

Codian ISDN Gateway

ISDN GW 3200 Series

Getting Started



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61-0001-01 rev 05

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General information

About the ISDN gateway

The ISDN GW 3200 series is a range of high performance video gateways which enables ISDN network connectivity for the Codian IP-based video infrastructure products as well as IP-based endpoints.

Package contents

The following items are included with the ISDN gateway. Verify that you have these items before installing the device:

- ▶ Codian ISDN GW 3200 series device
- ▶ Console cable (blue)
- ▶ ISDN cables (known as Y cables): one with GW 3210 and GW 3220, two with GW 3240 and four with GW 3280
- ▶ Two RJ45 to RJ45 in-line couplers (black) per supplied Y cable
- ▶ Power cable
- ▶ Rack mounting kit

Port and LED location

Figure 1 shows the position of ports on the ISDN gateway.

Figure 1: ISDN gateway front panel

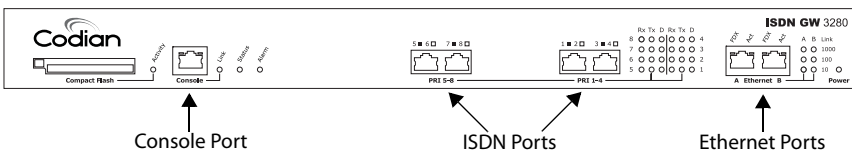
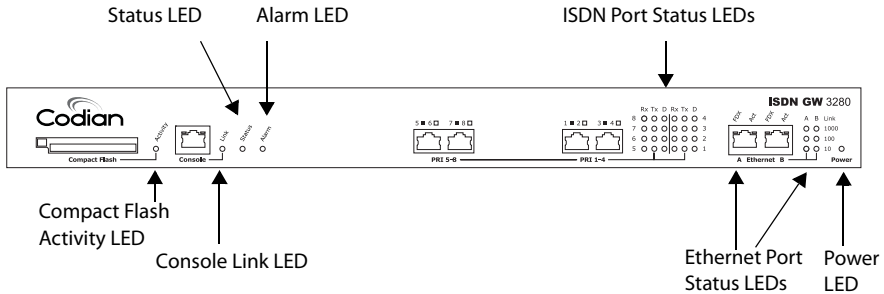


Figure 2 shows the position of LEDs on the front panel of the ISDN gateway.

Figure 2: Position of LEDs



LED behavior

Table 1 describes the behavior of the LEDs.

Table 1: ISDN gateway LED behavior

LED	Color	Indicates
Compact Flash Activity	Flashing green	One of: <ul style="list-style-type: none"> ▶ the ISDN gateway is booting ▶ a configuration change has been made ▶ the configuration is being transferred by FTP
Console Link	Green	A PC is connected to the console port
Status	Green	The ISDN gateway is operating normally
Alarm	Red	The ISDN gateway is booting or has developed a fault, for example: <ul style="list-style-type: none"> ▶ temperature is outside normal limits ▶ fan failure ▶ battery failure of the internal clock Refer to the web interface for more information about the problem (go to Status > Health)

Table 1: ISDN gateway LED behavior (continued)

LED	Color	Indicates
ISDN Port Status, for each ISDN port:		
Rx	Green	There is at least one active call using this port. Data is currently being received on this port
Tx	Green	There is at least one active call using this port. Data is currently being transmitted on this port
D	Green	Layer 2 connectivity has been achieved with the ISDN network from this port. This means that D-channel signaling has been established with the network
Ethernet Port Status, for each Ethernet port:		
FDX	Green	The link has been negotiated as a full-duplex link
Act	Green	Packets are being transmitted on this port
Link	Green	The speed of the link from this port, which is either 10, 100, or 1000 Mbps
Power	Blue	The ISDN gateway is receiving power

Connecting the ISDN gateway

Before you start



IMPORTANT: Before installing the ISDN GW 3200 (ISDN gateway), you must read the safety information at <http://www.codian.com/safety.htm>

Your ISDN connection



To maintain connectivity with the ISDN network, the ISDN gateway must be connected to the ISDN network via an in-building NTU (Network Termination Unit) or CSU (Channel Service Unit).



The ISDN gateway only supports ISDN with 64k channel size.

Check with your network provider to ensure that your incoming ISDN PRI line has been terminated in an NTU/CSU. If it has not, then seek their advice regarding the provisioning of such a device. Do not connect the ISDN gateway directly to an external ISDN line.

Step one: Connect power

Connect the power connector on the rear of the unit to the power supply using the supplied power cable. (There is no On/Off switch.)

