arcx INDUSTRIAL

AXM-ECG52254-M001

Hardware Reference Guide

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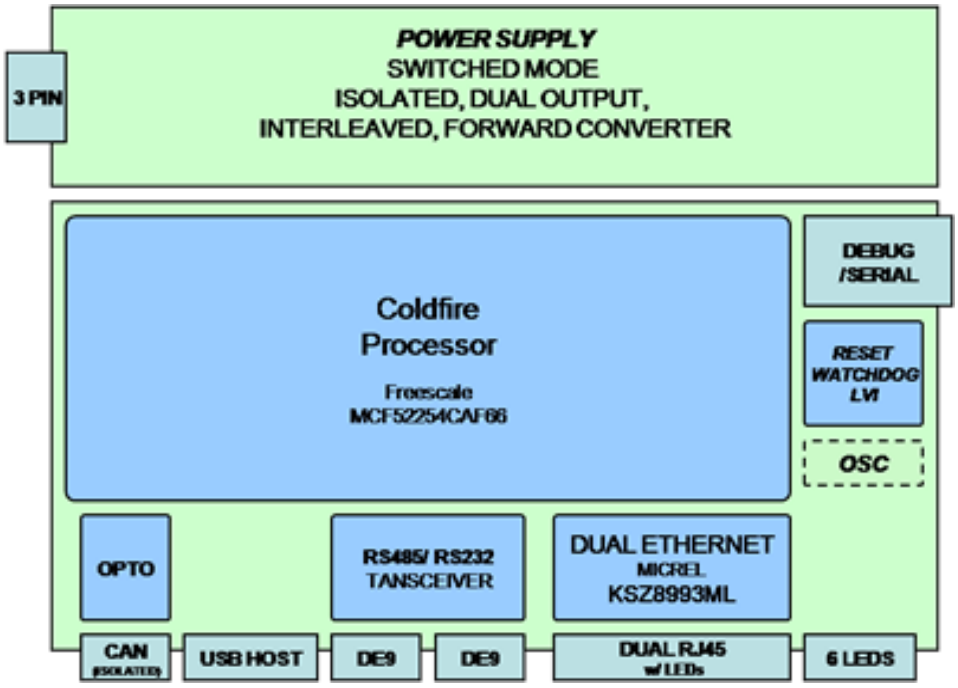
1 Description

The Archronix AXM-ECG52254-M001 is a hardware platform offering fully isolated CAN and DC power supply that is ideal for the development of industrial CAN and Serial to Ethernet gateways. Two switched Fast Ethernet ports are provided to support both star and daisy-chain network topologies. A non-isolated version is also available at lower cost with external AC/DC adapter (AXM-ECG52254-M002).

No additional software is needed. The Device can be configured using standard terminal programs found on typical computer operating systems. Simply connect to either the Serial Port or Ethernet port and you can set up all the ports in seconds.

With two devices one can extend Serial and CAN (ie DeviceNET) networks over large distances either through a direct RJ45 connection or through a corporate network.



AXM-ECG52254-M001 System Diagram

1.1 Specifications

Device Specifications	
Dimensions (HWD):	4 ½" x 4 ½" x 2" (11.4 cm x 11.4 cm x 5.1 cm)
Weight:	0.300 lbs (0.136 Kg)
Power Requirement:	24VDC
Operating Temperature:	0ºC to +70ºC
Storage Temperature:	-40ºC to +85ºC
Processor:	Freescale MCF52254 with Coldfire V2 CPU at 66MHz
Memory:	Integrated 512KB Flash
	64KB RAM
CAN:	Isolated DeviceNet/CAN Interface with Isolated Power
Ethernet:	10/100MBit Dual port Switched Ethernet for Daisy Chain Topology
Serial:	2 Multi-Protocol Serial Ports (RS232/RS422)
USB:	USB 2.0 Compliant Full Speed Host (12Mb/s)
Watchdog:	Hardware Watchdog and Low Voltage RESET
Configuration:	Serial I2C EEPROM for Configuration
Software:	Complimentary MQX RTOS, TCP/IP and USB Stacks
RoHS:	RoHS Compliant

