

DCZLW3-GST92 I Acquisition

Terminal

User's Manual

(V1.0)



1 Overview

1.1 Introduction

Acquisition terminal DCZLW3-GST92 is a new product developed by Shenzhen GST. in accordance with relative national technical standards, regulations and actual demand, which adopts carrier communication and RS485 communication to realize communication between carrier concentrator of carrier chip series developed by Beijing Fuxingxiaocheng Electronic Technology Stock Co., Ltd. and RS485 kWh meter.

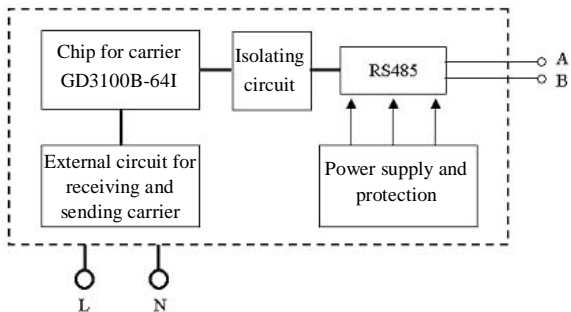
The performance indexes of acquisition terminal DCZLW3-GST92 is manufactured in accordance with the requirements of DL/T 698-1999 Automatic Meter Reading for LV Customers. And its communication is in accordance with the requirements of DL/T645-1997 Multifunction Watt-hour Meter Communication Protocol.

1.2 Principle of Operation

The acquisition terminal communicates with the concentrator through low-voltage power-line carrier and communicates with RS485 kWh meter through RS485 interface.

The acquisition terminal can send carrier signal of kWh

meter data reading and control commands from the carrier concentrator to a downstream RS485 kWh meter in real time through protocol conversion (converting from carrier communication protocol into DL/T645 communication protocol); and then send the responded data information from the RS485 kWh meter to the carrier concentrator through protocol conversion (converting from DL/T645 communication protocol into carrier communication protocol).



Functional block diagram of acquisition terminal

1.3 Main Technical Indexes

Power supply	Single-phase
Rated voltage	220V

Carrier communication speed		500bps
RS485 communication speed		1200bps
Power consumption	Non-transmission state	Apparent power is not more than 10VA, Active power is not more than 1.2W.
	Transmission state	Apparent power increment is not more than 5VA, Active power increment is not more than 1W.
Normal operating temperature		-25℃ ~ 55℃
Ultimate operating temperature		-35℃ ~ 70℃
Temperature for storage and transportation		-40℃ ~ 70℃
Relative humidity		≤85%
Design life		>10 years

1.4 Mechanical Parameters

External dimensions	L×W×D=168mm×121mm×62mm
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N.W.	0.5kg
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2. Functions & Features

2.1 Command and Data Transmission

The acquisition terminal can send carrier signal of kWh meter data reading and control commands from the carrier concentrator to a downstream RS485 kWh meter in real time through protocol conversion (converting from carrier communication protocol into DL/T645 communication protocol); and then send the responded data information from the kWh meter to the carrier concentrator. The acquisition terminal supports transmission of all data reading commands (including extended data tag set), paging synchronization commands, switching-ON/OFF commands and meter address index refreshing command from the concentrator for RS485 kWh meter.

2.2 Capacity Requirement

Each acquisition terminal can connect to maximum 16 RS485 kWh meters, establish corresponding meter address index and save the index in the non-volatile memory of itself.

2.3 Setting-free Function

After the installation of the acquisition terminal, if the connection is correct, no setting should be done for normal operation. The acquisition terminal can automatically create or delete the RS485 meter address index, automatically create patrol RS485 kWh meter address index table according to the information downloaded from the concentrator. In addition, the acquisition terminal will automatically delete a meter address when the meter has failed to be read continuously for 20 times, so as to support the management of RS485 kWh meters, such as meter removal, replacement after removal, and meter address refreshing.

3. Indicators on Panel

The panel is provided with 4 indicators, including Carrier Communication, Power, Abnormal Communication, Serial Port Communication. They indicate the corresponding states.

