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ADL100-EY, ADL300-EY

Installation and operation instruction V2.1

ACREL Co.,Ltd

Declare

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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	
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(■: 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

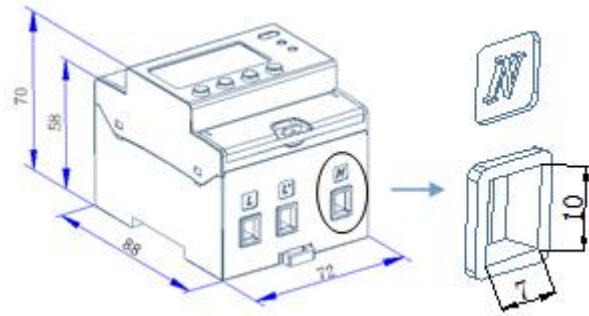
	ADL100-EY	ADL300-EY
Outline (Length × Width × Height)	72mm×88mm×70mm	144mm×88mm×70mm
Maximum wiring ability (flexible cable)	25mm ²	

4.3 Work environment

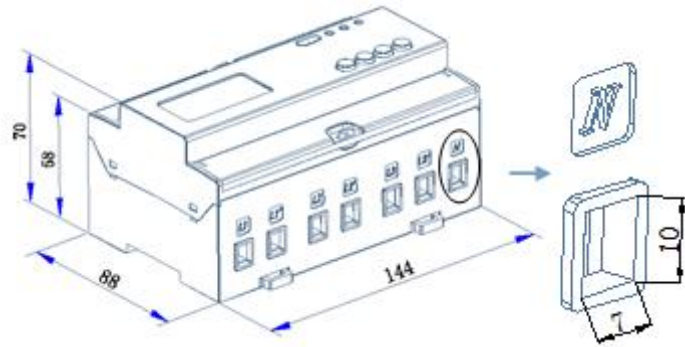
Temperature range	Work temperature	-25℃~55℃
	Storage Temperature	-40℃~70℃
Relative humidity	≤95%(No condensation)	
Altitude	<2000m	

5 Dimension drawings (Unit: mm)

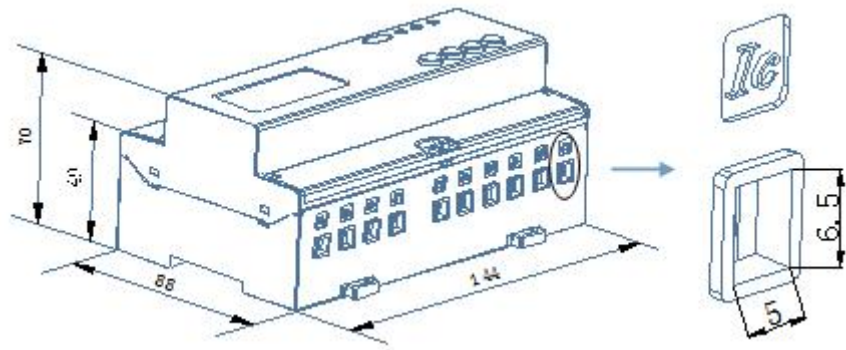
ADL100-EY



ADL300-EY



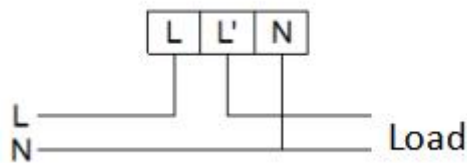
direct connect



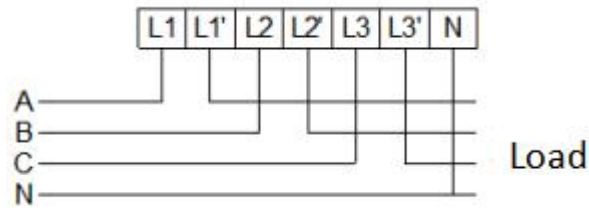
connect via CT

Note: The torque of direct connect should not be greater than $4.0N \cdot m$, and the torque of connect via CT should not be greater than $2.0N \cdot m$.

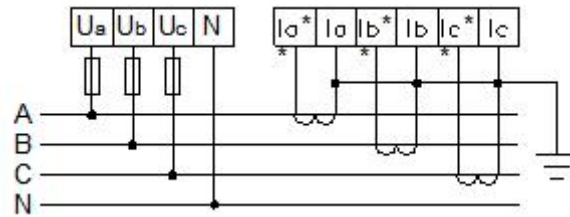
6 Wiring and installing



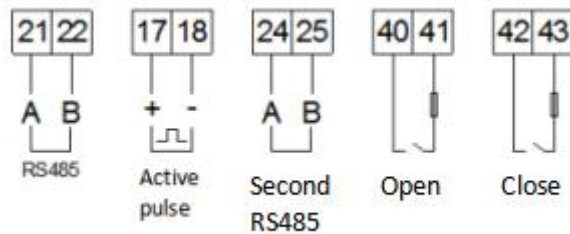
ADL100-EY



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

8.1 Communication protocol

The meters adapt Modbus I. 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-03 5FH	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-03 64H	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-03 69H	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.

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