Step two: Connect to Ethernet Port A

Connect an Ethernet cable from Ethernet Port A to an Ethernet switch (rather than a hub, to minimize interference from other devices on the network). The Ethernet port is a 10/100/1000 Mbps auto-sensing connection.



Only connect to Ethernet Port A. Ethernet Port B is reserved for future expansion; do not connect anything to Ethernet Port B.

Step three: Connect to the ISDN ports

The ISDN gateway uses high-density ISDN connectors to provide two ISDN interfaces on a single RJ45 connector. This high-density connector means that you must use the supplied Y cable (see Figure 3) to connect the ISDN gateway to your ISDN connection.



You must use the Y cable, even if you plan to connect just one of the ISDN interfaces. Using a standard straight-through cable will not work.



The Codian ISDN gateway may not be compliant with EMC (Electromagnetic Compatibility) standards if you use a cable other than the supplied Y cable.

For information about the behavior of the ISDN port LEDs, refer to Table 1, ISDN gateway LED behavior, on page 4.

Figure 3: Y cable

Single end;
plug into ISDN
gateway



Double end;
plug into ISDN
connection

- 1 Connect the single end of the supplied Y cable to the port labeled 1 2 on the ISDN gateway.
- 2 Connect the white and blue plugs on the double end of the Y cable to your ISDN connection. If you have a GW 3210, connect only the white plug (leaving the blue plug unconnected); if you have a GW 3220, connect the white plug and the blue plug to your ISDN connections.



For D-channel signaling to be established, the ISDN gateway must have found and synchronized with the ISDN network clock. In some installations, you may have to explicitly request your ISDN provider to enable the network clock before the link will be established.

Connecting further ISDN ports

If you have a model GW 3240 or GW 3280, you will have been supplied with more than one Y cable. Connect each further cable following the method outlined above.

Extending the Y cable

You have been supplied with two RJ45 to RJ45 in-line couplers per Y cable. Use these if you need to extend the Y cable to reach your ISDN connection. If you need to do this, connect the coupler at the double end of the Y cable and extend using a standard (8-core) straight-through cable. For example, in the case of a GW 3210, connect the coupler to the white plug at the double end of the Y cable, and a straight-through cable between the in-line coupler and the ISDN connection.

Initial configuration

Step one: Connect to the console port

- 1 Ensure power is connected to the ISDN gateway and the Status LED is green.
- 2 Connect the console port of the ISDN gateway to the serial port of your PC using the blue RJ45 to DB9 cable supplied.
- 3 Use a serial terminal program, such as HyperTerminal, to connect to the ISDN gateway. Set your terminal software to the following settings:
 - Baud rate: 38400
 - Data bits: 8
 - Parity: none
 - Stop bits: 1
 - Flow control: none
- 4 Press Enter and the following command prompt appears on the terminal:
`ISDN-GW:>`

Step two: Configure Ethernet Port A settings

The default setting for the ISDN gateway Ethernet ports is auto-sensing mode. If the switch ports to which you connect the ISDN gateway are not also set to auto-sensing mode, then you need to configure the ISDN gateway Ethernet ports to use the same speed and duplex mode.



Only connect to Ethernet Port A. Ethernet Port B is reserved for future expansion; do not connect anything to Ethernet Port B.



Both ends of the Ethernet connection must be configured in the same way. For example, either configure both ends of the link to be auto-sensing or configure both ends to operate at the same speed and duplex.



To establish a 1000Mbps connection, both ends of the link must be configured as auto-sensing.

-
- 1 To configure Ethernet Port A, enter the following for auto-sensing mode:
ethertype auto
or to configure a speed and duplex, use the following command:
ethertype <10|100> <half|full>
 - 2 To display the current configuration and status of the Ethernet ports, enter:
status

For example, to configure a full-duplex 100Mbps link, enter:

```
ethertype 100 full
```



To establish a 1000Mbps connection, both ends of the link must be configured as auto-sensing.

Step three: Assign an IP address to the ISDN gateway (optional)

The default setting for the ISDN gateway is to use DHCP to obtain an IP address. You can assign a static IP address if you prefer or if a DHCP server is not available.

If you want the IP address of the ISDN gateway to be assigned by your DHCP server, omit this step.

- ▶ To assign a static IP address, use the following command:
**static <IP address> <netmask> <default gateway address>
<DNS server address>**



If you do not have a DNS server, use 0.0.0.0 as the DNS server IP address.

