UT-1128
8-PORT RS-485 ISOLATED HUB
User Manual

Ⅰ. Overview

UT-1128 is a RS-485 BUS hub with built-in dual core, and non-stop working design. It is special design for RS-485 system under complicated electromagnetic field. The transmission rate can be as high as 115.2Kbps. To ensure the data communication safety and reliability, it adopts optoelectronic isolation technology, and provides with lightning and surge protection on RS-485 ports; the built-inoptoelectronic isolator and 1500W surge protection circuit provide 2500V isolated voltage, this prevent the devices from lightning and ESD, and ground interference. With external power, UT-1128 is quite safe for outdoor projects.

Under RS-485 working mode, the circuit can distinguish the data flow direction, and switch it automatically to control the circuit; this easily solves the transmission delay issue. The transmission distance is over 1200m. UT-1128 is a high performance converter, which is widely used in highway toll collection system, road monitoring system, and power collection system.

UT-1128 provides RS-485 BUS connection, each port supports short-circuit and open circuit protection. 2500V isolated voltage allows user improve the RS-485 BUS structure, divide the network segment easily. When the device under lightning stroke or the device is breakdown, these network segments will be isolated, so as to ensure the other network segments working normally; this improves the RS-485 network reliability, makes the network maintain time shorten. UT-1128 is the best choice for reliable RS-485 system.

Ⅱ. Features

1.Ports: EIA/TIA RS-232C, RS-485 standards

2. Voltage input: DC12-48V 350Ma

3. Transmission media: twisted pair or shielded cable

4. Working mode: asynchronous half-duplex

5. Indicators: signal, PWR, TX, RX, E1-E8

6. Isolation: non-stop isolated voltage 2500VRMS 500VDC, DC/DC isolated module

7. Transmission rate: 300bps-115.2Kbps

8. Protection: ±15KV ESD protection for RS-232 ports each line 1500W lightning and surge protection for RS-485 ports 2000V lightning and surge protection for power supply

9. Transmission distance: 0-1.2km (115,200-300bps)

10. Dimension: 145mm x 90mm x 40mm

11. Working environment: -40℃-85℃, 5%-95% relative humidity

Ⅲ. Top view & signal indicators
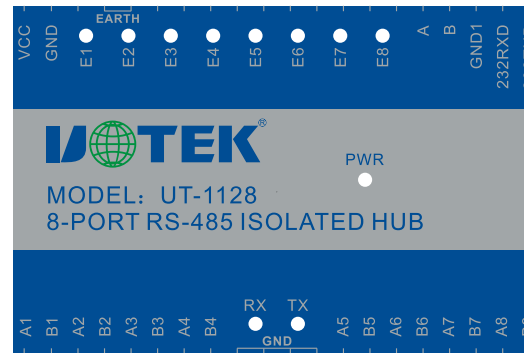
UT-1128 indicators:

PWR- power indicator, it is red when working;

TX- data transmission indicator, it is blinking in green when working, input data is transmitting to output port 1-port 8;

RX- data receive indicator, it is blinking in yellow, and output data from port 1- port 8 is transmitting to input port;
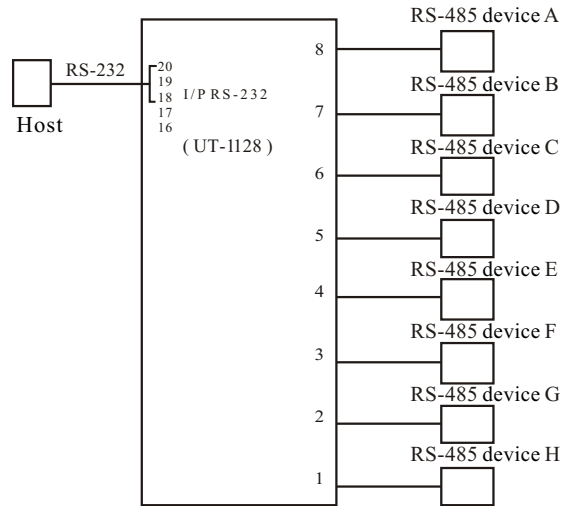
E1-E8- fault indicators, when the lights on, the device from corresponding port is short-circuit;

