

ADL-400

CT Operated Meter



General

ADL400 is a smart meter designed for power supply system, industrial and mining enterprises and utilities to calculate the electricity consumption and manage the electric demand. It features the high precision, small size and simple installation. It integrates the measurement of all electrical parameters with the comprehensive electricity metering and management provides various data on previous 48 months, checks the 31st harmonic content and the total harmonic content, realizes the remote communication and the remote control with switching input and relay output and boasts the alarm output. It is fitted with RS485 communication port and adapted to MODBUS-RTU. ADL400 can be used in all kinds of control systems, SCADA systems and energy management systems. The meter meet the related technical requirements of electronic meter in the IEC62053-21standards.

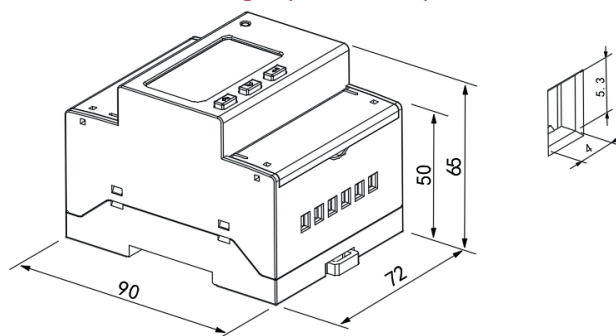
Functions

Function	Function description	Function available
Measurement of kWh	Active kWh (positive and negative)	■
	Reactive kWh (positive and negative)	■
Measurement of electrical parameters	U I	■
	P Q S PF F	■
Measurement of harmonics	harmonic	□
LCD Display	12 bits section LCD display, background light	■
Key programming	3 keys to communication and set parameters	■
Pulse output	Active pulse output	■
Multi-tariff and functions	Adapt 4 time zones, 2 time interval lists, 14 time interval by day and 4 tariff rates	□
	Max demanded kWh and time happened	□
	Frozen data on last 48 months, last 90 days	
	Date, time	□
Communication	Communication interface: RS485, Communication protocol: MODBUS-RTU	■

Parameters

Specification		3 phase 3 wires, 3 phase 4 wires	
Measurement	Voltage	Reference Voltage	3x100V, 3x380V, 3x57.7V, 3x220/380V
		Consumption	<10VA(Single phase)
		Impedance	>2M Ω
		Accuracy class	Error ± 0.2%
	Current	Input current	3 × 1(6)A , 3 × 10(80)A
		Consumption	<1VA(Single phase rated current)
Accuracy class		Error ± 0.2%	
Power		Active, reactive, apparent power, error±0.5%	
Frequency		45 ~ 65Hz , Error ± 0.2%	
Measurement	Energy	Active energy (Accuracy class: 0.5, 1) reactive energy (Accuracy class 2)	
	Clock	≤ 0.5s/d	
Digital signal	Energy pulse output	1 active photocoupler output	
	Width of pulse	80±20ms	
Pulse	Pulse constant	1000imp/kWh, 10000imp/kWh(Correspond with the basic current)	
	Interface and communication	RS485: Modbus RTU	
Communication	Range of communication address	Modbus RTU:1~ 247	
	Baud rate	1200bps~19200bps	
	Environment	Relative temperature	-25℃ ~+55℃
Environment	Relative humidity	≤ 95% (No condensation)	

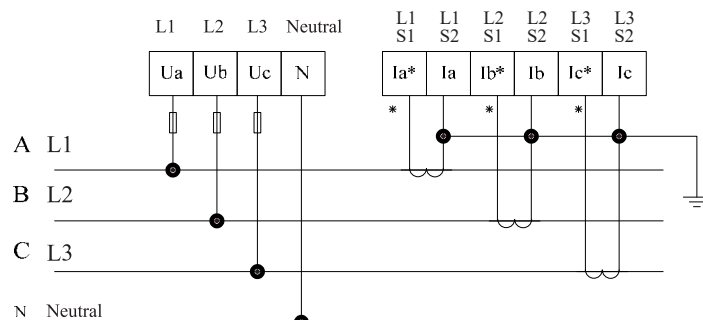
Dimension drawings (Unit: mm)



Note: The torque of connect via CT should not be greater than 2.0N·m.