For example, to assign an address of 192.168.1.2 where the default gateway is at 192.168.1.1, enter:

```
static 192.168.1.2 255.255.255.0 192.168.1.1 0.0.0.0
```

Step four: Discover the IP address of the ISDN gateway

- 1 To display the current status of the IP address, enter: **status**
If you have DHCP enabled on your network and you are allowing the ISDN gateway to acquire its address using DHCP, the IP address that has been acquired by Ethernet Port A will be shown; if you have assigned a static IP address, that is the address that will be shown.
- 2 Make a note of the IP address. You will use this to access the web interface of the unit.

Configuring the ISDN gateway

Step one: Log in to the ISDN gateway

All administration of the ISDN gateway is performed via the web interface.

To log in to the ISDN gateway:

- 1 Use your browser to navigate to the IP address of the ISDN gateway (to discover the IP address, refer to the previous section).
- 2 Click **Change log in** and enter the user name **admin** with no password.



Codian recommends that you change the admin account to use a password as soon as possible. To do that, go to **Users**, click the **admin** link, and provide the required user information.

Step two: Set up the ISDN interfaces

- 1 In the web interface, go to **Settings > ISDN**.
- 2 Select the **ISDN interface type** to match that of your installation; E1 is typically used in the UK and mainland Europe, T1 (USA and Canada) in North America, and T1(Japan) in Japan.
- 3 Complete the other settings as required by your network, referring to the online help for further information.
- 4 Click **Apply changes** to save any changes you have made to the configuration.
- 5 Restart the ISDN gateway (this is only necessary if you changed the ISDN configuration). To do this:
 - i Go to **Settings > Shutdown**, and click **Shut down ISDN GW**.
 - ii Confirm that you want to shut down the ISDN gateway.
 - iii Click **Restart ISDN GW**.
- 6 When the ISDN gateway has restarted, log in to the web interface again, and go to **Settings > ISDN ports**.
- 7 Complete the settings for ISDN Port 1 as required by your network, referring to the online help for further information. Note that all ISDN ports on the ISDN gateway are enabled by default.
- 8 Click **Apply changes** to save your configuration changes to the ISDN port.
- 9 If required, configure another ISDN port by selecting the port number from the numbered links at the top right of the ISDN port configuration page.

Step three: Configure the dial plan

The default behavior of the ISDN gateway is to reject all calls. You must configure a dial plan to allow permitted calls to be placed.

There are a number of different ways in which you can use the dial plan. For example, you can use the dial plan to link specific bandwidths to certain prefixes, thereby enabling users to use the correct bandwidth for an IP to ISDN call. You can also use the dial plan to enable the ISDN gateway to join incoming ISDN calls to the correct conference on an MCU. These dial plan configurations are explained in greater detail and with supporting examples in the online help accessible from the web interface.

The simplest configuration is to create a dial plan that will:

- ▶ connect any IP to ISDN call that has been routed to the ISDN gateway to the number that the caller has dialed (using any free enabled port)
- ▶ connect any ISDN to IP call to the auto attendant of your MCU

To do this:

- 1 In the web interface, go to **Dial plan > IP to ISDN** and click **Add rule**.
- 2 For **Condition**, select **Match any called number**.
- 3 For **Action**, select **Call with the original called number**.
- 4 Leave the other values unchanged. Click **Add rule** to add the rule to the dial plan.
- 5 Now go to **Dial plan > ISDN to IP**, and click **Add rule**.
- 6 For **Condition**, select **Match any called number**.
- 7 For **Action**, select **Call this number** and enter the IP address of your MCU.
- 8 Leave the other values unchanged. Click **Add rule** to add the rule to the dial plan.

Configuring the MCU

If you are connecting the ISDN gateway to a Codian MCU, refer to this section for information.

Adding the ISDN gateway

To simplify the making of outgoing calls by ISDN, you can configure your MCU. To do this:

- 1 Using your web browser, navigate to the web interface of the MCU.
- 2 Go to **Gateways**.
- 3 Click **Add new H.323 gateway**.
- 4 Enter a name for the gateway, such as *Codian ISDN gateway*, and specify the IP address of the ISDN gateway. Leave all other fields unchanged.
- 5 Click **Add H.323 gateway**.

Configuring endpoints

The simplest way to call ISDN endpoints from your MCU using the ISDN gateway is to define pre-configured endpoint definitions for any endpoints you wish to call.

To define pre-configured endpoint definitions:

- 1 Using your web browser, navigate to the web interface of the MCU.
- 2 Go to **Endpoints**.
- 3 Click **Add H.323**.
- 4 Enter a name for the endpoint, such as *CEO ISDN phone*.
- 5 In the **Address** field, type the phone number of the endpoint.
- 6 Select the gateway you have just added for **H.323 gateway**. Leave all other fields unchanged.
- 7 Click **Add endpoint**.

