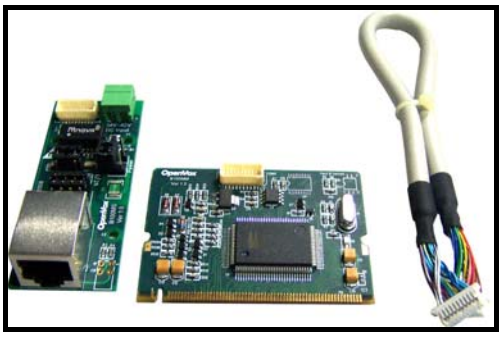
深圳开源通信有限公司

OpenVox-Best Cost Effective Asterisk Cards

OpenVox B100M User Manual for Bristuff



Written by: James.zhu

Email:james.zhu@openvox.cn,zhulizhong@gmail.com

Date: 12/0/2008

Version: 0.01

深圳开源通信有限公司

OpenVox-Best Cost Effective Asterisk Cards

OpenVox Communication Co. Ltd.
Address: F/2,Building No.14,Shangsha Science & Technology Park,
No.9283,Binhe Road,Futian District,ShenZhen ,Guangdong 518048,China
Tel:+86-755-82535095,82535461,Fax:+86-755-82535174
E-Mail：sales@openvox.com.cn
IM for Technical Support: support@openvox.com.cn,zhulizhong@gmail.com,zhulizhongum@hotmail.com
Business Hours: 9:00AM-18:00PM from Monday-Friday
URL：www.openvox.com.cn

Thank You for Choosing OpenVox Products!

Table of Contents

Chapter 1 Overview

1. What is B100M

B100M is a Mini PCI type III BRI card supporting single BRI S/T interfaces. NT/TE mode can be independently configured on the port.

It can be implemented for building Open Source Asterisk based systems such as ISDN PBX and VoIP gateway.

Target Applications:
High Performance ISDN PC Cards
ISDN PABX for BRI
VoIP Gateways
ISDN LAN Routers for BRI
ISDN Least Cost Routers for BRI
ISDN Test Equipment for BRI

Main Features:
One integrated S/T interface
ITU-T I.430 and TBR 3 certified and S/T ISDN supporting in TE and NT mode
DTMF detection on all B-channels
Multiparty audio conferences bridge
Support mini PCI type III
Designed for low-power systems
Support AskoziaPBX system, trixbox, Elastix and other asterisk based distributions
Support AAEON PCM-8120
Each port can be configured for TE or NT mode
Support Bristuff, ISDN4BSD and mISDN driver.

RoHS compliant
Certificates: CE and FCC

2. What is Asterisk:

The Definition of Asterisk is described as follow:
Asterisk is a complete PBX in software. It runs on Linux, BSD, Windows (emulated) and provides all of the features you would expect from a PBX and more. Asterisk does voice over IP in four protocols, and can interoperate with almost all standards-based telephony equipment using relatively inexpensive hardware.