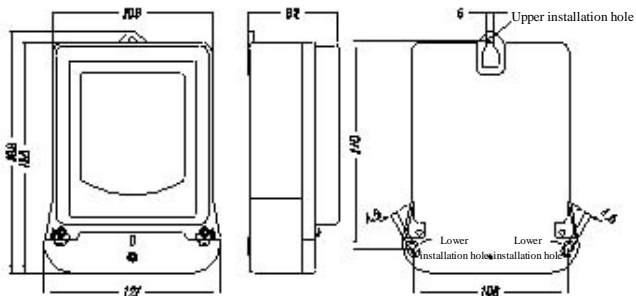
Carrier Communication means the acquisition terminal is communicating with the concentrator through low-voltage power-line carrier; the acquisition terminal has finished one time of carrier communication with the concentrator when the indicator flashes once. Power indicator indicates the power state. The power is normal when the indicator

is normally on, the power is disconnected when the indicator is off, and the power is unstable when the indicator is flashing. Communication fails when the Abnormal Communication indicator flashes once. Serial Port indicator indicates the acquisition terminal communicates with a RS485 kWh meter through RS485 interface. The acquisition terminal has finished one time of communication with a RS485 kWh meter when the Serial Port indicator flashes once.

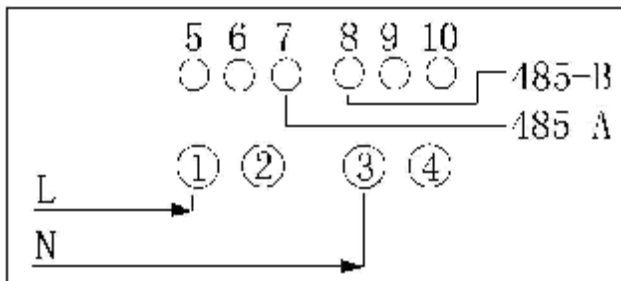
4. External Views and Ports of Acquisition Terminal

4.1 External Views and Installation Dimensions





4.2 Port Definition and External Wiring Diagram



L: Connect to terminal 1

N: Connect to terminal 3

485-A: Connect to terminal 7

485-B: Connect to terminal 8

5. Operating Instructions

The acquisition terminal communicates with the concentrator through low-voltage power-line carrier and communicates with RS485 kWh meter through RS485 interface.

After the installation of the acquisition terminal according to figures above, if the connection is correct, no setting should be done for normal operation.

The power is stable when the Power indicator is normally on, and the Power indicator shall not flash.

The acquisition can automatically create or delete the meter address index. The terminal patrolledly reads RS485 kWh meters every 1 minute. Since up to 16 RS485 kWh meters can be connected to one acquisition terminal, the Serial Port Communication indicator flashes for 16 times every 1 minute. If the RS485 interface of the acquisition terminal has no RS485 kWh meter connected, no feedback information from RS485 kWh meter is received after the acquisition terminal has sent the patrol reading command (when the Serial Port Communication indicator flashed once), the Abnormal Communication indicator of the acquisition terminal will flash once. For

this reason, Serial Port Communication indicator will flash once every 1 minute when no RS485 kWh meter is connected, and the Abnormal Communication indicator will flash once. This situation circulates for 16 times. If the acquisition terminal is securely connected with a RS485 kWh meter and the RS485 kWh meter is operating, the Serial Port Communication indicator will flash continuously for 16 times every 1 minute.

6. Package, Transportation and Storage

The package and storage of the acquisition terminal shall be in accordance with the relative regulations of GB/T 15464 General-purpose Specification for the Packaging of Instrumentation Products. During transportation, dropping, rain, strong thermal radiation and corrosive shall be avoided.

The acquisition shall be stored in environment with temperature of $-25^{\circ}\text{C} \sim 70^{\circ}\text{C}$ and relative humidity of not more than 85%, and shall not be stacked more than 8 layers vertically.

Notice

Since our mission is to ceaselessly improve our products, the characteristics, composition, and circuit design of the product described in this manual may be a little different from those of actual device provided. Generally, we will provide a revision page in time as to be in accordance with the requirements of your device series. In case the revision page is not provided in time, please contact our customer support department, and we will soon give you a satisfactory reply.