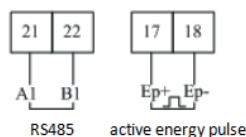
Wiring and installing

■ Wiring sample of voltage and current



Three phase four wires connect via CT

■ Switching input, output NTC temperature measurement



Communication, pulse connection

Function description

■ Measurement

It can measure the electrical parameter, include U, I, P, Q, S, P, F, F, 1~31th harmonic. Such as: U = 220.1V, f = 49.98Hz, I = 1.99A, P = 0.439kW

■ Calculating

Can measure the active energy, reversing active energy, forward reactive energy, reversing reactive energy.

■ Demand

The default demand cycle is 15 minutes, slip time is 1 minute. The meter can measure 4 kinds of maximum demand: forward active, reversing active, inductance performance reactive, capacitance performance reactive maximum demand and the occur time.

Demand	The average power in the demand cycle.
Maximum demand Slip time	The maximum value of demand in a period of time.
Demand cycle	The time period between two same average value of demand

Operation and display

Key function description

Icon Name		Function
	Voltage and current, up	Check the voltage and current Leftward and change flash in programming menu
	Power, down	Rightward and change the value on flash
	Energy, enter	Check the energy In/out programming menu Save changes

Display menu

The meter will show the forward active energy after powering. The customers can change the information showing by pressing the keys. The menu description is listed as below:

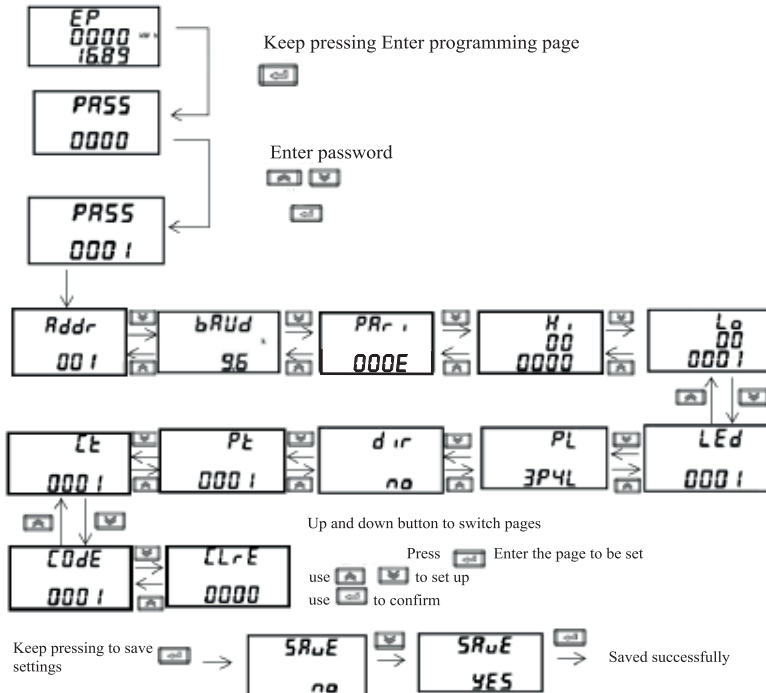
	U I F THDU THDI time MODBUS baud and address DL 645 Address version all display	A B C active power
	active power A B C reactive power A B C apparent power A B C power factory	reactive power apparent power power factory
	Energy active flat energy forward reactive flat energy valley energy forward Active energy forward reactive peak energy reactive energy energy of B phase	forward reactive energy reserve reactive energy active forward reactive spike energy forward reactive valley energy forward forward active energy of A phase forward active energy of C phase

Key menu

Keep press at any main menu and get in "PASS" interface, and then press

show "0000", and enter the code. If you enter a wrong code, it will show "fail" and back to main menu; and if you enter a right code, you can set the parameter.

After setting the parameter and keep press , it will show "save" and save the change by pressing in "yes" interface and quit without save by pressing in "no" interface.



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Example of meter set at 200/5 amp



Example of how the display should look for a meter programmed to 200/5 amp. See table for more settings.

C.T Primary	Number to program into the meter
100/5	0020
150/5	0030
200/5	0040
250/5	0050
300/5	0060
400/5	0080
500/5	0100
600/5	0120
800/5	0160

Table 5 display descriptions

Start-up screen shows all characters		KWh reading 118430.00
Three-phase voltage		Three phase line voltage
Three-phase Current		Frequency
Harmonic content of three phase Voltage		Harmonic content of three phase Current
Phase angle		
Three phase active power		Total active power
Three phase reactive power		Total reactive power
Three phase apparent power		Total apparent power
Three phase power factor		Total power factor