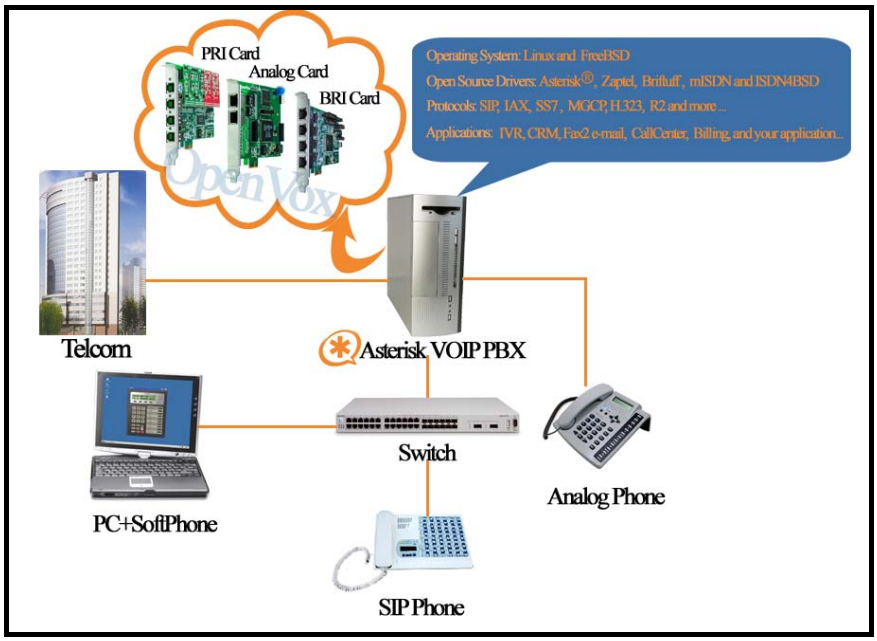


Figure 1: Asterisk_OpenVox Setup

Asterisk provides Voicemail services with Directory, Call Conferencing, Interactive Voice Response, Call Queuing. It has support for three-way calling, caller ID services, ADSI, IAX, SIP, H.323 (as both client and gateway), MGCP (call manager only) and SCCP/Skinny(voip-info.org).

Chapter 2 Card Installation and Configuration

1. Hardware Installation and Setup

Please refer jumper setting for details. The default setting is TE mode. To install B100M, user should follow the steps.

A. Adjusting Termination of S/T Interface (100 ohm)

1. If a port will work on NT mode, you should set jumper (SW1) to CONNECT (ON) and adjust the jumper (SW2) to NT position. Please check the jumper setting in chapter 3.
2. If a port will work on TE mode, Theoretically it should be to OPEN(OFF), but user might connect to some non-standard isdn terminal equipments that do not have terminal resistors, for such equipments, you should set it to CONNECT(ON).
3. Use the cable to connect B100MM and B100MS. On the B100MM, there is a slot for RJ45 expansion board; the slot is used to connect the slot on B100MS. The connection should be:
   Con 1 on B100MS <-> Con 2 on B100MM

B. Power Feeding Connector

These jumpers control whether the card will feed power to the external isdn terminal. User should adjust accordingly.

- ✧ If the port will work on TE mode, user MUST set the jumper (power) to OPEN(OFF)
- ✧ If this port will work on NT mode, the ISDN terminal requires ISDN power supply; user should set the jumper (power) to CONNECT (ON). *ISDN terminal does not require ISDN power supply, user should set the jumper to OPEN(OFF).*

C. Power Feeding Input

If the power feeding connector is CONNECT(ON), plug in the DC input power supply that can provide 34-42 V power supply. Please refer the hardware setting section. You also can use PFM100 to convert the power supply for NT mode. For more information about PFM100, please check from OpenVox website.

D. PCM IN/PCM OUT

These are for future usages.

2) Power off PC, remembering unplug the AC power cable
3) Insert B100M into a mini PCI slot
4) Plug the power supply cable to power feeding input jack if need providing power to external equipment, please refer jumper setting section in chapter 3 for the detail
5) Plug back the AC power cable, and power on PC

2. Software Installation and Setup

B100P supports original Bristuff driver from junghanns.net. Customers can download it from http://www.junghanns.net/. There are few steps to install the driver drivers.

1) Checking the B100M hardware by command: **lspci -vvvvvvvvv**

```
01:02.0 Network controller: Cologne Chip Designs GmbH ISDN network controller [HFC-PCI] (rev 02)
        Subsystem: Cologne Chip Designs GmbH ISDN Board
        Control: I/O- Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B-
        Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=medium >TAbort- <TAbort- <MAbort- >SERR- <PERR-
        Latency: 16 (4000ns max)
        Interrupt: pin A routed to IRQ 58
        Region 0: I/O ports at 9c00 [disabled] [size=8]
        Region 1: Memory at dfdfec00 (32-bit, non-prefetchable) [size=256]
        Capabilities: [40] Power Management version 1
                Flags: PMEClk- DSI+ D1+ D2+ AuxCurrent=0mA PME(D0+,D1+,D2+,D3hot+,D3cold-)
                Status: D0 PME-Enable- DSel=0 DScale=0 PME+
```

2) Checking the support packages

Note that if there is no kernel source in the system, user should install them. User can run **yum** again: ***yum install kernel-devel***`. If user runs this command **yum** will install the sources for your current version of the kernel.

