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ADL100-EY, ADL300-EY

Installation and operation instruction V2.1

ACREL Co,.Ltd

Declare

Acrel reserves the right to modify the product specifications herein without notification. Please consult the local agent about the latest specifications before placing a purchase order.

Content

1 General

ADL100-EY single phase pre-paid meters with intro-control, ADL300-EY three phase pre-paid meters with intro-control are used for calculating the single and three phase active energy respectively on the frequency of 50 Hz. The meter has functions of pre-paid, load controlling and RS485 communication etc. meet the related technical requirements of electronic power meter in the IEC62053-21, IEC62053-22 standards.

2 Product specification

Type	Accuracy class	Reference voltage （V）	Current （A）	Pulse constant （imp/kWh）
ADL100-EY	1	220V	10（60）A	1600
ADL300-EY	0.5s	3×220/380V	3×1（6）A	6400
			3×10（80）A	400

3 Main function

Function name			Function provide
	ADL100-EY	ADL300-EY	
Measurement of kWh	Total active energy kWh (positive and negative in total)		■
Measurement of electrical parameters	U、I 、P、Q、S、PF、F		■
Pre-paid mode	Through RS485 communication prepaid recharge, data encryption		■
Control	Built-in high-capacity sub-holding relay to achieve load on-off control		■
LCD display	8 bits section LCD display		■
Communication	Communication interface: RS485, Communication protocol: MODBUS-RTU		■
Multi-tariff	4 tariff rates, 14 time interval	4 tariff rates, 14 time	□F

	by day	interval by day	

（ ■： means standard; □： means optional）

Note: Pre-paid mode function can only be achieved with the pre-paid system which designed by Acrel Co,.Ltd.

4 Technical parameter

4.1 Electric performance

Technical parameter		ADL100-EY	ADL300-EY
Voltage	Reference voltage	220V	3×220/380V
	Reference frequency	50Hz	
	Consumption	<4VA(Each phase)	
Current	Input current	10(60)A	1(6)A ,10(80)A
	Starting current	Connect directly: 0.004 Ib, connect via CT: 0.002In	
	Consumption	<4VA (Maximum current)	
Measurement performance	Accuracy of measuring	1 Class	0.5s Class
Clock accuracy		Error ≤0.5s/d	
Active pulse	Pulse width	80ms±20ms	
	Pulse constant	1600imp/kWh	6400imp/kWh,400 imp/kWh
Communication	Interface	RS485(A+、B-)	
	Connection mode	Shielded twisted pair conductors	
	Protocol	MODBUS-RTU	

4.2 Mechanical performance

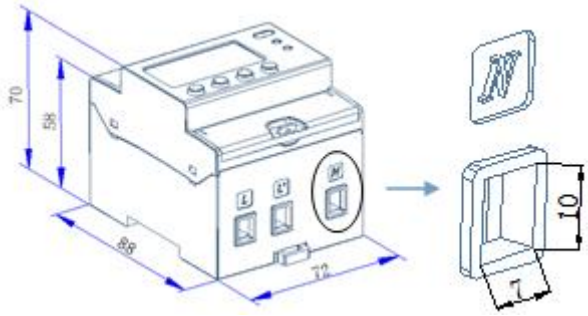
	ADL100-EY	ADL300-EY
Outline (Length × Width × Height)	72mm×88mm×70mm	144mm×88mm×70mm
Maximum wiring ability (flexible cable)	25mm^2	

4. 3 Work environment

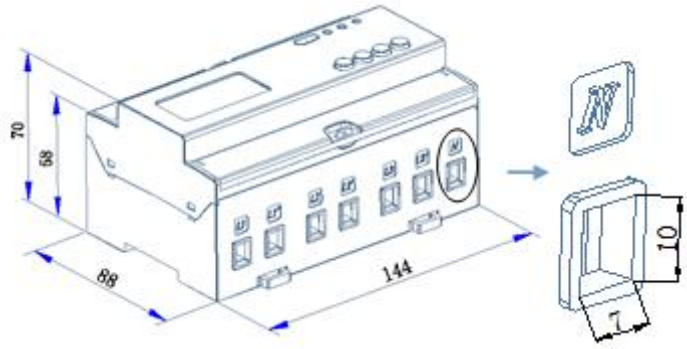
Temperature range	Work temperature	-25℃~55℃
	Storage Temperature	-40℃~70℃
Relative humidity		≤95%(No condensation)
Altitude		<2000m