You can now call out to this endpoint as described in the next section.

Making calls

When you have set up the Codian ISDN gateway, and MCU if appropriate, you can make calls via the ISDN network.

Calling in by ISDN

If you have configured the dial plan as described in Step three: Configure the dial plan on page 12, endpoints calling the telephone number of the ISDN gateway will, when the call is completely established, be forwarded to the auto attendant of the MCU. From here they can use the Far End Camera Controls (FECC) of their endpoint to navigate the menus and join conferences as normal.

Calling out by ISDN

To call an endpoint connected by ISDN, invite it into a conference using the pre-defined endpoint. To do this on the Codian MCU:

- 1 Using your web browser, navigate to the web interface of the MCU.
- 2 Go to **Conferences** and select the conference you are interested in by clicking its name.
- 3 Click **Add participant** and select the ISDN endpoint from the list of pre-configured endpoints. Click **Add selected**.

A call will be placed through the ISDN gateway to the desired endpoint.

Troubleshooting and technical support information

Refer to this section if you are experiencing difficulties with the ISDN gateway. Ensure that you have followed the instructions in this guide when installing and configuring the ISDN gateway.

Calls fail to complete

If outgoing calls fail to complete, check that you have configured the MCU and ISDN gateway correctly, paying particular attention to the number you are trying to call. Remember that endpoints may be busy when you call them.

Using the event log to help solve a problem

Unless you are experiencing a problem, all event logging sources should be set to the default, which is **Errors, warnings and information**. For more information about configuring the event log, refer to the online help accessible from the web interface.

You can use the event log to produce debugging information to assist technical support in solving your problem. However, we recommend that you only alter the setting of the event log under the guidance of technical support representatives. In particular, it is not recommended that you indiscriminately turn on event logging sources.

Getting more help

If the documentation does not answer your question or you have a problem with one of our products:

- 1 Refer to the Technical FAQ section of the web site. We keep the Technical FAQ section up to date with the latest information from our technical support team regarding the resolution of customer issues.
- 2 Contact your reseller. Our resellers have a wealth of experience with our products and this is sometimes a quick way of solving a problem.
- 3 If your query remains unsolved, there is a web form in the Support area of the web site that you can complete. Ensure that you provide all the details requested by the form to assist the technical support team in resolving your problem:
 - the serial number and product model number (for example: ISDN GW 3210) of the unit
 - the software build number (to find this, in the web interface, go to **Status > General**)
 - where you purchased the unit
 - your contact email address or telephone number

Pin outs

The pin assignments for the RJ45 ISDN ports on the ISDN gateway are shown in Table 2:

Table 2: Pin assignments for ISDN ports

Pin number	Signal
1	Port 2 Tx+
2	Port 2 Tx-
3	Port 1 Tx+
4	Port 1 Rx+
5	Port 1 Rx-
6	Port 1 Tx-
7	Port 2 Rx+
8	Port 2 Rx-

Use the supplied Codian Y cable to ensure compliance with EMC standards.

The following tables show the pin assignments for the double end of the supplied Codian Y cable. Pin assignments for the white end are shown in Table 3, and for the blue end in Table 4.

Table 3: Pin assignments for the white end of the Y cable

Pin number	Signal
1	Port 1 Rx-
2	Port 1 Rx+
3	Unassigned
4	Port 1 Tx-
5	Port 1 Tx+
6	Unassigned
7	Unassigned
8	Unassigned

Table 4: Pin assignments for the blue end of the Y cable

Pin number	Signal
1	Port 2 Rx-
2	Port 2 Rx+
3	Unassigned
4	Port 2 Tx-
5	Port 2 Tx +
6	Unassigned
7	Unassigned
8	Unassigned

Technical specifications

Power requirements

Table 5: ISDN gateway ratings

Rating	Value
Nominal voltage	115V to 230V 50/60 Hz
Current rating	2A Maximum
Supply voltage range	100 to 240V 50/60 Hz

Over-current protection

Ensure the supply to this unit is protected by a branch circuit protector rated by a maximum of 20A.



Caution — over-current devices must meet applicable national and local electrical safety codes and be approved for the intended application.

Operating environment

The ISDN gateway must only be used within the following environmental conditions:

Table 6: Operating environment

Environment	Temperature	Humidity
Operating environment	0°C to 35°C	10% to 95% (non-condensing)
Non-operating environment	-10°C to 60°C	10% to 95% (non-condensing)
Optimum operating environment	21°C to 23°C	45% to 50% (non condensing)

Antistatic precautions

When servicing or removing components or connections, first attach an antistatic wrist strap to an appropriate Earth point.

