9.6.1	Requirement for connections to overcurrent device		X		
11.6.3	Protection against solid foreign objects (including dust)				X
11.6.4	Requirements for protection against hazards from fluids				X
11.7.1	Annex G is normative				X
11.7.2	Requirements of ASME Boiler and Pressure Vessel Code apply				X
12.1	Requirements of USA and Canadian radiation regulations apply	(See Form A.35 Sound level)	X		
12.3	Optical radiation				X
14.1	Components to comply with North American or IEC standards where safety is involved		X		
14.7DV	Printed circuit boards		X		
14.9DV	Outdoor-use enclosure to be resistance to UV				X
14.10DV	EMC coatings, shield, and tape are evaluated to US and Can requirements				X
14.11DV	Direct plug-in transformers are evaluated according to US and Can requirements				X

ANNEX E	Guideline for reduction of POLLUTION DEGREES				X
ANNEX G	Leakage and rupture from fluids under pressure				X
ANNEX K	Insulation requirements not covered by 6.7				X
DVA	CSA, UL and IEC component standards		X		
DVC	UV radiation limits				X
DVD	Permanent connection to MAINS				X
DVE	Permanently Installed Equipment				X

IEC 61010-2-030 Checklist

Clause	Requirement + Test	Result – Remark	Verdict		
			P	F	N/A
6.5.2.101	Indirect bonding for test and measuring circuits				X
6.6.101	CLEARANCES and CREEPAGE distances for measuring circuit terminals with HAZADOUS LIVE conductive parts				X
6.6.102 (6.3.2)	Specialized measuring circuits terminal – Values in SINGLE FAULT CONDITION				X
6.9.101	Over range indication test				X
14.101	Transient overvoltage limiting devices				X
101.2	Current measuring circuits – Current transformers		X		
101.2	Current measuring circuits – Range changing switches				X
101.3.2	Certified overcurrent protection device test				X
101.3.3	Uncertified overcurrent protection device test				X
101.3.4	Test leads for the tests of 101.3.2 and 101.3.3				X
Annex K	Insulation of circuits not addressed in 6.7, K.1 or K.2 and measuring circuits where measurement category do not apply				X
Annex AA	Measurement categories				X

Construction Review:

Construction review performed with satisfactory results.

---End of Report---