1.2 Accessories

Accessories	
Din Clip:	AXM-ECG52254-B000
Mounting Bracket:	AXM-ECG52254-B001

2 Device Configuration

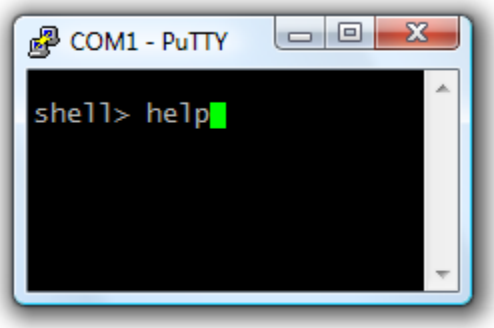
2.1 Configuring the Device

Make sure that the device is in Program Mode. The switch on the top left of the device can be used to enable Program or Run Mode. When configuration is complete, the device must be set to Run mode. Note: if the device boots up and does not obtain an IP Address, it will automatically revert to Program mode.

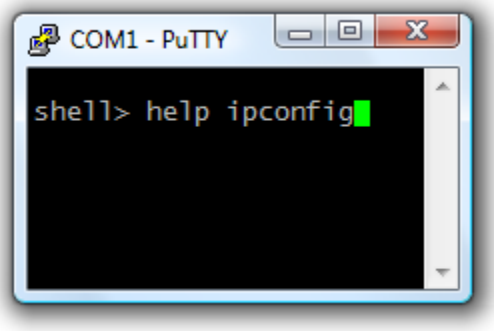
You will need a terminal program such as Hyperterm, Minicom, kermit, or PuTTY. The initial connection can be made by connecting to the serial port on the device labeled COM 1 with a null modem cable. A baud rate of 9600 is required.

You can also connect to the device via a telnet session. The device must be in Run mode to initiate a telnet session.

Upon successful connection, you should be presented with a shell prompt and are now ready to begin configuring the device. At any time you can type help at the command prompt for more information on any of the available commands.



Specific information regarding a certain command can be obtained by typing help followed by the name of the command as follows:



2.2 Saving Your Configuration

2.2.1 Save Command

IMPORTANT NOTE: After configuring the device to meet your requirements, you must save your changes in order for your changes to be remain after a reboot. You can save your configuration with the save command.

Save

2.3 Configuring the IP Settings

Note: If these tests are done using a telnet shell instead of the serial shell, changing the IP address may terminate the telnet session. It may take up to 60s for the device to re-open the telnet server on the new address.

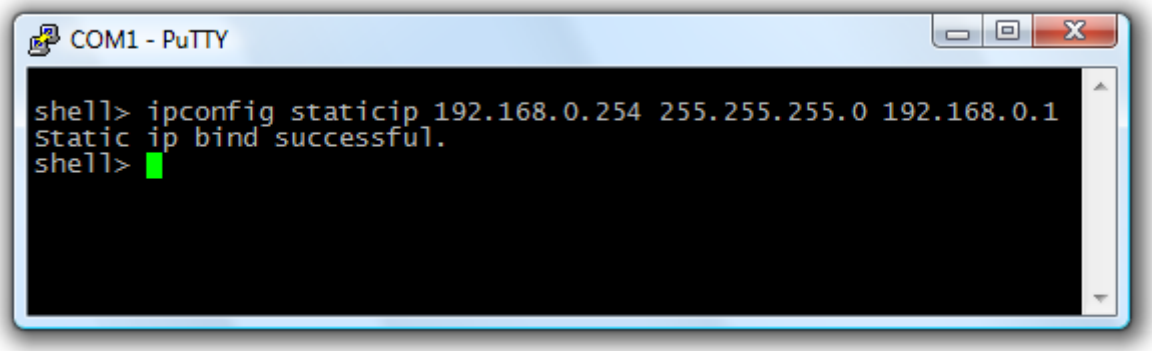
2.3.1 Static IP

To set a static IP address, you will need to enter the following command:

Command: ipconfig staticip <ip> <mask> <gateway>

Example: ipconfig staticip 192.168.0.254 255.255.255.0 192.168.0.1

ip - the desired IP Address
mask - the desired subnet mask
gateway - the desired default gateway



2.3.2 Dynamic IP

Dynamic IP can optionally be configured with the auto IP feature. When enabled, this will allow the device to automatically set its IP address when a DHCP server is not responding. A default IP address and subnet mask are required in this case. To configure the port for DHCP with auto IP, you will need to enter the following command:

Command: ipconfig dhcp <ip> <mask> <gateway>

Example: ipconfig dhcp 192.168.0.254 255.255.255.0 192.168.0.1

If you do not wish to enable the auto IP feature simply enter the command as follows:

Command: ipconfig dhcp noauto

Example: ipconfig dhcp noauto

ip - the desired IP Address
mask - the desired subnet mask
gateway - the desired default gateway
noauto - specifies to not use the auto IP feature

2.3.3 Ethernet Port Status

At any time, you can check the status of the Ethernet Port using the following command:

Command: ipconfig

Example: ipconfig

2.4 Configuring the Serial Ports

Note: The Serial and CAN Ports cannot be enabled simultaneously. When either Serial Port is enabled, the CAN port will automatically be disabled.

