



**G.703 64K Co-directional /V.24
converter**

User's Reference Manual

To Users :

Thank you for using our products. Before using, please read this Reference Manual carefully, and keep properly.

Alarm

- 1、 This product can not be caught in or be affected with damp, for they can make the performance degressive and even broken.
- 2、 Before fixing this product ,please check the model and according to the User's Reference Manual.

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1. Brief introduction

1.1 General information

64Kbps cycle could be divided into four interface by CO-Directional G.703 interface, and “0101” represents “0,” “1100” represents “1”. two scare signal can be converted into three level signal by alternate transform the polarity of adjacent code and by polarity alternate on every 8th breach code, then transmit 8KHZ timing signal. co-directional G.703/RS232 converter can transmit 64KHz and 8KHz timing signal ,64Kbits date signal on one transmission direction by one pair balance lines

This converter provides bidirectional conversion between 64K codirectional interface of ITU G.703 and V.24 interface.

1.2 Product feature

- * Based on self-copy right IC;
- * Offer two clock way: G.703 master clock and G.703 line clock;
- * Offer three loop-back function:G.703 local loop-back, V.24 local loop-back, command remote V.24 loop-back;
- * Has PBRS test function and convenient for adjust and installation;
- * Support 120Ω balance impendence.

1.3 Parameter

■ Co-Directional 64K interface

Interface standard: G.703

Rate: 64Kbit/s±50ppm

Code: NRZ

Impedence: 120Ω(balance)

Connector : RJ45 (120Ω)

Jitter character: Satisfy G.742 and G.823

Clock way: Inner or line clock

Transmit distance: Max 800m

■ V.24 port

Rate: Synchronous 64Kbps

interface standard: Satisfy RS232standard

connector : DB25

connect type: DCE

clock type: G.703 recovery clock, inner clock,

V.24external clock

1.4 Dimensions

standalone: 210mm (L) ×138mm (W) ×30mm (H)

1.5 Power condition

DC-48V, input voltage -36V~-72V;

DC-24V, input voltage -18V~-36V;

AC220V: input voltage AC220V±20%, 50Hz

consumption: ≤5W (standalone)

1.6 Work environment

Work temperature: 0°C~50°C

Storage temperature: -40°C~+70°C

Relative humidity: 95 %

1.7 Package

Converter	1
5V-220V power adapter	1
Reference manual	1

2 Panels

2.1 Front panel

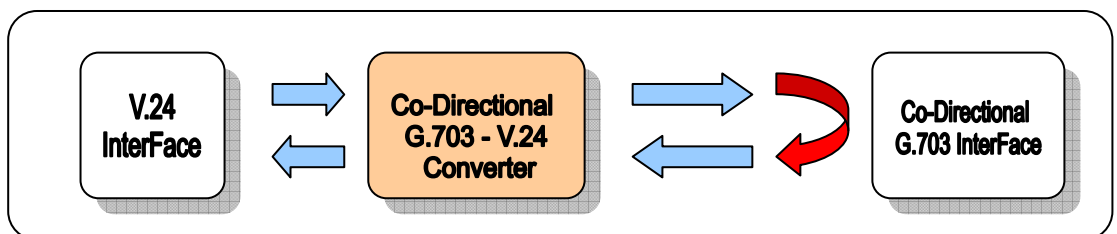


Front panel (standalone)

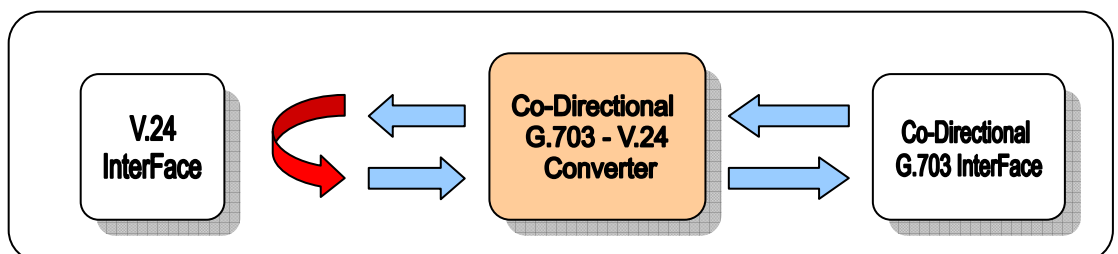
2.1.1 Loop-back test button

There are four buttons on the standalone equipment: ANA, DIG, REM, PATT.