It is time to check for the availability of some other packages:

rpm -q bison
rpm -q bison-devel
rpm -q ncurses
rpm -q ncurses-devel
rpm -q zlib
rpm -q zlib-devel
rpm -q openssl
rpm -q openssl-devel
rpm -q gnutls-devel
rpm -q gcc

```
rpm -q gcc-c++
```

If any of those packages are not installed install them by using yum

```
yum install bison
yum install bison-devel
yum install ncurses
yum install ncurses-devel
yum install zlib
yum install zlib-devel
yum install openssl
yum install openssl-devel
yum install gnutls-devel
yum install gcc
yum install gcc-c++
```

3) Downloading, unzipping and compiling driver

A. Download the stable version of bristuff drivers from http://www.junghanns.net/, and copy the tar file to /usr/src/:

```
cp bristuff-<version>.tar.gz /usr/src
cd /usr/src/
tar -xvzf bristuff-<version>.tar.gz
```

B. Make links with kernel source:

```
ln -s /usr/src/kernels/2.6.18-1.2798.fc6-i586  /usr/src/linux-2.6
```

Here, under /usr/src there is kernel source, user must create link linux-2.6 under /usr/src/. There are many files under /usr/src/bristuff-0.3.0-PRE-1y-j, please check:

```
[root@new-host-2 zaphfc]# pwd
/usr/src/bristuff-0.3.0-PRE-1y-j/zaphfc
[root@new-host-2 zaphfc]# cd ..
[root@new-host-2 bristuff-0.3.0-PRE-1y-j]# ls -l
total 27252
lrwxrwxrwx  1 root root       15 Dec  4 02:01 asterisk -> asterisk-1.2.23
drwxr-sr-x 25 root root     4096 Dec  4 17:50 asterisk-1.2.23
-rw-r--r--  1 root root 19005440 Nov 28 14:07 asterisk-1.2.23.tar
-r--r--r--  1 root root    17933 Jul 25 15:40 CHANGES
-rwxrwxrwx  1 root root     2181 Jun  9  2006 compile.sh
dr-xr-xr-x  3 root root     4096 Dec  4 17:47 cwain
-rwxrwxrwx  1 root root      558 Dec  4 02:01 download.sh
-r--r--r--  1 root root     2314 Apr 27  2005 INSTALL
-rwxrwxrwx  1 root root       40 Dec  4 02:01 install.sh
dr-xr-xr-x  2 root root     4096 Mar 26  2007 ISDNguard
lrwxrwxrwx  1 root root       14 Dec  4 02:01 libgsmat -> libgsmat-0.0.2
drwxr-xr-x  2 root root     4096 Dec  4 17:47 libgsmat-0.0.2
lrwxrwxrwx  1 root root       12 Dec  4 02:01 libpri -> libpri-1.2.4
drwxr-xr-x  2 1000 1000     4096 Dec  4 17:47 libpri-1.2.4
-rw-r--r--  1 root root   348160 Nov 28 14:06 libpri-1.2.4.tar
dr-xr-xr-x  2 root root     4096 Jun 25  2007 patches
dr-xr-xr-x  3 root root     4096 Jan  3 02:05 qozap
-rw-r--r--  1 root root    63208 Nov  8 16:07 qozap.c
dr-xr-xr-x  4 root root     4096 Jul 11  2005 SAMPLES
dr-xr-xr-x  3 root root     4096 Jul 11  2005 TESTING
dr-xr-xr-x  3 root root     4096 Jan  3 22:42 zaphfc
lrwxrwxrwx  1 root root       13 Dec  4 02:01 zaptel -> zaptel-1.2.19
drwxr-xr-x 10 root root    12288 Dec 19 22:51 zaptel-1.2.19
-rw-r--r--  1 root root  8345600 Nov 28 14:07 zaptel-1.2.19.tar
drwxr-xr-x  3 root root     4096 Dec  4 17:47 ztgsm
```