Ⅳ. Port definition

No.	Definition	Remarks
1	VCC	Power +
2	GND	Power -
3	Empty	Empty
4-5	EARTH	Earth connection
6-15	Empty	Empty
16	A	RS485+ input
17	B	RS-485- input
18	GND1	Ground connection input
19	232RXD	RS232 receiving terminal
20	232TXD	RS232 transmitting terminal
21	A1	1 RS485 output
22	B1	1 RS485- output
23	A2	2 RS485 output
24	B2	2 RS485- output
25	A3	3 RS485 output
26	B3	3 RS485- output
27	A4	4 RS485 output
28	B4	4 RS485- output
29-32	GND	RS485 output ground connection
33	A5	5 RS485 output
34	B5	5 RS485- output
35	A6	6 RS485 output
36	B6	6 RS485- output
37	A7	7 RS485 output
38	B7	7 RS485- output
39	A8	8 RS485 output
40	B8	8 RS485- output

Ⅴ. UT-1128 RS-485 HUB applications

1. Host serial port (RS-232C) to 8 RS-485 ports

```
        RS-232                          RS-485 device A
Host  ┌20                     8
      │19                      7         RS-485 device B
      │18 I/P RS-232
      │17                      6         RS-485 device C
      └16
         ( UT-1128 )          5         RS-485 device D

                              4         RS-485 device E

                              3         RS-485 device F

                              2         RS-485 device G

                              1         RS-485 device H
```