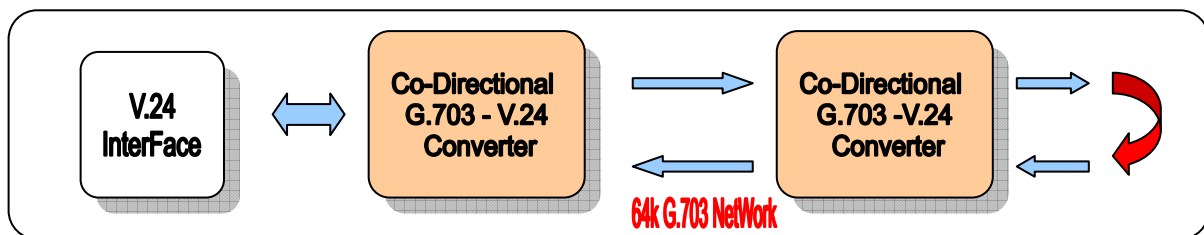
ANA: G.703 interface local loop-back self and could check local device, wire connection.



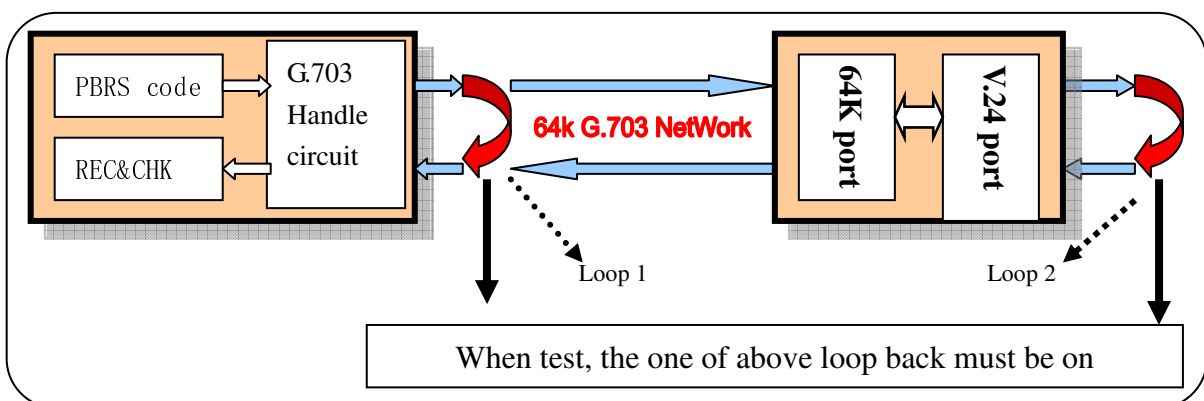
DIG: V.24 port local loop-back self and could check remote device, G.703line.



REM: Command remote V.24 loop-back self and could realize command remote by local.



PATT: PBRs test. The produced PBRs code input V.24 input port and check the signal from V.24 whether accords to the PBRs standard. If accords, PTOk will be ON; if not, PTOk will be off.



It could check local device when "loop 1" open. When "loop 1" close, "loop 2" open, it could check G.703 transmit line and local, remote device.

note: 5~8 DIP reserved, no function

- ① Press any button on the front panel and the communication will be interrupted, then it come to test mode.
- ② When PATT test, the line must be in a loop, otherwise the PBRs code will not return.

2.1.2 LED

TXD yellow: flick show V.24 port has data receive. Flick faster, show V.24 rate faster

RXD yellow: flick show V.24 port has data send. Flick faster, show V.24 rate faster

LOS red: E1 line loss code warning.

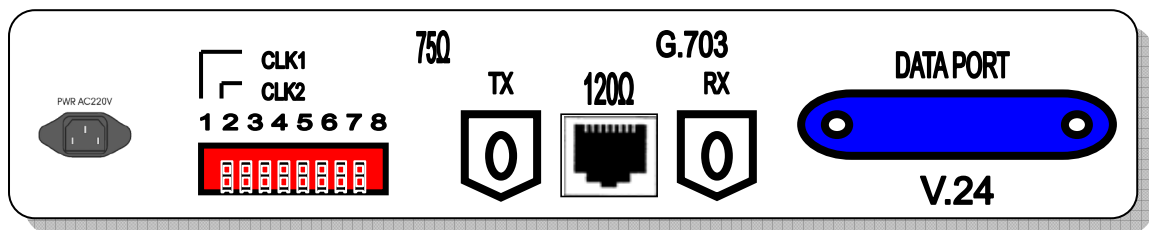
LOF red: spare

TEST yellow: show the device on test; (the device button is on);

PTOK green: PATT check normal;

PWR green: the power has collected;

2.2 Real panel



Real panel (standalone)

2.2.1 Power supply

5V power socket: input AC220V-5V power adaptor , inside positive and outside negative

* If select DC power, the connect way as followings:

“FG” connects to earth.

“DC-48V” connects to the negative of the power.

“GND” connects to the positive of the power.

Note: If the power of DC is used, the positive and negative terminal can be optional because there is the self-test circuit for the polarity inside the device.