5 Dimension drawings (Unit: mm)

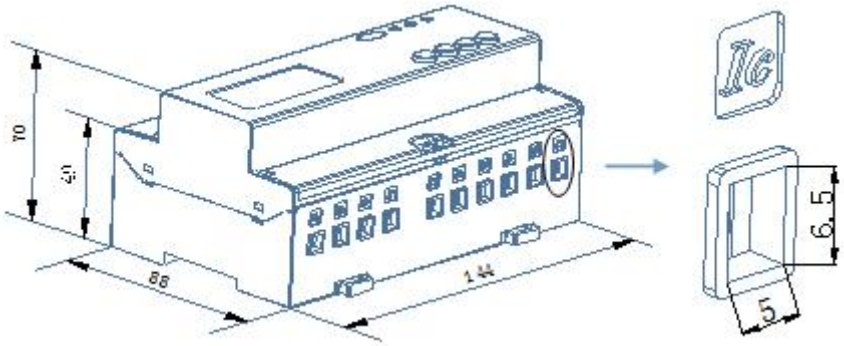
ADL100-EY



ADL300-EY



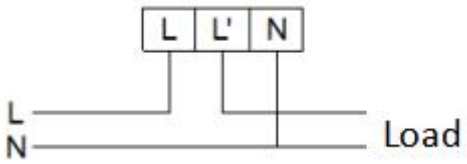
direct connect



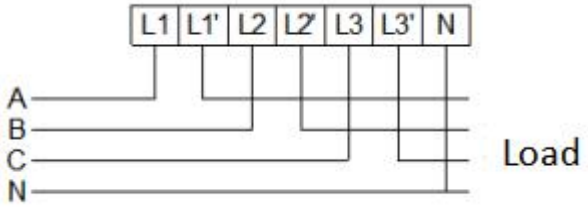
connect via CT

Note：The torque of direct connect should not be greater than 4.0N·m， and the torque of connect via CT should not be greater than 2.0N·m。

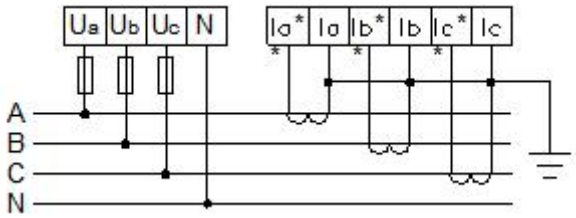
6 Wiring and installing



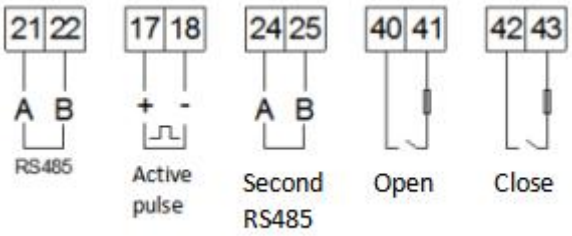
ADL100-EY



ADL300-EY Three phase four lines direct connect



ADL300-EY Three phase four lines connect via CT



Auxiliary function

7 Display and operation

7.1 Display examples

dump energy

Total energy

Voltage display

Current Display

8 Communication description

8.1Communication protocol

The meters adapt Modbus l. Please refer to the relevant standards for more information. The multi-tariff data mean nothing when multi-tariff function (F) is not applied.

