HYJZQ-2 Low-voltage PLC Centralized Controller

Summary

HYJZQ-2 Low-voltage PLC Centralized Controller is the centralized meter reading system in key equipment. The uplink channel with the mainstream GPRS, CDMA, CSD, RS485 and so on, through the uplink channel and the main station (or handheld unit) for data exchange; the downlink channel is a low-voltage power line carrier, which can automatically store a variety of meter reading with a carrier communication function intelligent instruments, collection terminal or acquisition modules and a variety of carrier power data communication terminals.

Main technical data

1. Power supply
   - Three-phase four-wire power supply: A, B, C, N;
   - Normal working voltage: normal working and communication when voltage range is +30%~−20%, Normal working frequency: 50Hz ± 5% ;
   - Machine power consumption: < 10W/15VA ;
   - In the off-phase voltage of one phase or two cases, can make normal working and communication;
2. Ambient Conditions
   - Ambient temperature of +23;
   - According to installation place, temperature and humidity conditions are divided into the following three categories:
     - Machine room: temperature +5 ~+40 , relative humidity 75%
     - Indoor: temperature -25 ~+50 , relative humidity 90%
     - Outdoor: temperature -45 ~+70 , relative humidity 95%
3. Electromagnetic compatibility (EMC):
   - Electrostatic Discharge: contact discharge 8KV, air discharge 15KV;
   - High-frequency electromagnetic fields: 10V/m;
   - Electrical Fast Transient Burst: 4.4KV;
   - Surge voltage: 4KV;
   - Under the influence of the conduction, radiation and electromagnetic harassment and electrostatic discharge, can normal working.
4. Internal Clock
   - Clock Accuracy: 0.5s/d;
   - Battery Voltage: 3.6V;
   - Battery capacity: 1200mA / h;
   - Battery Life: >10 years;
5. Downstream Channel
   - Carrier signal frequency range: 120 ± 15kHz;
   - Spread-spectrum communication technology, software correlator and matched filter, 31 codes sequence;
   - BFSK modulation, half-duplex communications;
   - Carrier communication transmission range: The entire transformer area 2 kilometers (ideal environment);
   - Relay accuracy: 5 class.

Outline dimension

PLC AMR System

Summary

The HY2000 AMR system automates the collection of all kinds of data from individual meters. It addresses the demand for a cost-effective meter reading system without sacrificing accuracy or reliability by utilizing the proprietary Narrow Band Direct Sequence Spread Spectrum Power Line Communication (PLC) technology, which makes it possible that high anti-interference and low attenuation of signal over transmission.

Functions

The HY2000 AMR system is an efficient system with following functions:

a. Assurance of data accuracy in transmission;
b. Improvement of billing efficiency;
c. Prevention of non-technical losses and tamper;
d. Real time remote control and management;
e. Provision of statistic data for analyze;
f. Reduction of labor costs;
g. Minimizing of system maintenance.

System Configuration

The AMR system is composed of three main subsystems - the Remote Unit (RU), e.g. multi-function single-phase electrical energy meter and multi-function three-phase electrical energy meter, the Concentrator and the Base Station. The Remote Unit transmits the signals over power lines to a Concentrator located on the low voltage side of the distribution transformer. The Concentrator collects the data from each meter, and performs the data storage and part of the data processing. The results are sent from all Concentrators to the Base Station through telephone/GPRS/CDMA net.

Each Concentrator is located on the low voltage side of the distribution transformer. It collects data every half an hour or as set from distance to 1,024 meters through the power lines.

The Base Station is a desktop PC to collect data from all Concentrators. This can be done either directly from the Base Station desktop PC through a dial-up modem or by transferring data files locally to a portable PC, which connect directly to each Concentrator using a standard serial cable (RS232). Both the Base Station and portable PC used for data collection should run AMRView for Windows software.

35kV power line

Telephone/GPRS/CDMA net

Base Computing Station (BCS)

100-240V low voltage single-phase power line

415V Three-phase 4 wire power line

Figure 1 - A Sample Application of AMR System