2.2.2 Clock set (dip8- switch)

DIP1~DIP4: for clock setting (Clk1、Clk2、Rclk.inv、 Tclk.inv)

※Clock switch setting (DIP1、 DIP2)

Clk1	Clk2	Clock type	Application fields	model
OFF	OFF	E1 master clock, V.35 internal clock	connect with DTE equipments, such as router etc.	1
ON	ON	E1 line clock, V.35 internal clock		2
ON	OFF	E1 external clock, V.35 external clock	connect with DDN, ATM equipments	3
OFF	ON	E1 line clock, V.35 external clock		4
Commonly clock types		1) When connect with DTE equipments, such as router, the local device model is 1 , the remote device model is 2 . 2) One is connect with DDN(or other DDN equipments), another is connect with router(or other DTE equipments), the DDN model is 3 , the router model is 2 . Note: when the converter connected with DCE equipments (DDN or ATM exchange), the V.35 interface uses cross-twisted line. Please notify this when make an order.		

※ (DIP3) Clock reverse switch(DIP3, DIP4)

DIP3: Rclk.inv “ON”: V.35 receive clock reverse

“OFF”: Clock normal

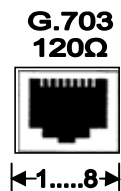
Note:

Mater clock: This is from inner crystal unit.

Line clock: This is from G.703 Co-Directional 64K.

2.2.3 G.703 Co-Directional 64K interface

* 120 Ω /balance (RJ45)



pin	definition	description
2	TX+	E1 send positive
3	TX-	E1 send negative
6	RX+	E1 receive positive
7	RX-	E1 received negative
1,4,5,8	NC

2.2.4 V.24 port

DB25 socket used as V.24 data port, the pins definition as follows:

DB25 pin number	Name	Corresponding 34 pin socket pin number
1	Protect GND	A
7	Signal GND	B
2	Send data A	P
14	Send data B	S
3	Receive data A	R
16	Receive data B	T
4	IRG to send	C
5	Empty send	D
6	DCE ready	E
20	DTE ready	H
8	Data carrier wave detected	F
24	Send clock A(from DTE)	U
11	Send clock B(from DTE)	W
15	Send clock A(from DCE)	Y
12	Send clock B(from DCE)	AA
17	receive clock A(from DCE)	V
9	receive clock B(from DCE)	X

3 Installation

- Unpack, inspect the content carefully. Verify that all items are included with your carton. Contact us or local agent if there is any content missing or damaged.
- Check power supply configuration. Care about the value of voltage if use DC input.

- Take following tests before usage:
 - Check if all the loop back test switch buttons on back panel is loosen, when G.703 not connect,PWR and LOS should be ON, and all other LED should be OFF.
 - Press PATT button, TEST should be ON, PTOK should be OFF. Then Press ANA button, PTOK ON and LOS OFF.
 - If used point to ponit, press PATT, and loosen ANA, press DIG or REM at remote, PTOK should be ON.
- If indicator LED works normally, unpress all switch on the back panel and power off, set clock, plug G.703 wires, then power on, the device should work normally.
- If device does not work normally, please refer to chapter 4: trouble shooting. Contact us or our local agent in time if the problem can not be solved.

4 Application



Application 1

5 Failure diagnose and eliminate

When work in normal, PWR, RXD and TXD flick, all other LED OFF.

* PWR off

description	solution
PWR off	<ol style="list-style-type: none"> 1. check power switch whether open; 2. AC input, check the power voltage value; 3. DC input, check the wire connection, also check the power voltage value

* LOS on

description	solution
LOS on	<ol style="list-style-type: none"> 1. check whether Co-Direction 64K pin position and crystal unit design is ok. 2. check whether remote device work normally; 3. check G.703 line connection by multi-meter. The coaxial core and shield couldn't communicate when normal. The resistance between core and core is 0.the resistance between shield and shield is 0.

* TXD flick but RXD off

description	solution
TXD flick RXD off	<ol style="list-style-type: none"> 1. Press ANA, if TXD and RXD flash, then remote device has problem. Press DIG to loop back to remote to Check remote device. 2. check whether V.24 wire connection and pin position is right.

* The date could transmit but has package loss

description	solution
The date could transmit but has	<ol style="list-style-type: none"> 1. Check if clock has problem and if all devices set as slave clock, then set one as master, or both as master;

package loss	2. check other device outside whether their Baud and parameter set right;
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* all the LED on, but data couldn't transmit

description	solution
All LED on, but has package loss	<ol style="list-style-type: none"> 1. check Co-Directional 64K whether has loop-back; 2. check remote device V.24 connection RX and TX; 3. check other device outside whether their Baud and parameter set right;

How to check whether the device work normally?

(1) If press ANA and PATT on one device, PTOK ON, if unpress ANA, PTOK OFF, then the device work normal.

caution:

1. When TEST light is ON, there is one or several loop-back test button pressed, then it will stop normal data communication. but released them, the device come to normal