8.2 MODBUS address table

ADL100-EY address table

Address	Variable	Length	R/W	Notes
0000H	Current total active energy	4	R	unit: 0.01kWh
0002H	Current spike active energy	4	R	
0004H	Current peak active energy	4	R	
0006H	Current flat active energy	4	R	
0008H	Current valley active energy	4	R	
000AH	Code	2	R/W	
000BH	U Voltage	2	R	
000CH	I Current	2	R	
000DH	P Active power	2	R	unit：0.001Kw
000EH	Q Reactive power	2	R	unit：0.001Kvar
000FH	S Apparent power	2	R	unit：0.001Kva
0010H	PF Power factor	2	R	Calculation factor：0.001 （-1000~1000） effective range （-1000~1000）
0011H	Frequency	2	R	unit：0.01Hz
0012H	Year, month	2	R/W	
0013H	Day, hour	2	R/W	
0014H	Minute, second	2	R/W	
0015H … 003BH	Reserved			
003CH	Current forward total active energy	4	R	
003EH	Current reversing total active energy	4	R	
0040H-035FH	Reserved			
0360H	Main communication：Communication address and baud rate	2	R/W	Address：1~247 Baud rate 0:1200 1:2400 2:4800

				3:9600 4:19200 5:38400
0361H	Check bit/ stop bit	2	R/W	Check bit： 0：None 1：Odd 2：Even stop bit： 0:1 1:1.5 2:2
0362H-0364H	Reserve			
0365H	The second communicate：Communication address and baud rate	2	R/W	The same as the ADL100-EY
0366H	The second communicate：Check bit stop bit	2	R/W	
0367H-0369H	Reserve	6	R/W	
036AH … 1FFFH	Reserved			
2000H … 2005H	4 time zones	3×4	R/W	Time zone table
2006H … 201AH	14-period of time Parameters setting information	3×14	R/W	The first time list
201BH … 2029H	14-period of time Parameters setting information	3×14	R/W	The second time list

ADL300-EY address table

Address	Variable	Length	R/W	Notes
0000H	Current total active energy	4	R	unit:0.01kWh
0002H	Current spike total active energy	4	R	

0004H	Current peak total active energy	4	R	
0006H	Current flat total active energy	4	R	
0008H	Current valley total active energy	4	R	
000AH-000CH	Date， time	6	R/W	second、minute、hour、day、month、year
000DH-0027H	Reserved			
0028H	4 time zones	12	R/W	Time zone table
002EH	Voltage of A phase	2	R	unit：0.1V
002FH	Voltage of B phase	2	R	
0030H	Voltage of C phase	2	R	
0031H	Current of A phase	2	R	unit：0.01A
0032H	Current of B phase	2	R	
0033H	Current of C phase	2	R	
0034H	Voltage between A-B	2	R	unit：0.1V
0035H	Voltage between C-B	2	R	
0036H	Voltage between A-C	2	R	

0037H	Voltage transfer	2	R/W	Value range（0~9999）
0038H	Current transfer	2	R/W	Value range（0~9999）
0039H-003BH	Reserved			
003CH	Level 1 password	2	R/W	Value range（0~9999）
003DH	Level 2 password	2	R/W	Value range（0~9999）
003EH-0043H	Reserved			
0046H	The alarm value 1	4	R/W	unit：0.01 Yuan
0048H	The alarm value 2	4	R/W	
004AH	Credit amount	4	R/W	
004CH-0063H	Reserved			
0064H	demand	2	R	unit：0.001kW
0065H	PA	4	R	unit：0.001kW
0067H	PB	4	R	
0069H	PC	4	R	
006BH	PT	4	R	
006DH	QA	4	R	unit：0.001kvar
006FH	QB	4	R	
0071H	QC	4	R	
0073H	QT	4	R	
0075H	SA	4	R	unit：0.001kVA
0077H	SB	4	R	
0079H	SC	4	R	
007BH	ST	4	R	
007DH	PFA	2	R	Calculate the factor：0.001 （-1000~1000）effective range （-1000~1000）
007EH	PFB	2	R	
007FH	PFC	2	R	
0080H	PFT	2	R	
0081H	Freq	2	R	Calculate the factor：0.01
0082H-035FH	Reserved			
0360H	Main communication ：Communication address and baud rate	2	R/W	The same as the ADL300-EY

0361H	The main communication：Check bit stop bit	2	R/W	
0362H-1FFFH	Reserved			
2000H	14-period of time Parameters setting information	42	R/W	The first time list
2015H	14-period of time Parameters setting information	42	R/W	The first time list

There will not be control command because of the page limited, if there are any demand of these command, contact us with no hesitate.