2. RS-485 BUS to 8 RS-485 ports(RS-485 BUS can be connected 128 sets RS-485 device in parallel at the same time)

```
                                        RS-485 device A
          20                 8
          19  I/P RS-485                RS-485 device B
RS-485 BUS 18                7
          ┌17                           RS-485 device C
          └16 ( UT-1128 )    6
                                        RS-485 device D
                            5
                                        RS-485 device E
                            4
                                        RS-485 device F
                            3
                                        RS-485 device G
                            2
                                        RS-485 device H
                            1
```
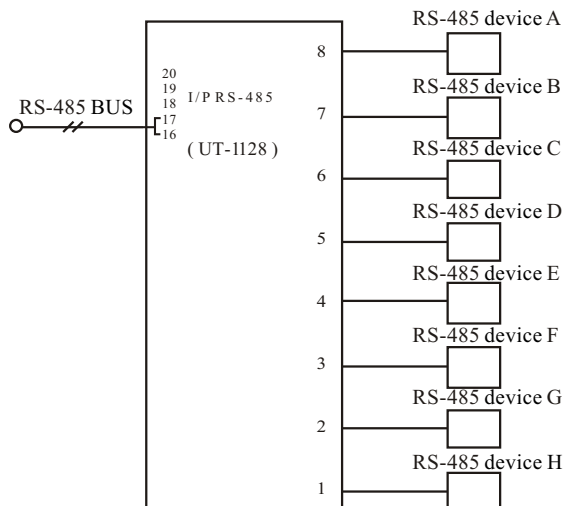
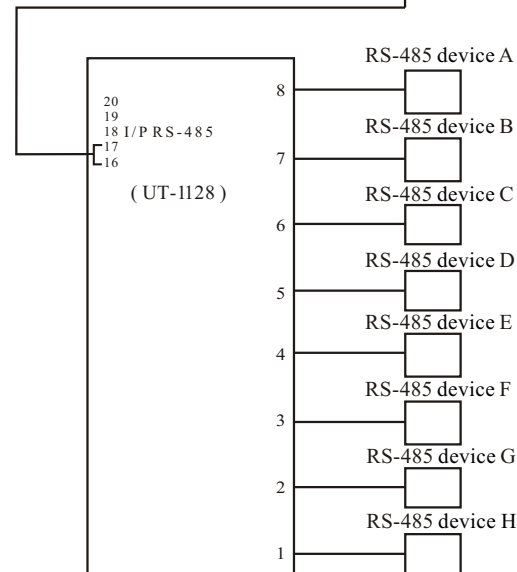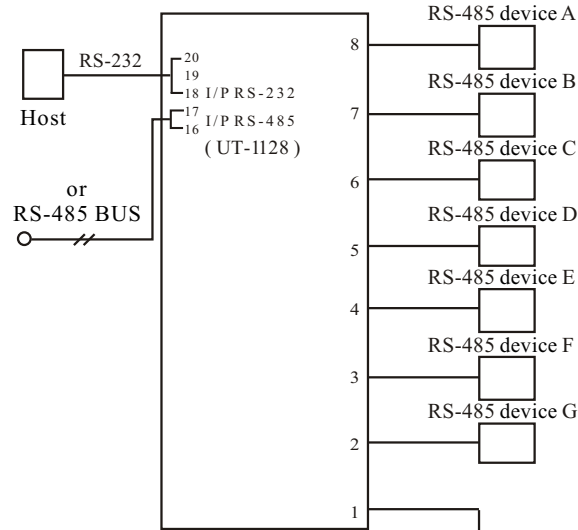3. Host serial port (RS-232C) to RS-485 ports, or RS-485 BUS to RS-485 ports (RS-485 BUS can be connected 128 sets RS-485 device in parallel at the same time)

```
        RS-232                          RS-485 device A
Host  ┌20                     8
      │19                      7         RS-485 device B
      │18 I/P RS-232
                              6         RS-485 device C
      ┌17 I/P RS-485
      └16  ( UT-1128 )        5         RS-485 device D
  or
RS-485 BUS                   4         RS-485 device E

                              3         RS-485 device F

                              2         RS-485 device G

                              1
```

```
          20                 8         RS-485 device A
          19
          18 I/P RS-485      7         RS-485 device B
          ┌17
          └16                6         RS-485 device C

          ( UT-1128 )        5         RS-485 device D

                            4         RS-485 device E

                            3         RS-485 device F

                            2         RS-485 device G

                            1         RS-485 device H
```

Ⅵ. RS-485 port malfunction alarm & protection

RS-485 port malfunction alarm & protection is a good way for connecting RS-485 devices and reliability improvement. UT-1128 has 8 slave computer ports, all of them are with short-circuit protection, and they can be worked under close mode. When any of the RS-485 port short-circuit, it only will affect its own RS-485 BUS system, but not other RS-485 ports BUS system. User can find out the faults according to the fault indicators.

Ⅶ. Dimension (unit: mm)

```
  40              90
                  70
 10
            4*φ5
124.9              135  145
```
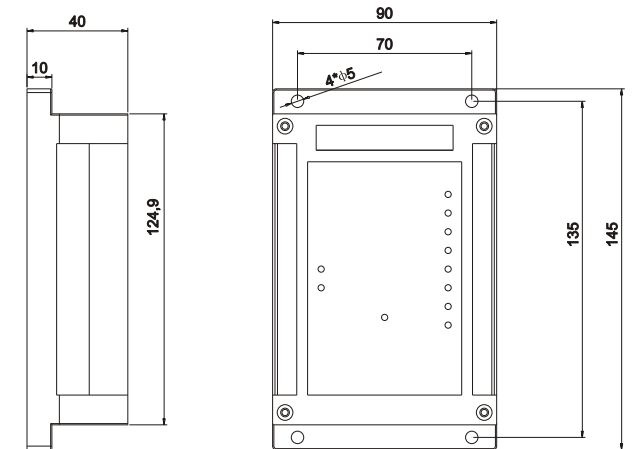
Standard DIN U35 DIN-Rail installation(bottom side)