C. Compiling Bristuff

cd /usr/src/bristuff-0.3.0-PRE-1y-j

chmod 777 install.sh

./install.sh

Above steps will install zaptel, libpri and asterisk.

After finishing the three steps, under asterisk directory, running **make samples** if user install asterisk for first time.

D. Modifying and loading modules for zaptel and zapata. of **vi /etc/zaptel,** and edit the zaptel.conf like this:

loadzone=nl

defaultzone=nl

span=1,1,3,ccs,ami

bchan=1,2

dchan=3

cd /usr/src/bristuff-0.3.0-PRE-1y-j/zaphfc
make load // if load NT mode, please run: make loadNT
ztcfg -vvvvvvvvvvvvvvv and dmesg

```
zaphfc: CCD/Billion/Asuscom 2BD0 configured at mem e08c8c00 fifo d4a78000(0x14a78000) IRQ 58 HZ 1000
zaphfc: Card 0 configured for TE mode
zaphfc: 1 hfc-pci card(s) in this box.
Registered tone zone 3 (Netherlands)
```

E. If user wants to modify the call rules, edit zapata.conf and extensions.conf file under /etc/asterisk to make sure asterisk run successfully:

```
; Zapata telephony interface
;
; Configuration file

[channels]
;
; Default language
;
;language=en
;
; Default context
;
;
switchtype = euroisdn
; p2mp TE mode
signalling = bri_cpe_ptmp

; p2p TE mode
;signalling = bri_cpe
; p2mp NT mode
;signalling = bri_net_ptmp
; p2p NT mode
;signalling = bri_net

pridialplan = dynamic
prilocaldialplan = local
nationalprefix = 0
internationalprefix = 00

echocancel=yes
echotraining = 100
echocancelwhenbridged=yes

immediate=yes
group = 1
context=demo
channel => 1-2
```

Set with TE Mode

Channels

```
[demo]
;
; We start with what to do when a call first comes in.
;
exten => s,1,Wait,1                     ; Wait a second, just for fun
exten => s,n,Answer                     ; Answer the line
exten => s,n,Set(TIMEOUT(digit)=5)      ; Set Digit Timeout to 5 seconds
exten => s,n,Set(TIMEOUT(response)=10)  ; Set Response Timeout to 10 seconds
exten => s,n(restart),BackGround(demo-congrats) ; Play a congratulatory message
exten => s,n(instruct),BackGround(demo-instruct)        ; Play some instructions
exten => s,n,WaitExten          ; Wait for an extension to be dialed.

exten => 2,1,BackGround(demo-moreinfo)  ; Give some more information.
exten => 2,n,Goto(s,instruct)
```

F. Start running asterisk:

asterisk -vvvvvvvvvgc and check the zap channels

```
*CLI> zap show channels
   Chan Extension  Context         Language   MusicOnHold
 pseudo            demo
      1            demo
      2            demo
```

Make inbound call and play IVR

```
*CLI>     -- Going to extension s|1 because of immediate=yes
    -- Accepting voice call from '82535095' to 's' on channel 0/2, span 1
    -- Executing Wait("Zap/2-1", "1") in new stack
    -- Executing Answer("Zap/2-1", "") in new stack
    -- Executing Set("Zap/2-1", "TIMEOUT(digit)=5") in
    -- Digit timeout set to 5
    -- Executing Set("Zap/2-1", "TIMEOUT(response)=10") in new stack
    -- Response timeout set to 10
    -- Executing BackGround("Zap/2-1", "demo-congrats") in new stack
    -- Playing 'demo-congrats' (language 'en')
```

Inbound call

Notes:

Test environments:

OS: FC6

Kernel version: 2.6.18-1.2798.fc6

Bristuff version: bristuff-0.3.0-PRE-1y-j

Hardware: OpenVox B100M

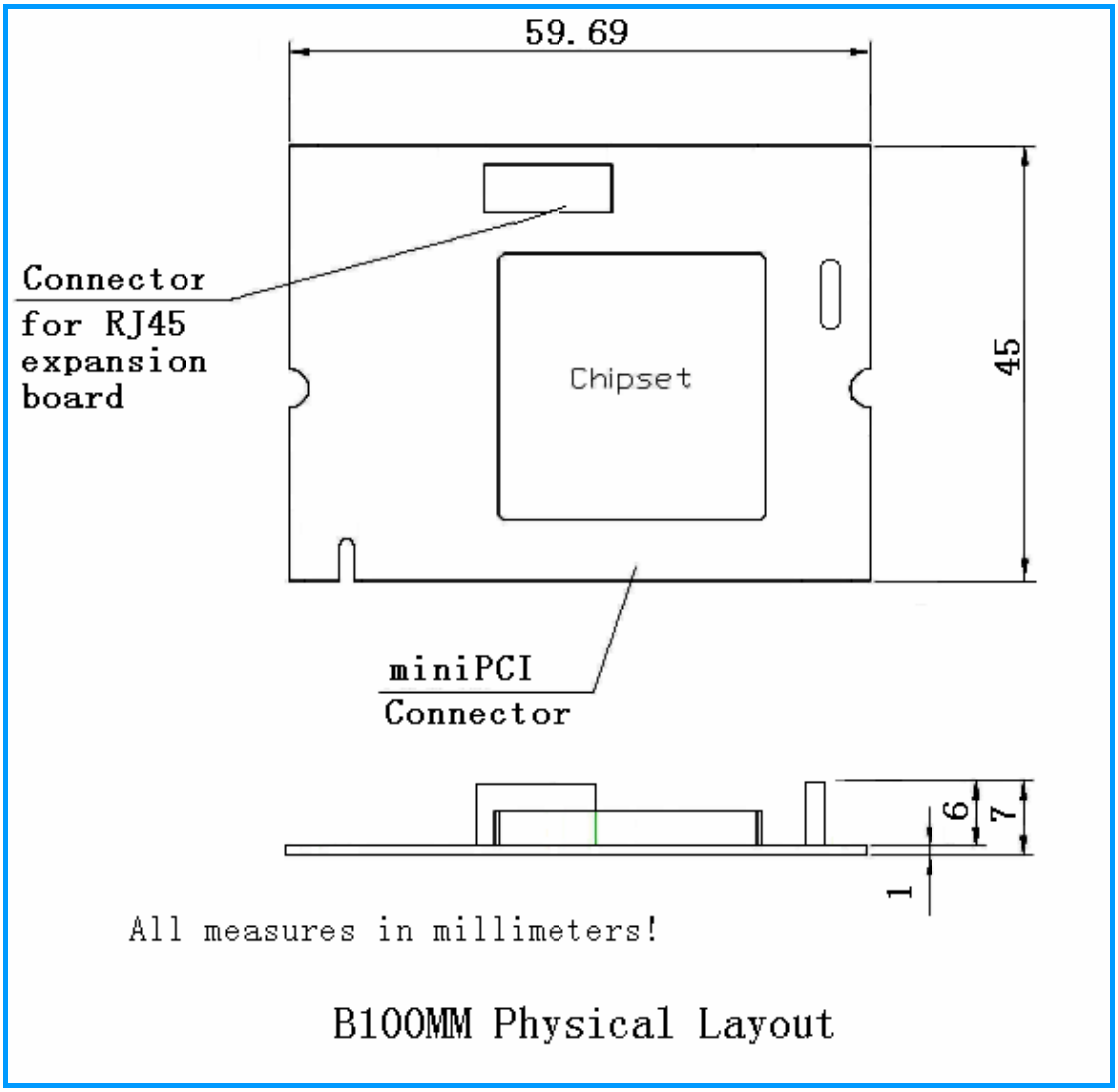
References:

http://www.asteriskguru.com/tutorials/bri.html
http://www.voip-info.org/wiki/index.php
http://www.voip-info.org/wiki-Asterisk+zaphfc+install
asterisk.org
www.opevox.com.cn
http://www.junghanns.net/

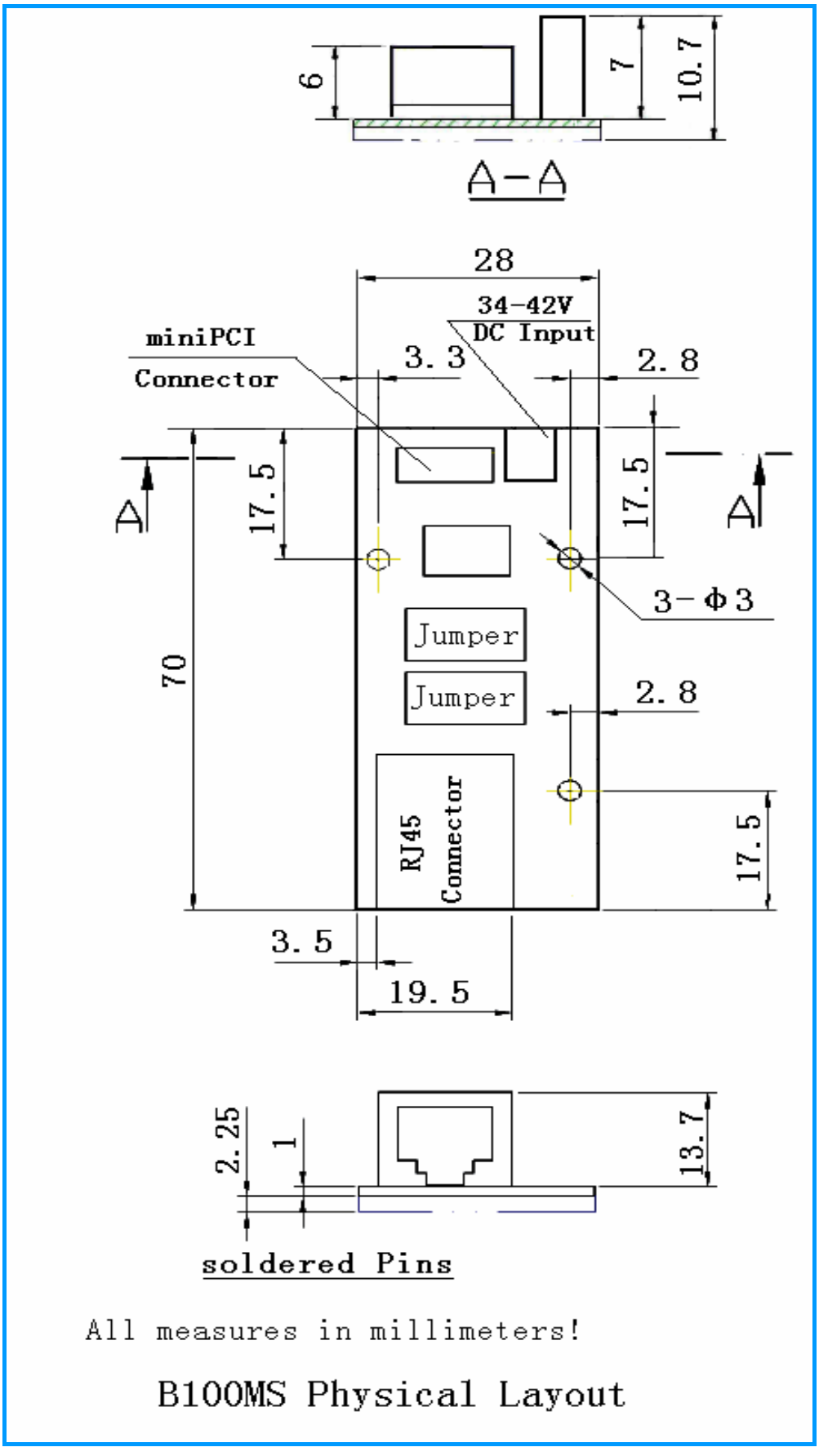
Trademarks and Copyrights in this user manual:

- Asterisk® and Digium® are registered trademarks of Digium, Inc.
- OpenVox® is a registered trademark of ShenZhen OpenVox Communication LTD.

Chapter 3 Hardware Setting

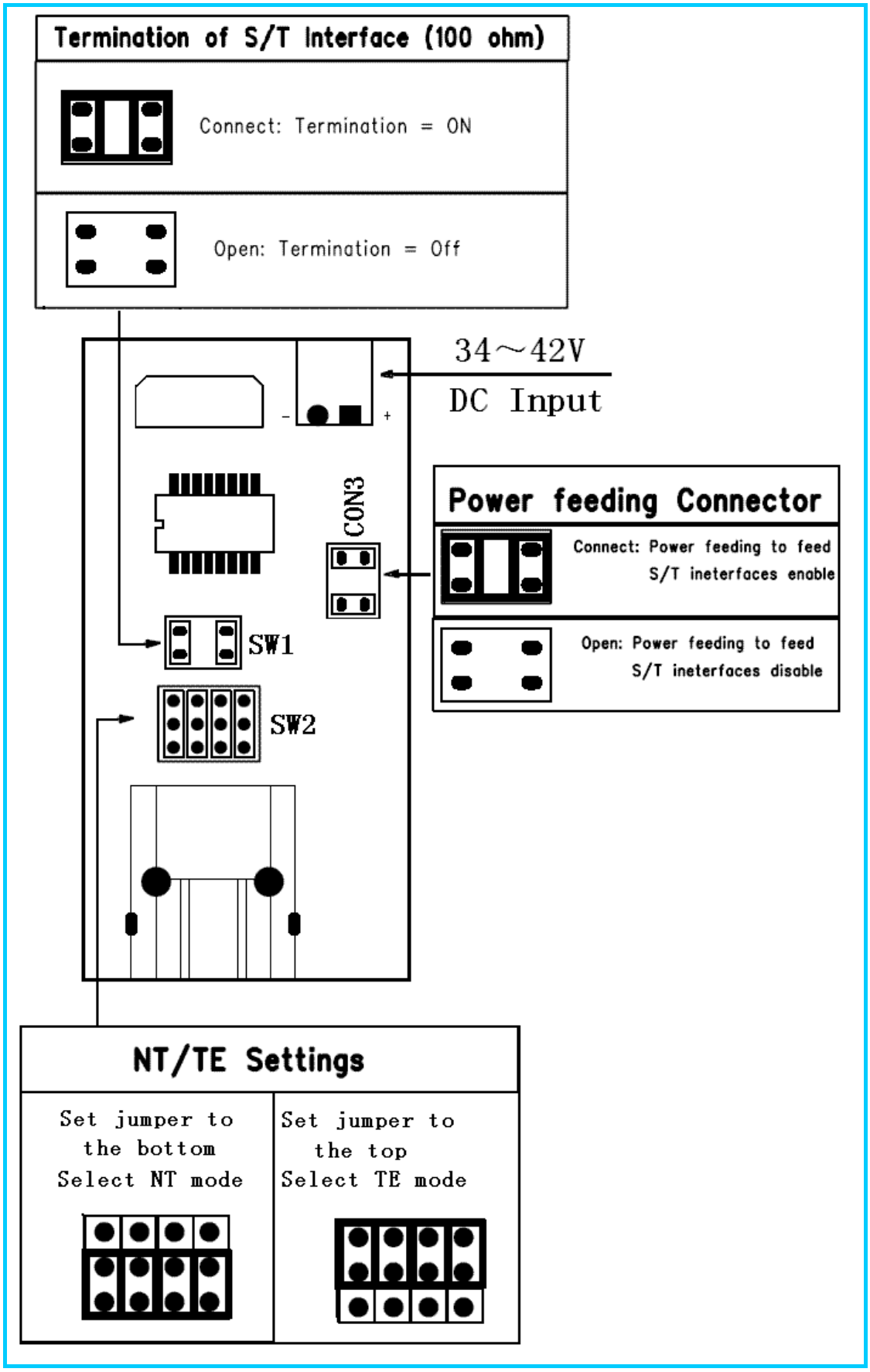


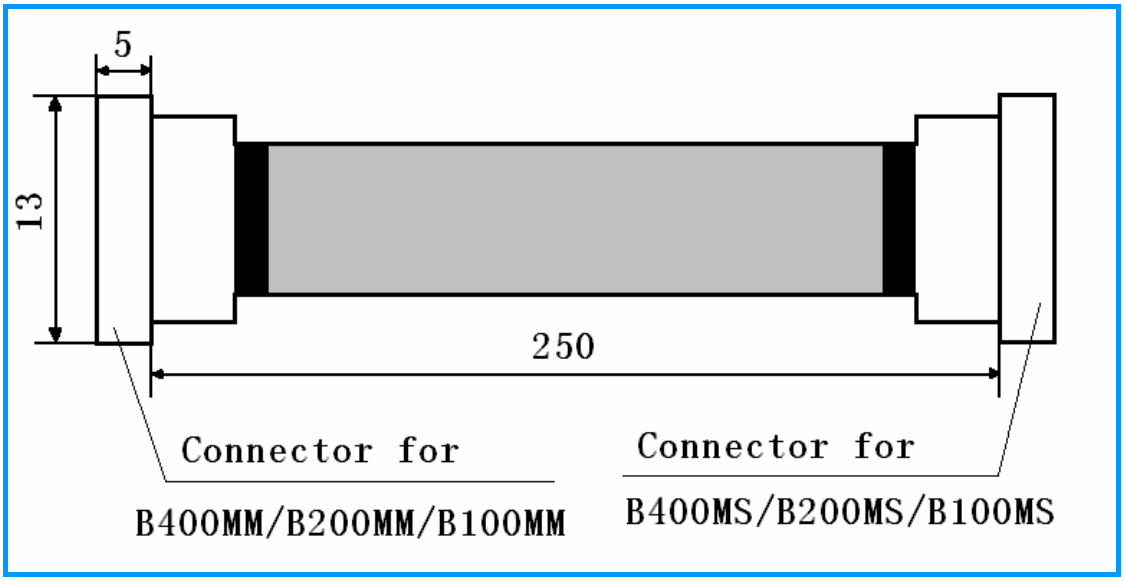
B100MM Physical Layout



All measures in millimeters!

B100MS Physical Layout


Termination of S/T Interface (100 ohm)
Connect: Termination = ON
Open: Termination = Off
34～42V
DC Input
CON3
Power feeding Connector
Connect: Power feeding to feed S/T ineterfaces enable
Open: Power feeding to feed S/T ineterfaces disable
SW1
SW2
NT/TE Settings
Set jumper to the bottom Select NT mode
Set jumper to the top Select TE mode


5
13
250
Connector for
B400MM/B200MM/B100MM
Connector for
B400MS/B200MS/B100MS