There are several options that can be configured. Firstly, you must enable the UART.

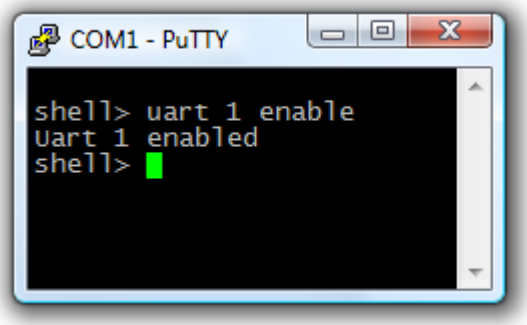
2.4.1 Enabling the Serial Port

You can enable Serial Port using the following command. This enables the UART and the telnet server.

Command: uart <device> enable

Example: uart 1 enable

device - the port you wish to configure (1 or 2)



2.4.2 Serial Mode

Secondly, you need to configure the UART for either RS-232 or RS-422 operation. The UART mode can be configured as follows

Command: uart <device> mode <uart mode>

Example: uart 1 mode rs232

device - the port you wish to configure (1 or 2)
uart mode - the desired mode of operation (rs232 or rs422)

2.4.3 Baud Rate

The baud rate can be set using the following command:

Command: uart <device> baud <baud rate>

Example: uart 1 baud 9600

device - the port you wish to configure (1 or 2)
baud rate - the desired baud rate of communications

2.4.4 Data Bits

The number of data bits can be set using the following command:

Command: uart <device> bits <5|6|7|8>

Example: uart 1 bits 8

device - the port you wish to configure (1 or 2)

2.4.5 Parity

The parity mode can be set using the following command:

Command: uart <device> parity <parity mode>

Example: uart 1 parity odd

device - the port you wish to configure (1 or 2)
parity mode - the mode of parity checking (none, odd, even, force, mark, or space)

2.4.6 Stop Bits

The number of stop bits can be set using the following command:

Command: uart <device> stop <1|1.5|2>

Example: uart 1 stop 1

device - the port you wish to configure (1 or 2)

2.4.7 Size

The size of the data that will trigger a send can be set using the following command:

Command: uart <device> size <1-256>

Example: uart 1 size 256

device - the port you wish to configure (1 or 2)

2.4.8 Delimiters

You can set the delimiter(s) using the following command:

Command: uart <device> dbytes d1 [d2] [d3] [d4]

Example: uart 1 dbytes 0d 0a

device - the port you wish to configure (1 or 2)
d1 - hex value of first delimiter
d2 - hex value of second delimiter (optional)

2.4.9 Delimiter Mode

You can set whether the delimiters will be used to trigger a send using the following command:

Command: uart <device> dmode [off|or|and]

Example: uart 1 dbytes or

device - the port you wish to configure (1 or 2)

2.4.10 Send Timeout

You can set the timeout used to trigger a send using the following command:

Command: uart <device> timeout [timeout in ms]

Example: uart 1 timeout 100

device - the port you wish to configure (1 or 2)

2.4.11 Serial Port Status

At any time, you can check the status of the Serial Port using the following command:

Command: uart

Example: uart

2.4.12 Serial Port Status

At any time, you can check the status of the Serial Port using the following command:

Command: uart stats

Example: uart stats

2.5 Configuring the CAN Port

Note: The CAN and Serial Ports cannot be enabled simultaneously. When the CAN Port is enabled, the serial ports will automatically be disabled.

2.5.1 Baud Rate

Setting the baud rate will automatically enable the CAN port (and disable the Serial Ports). The CAN baud rate can be set using the following command:

Command: can baud <baud rate>

Example: can baud 125

baud rate - the desired baud rate of communications

2.5.2 CAN Port Number

The CAN port is used to specify the UDP port number used for forwarding CAN messages over Ethernet. In order to communicate, the sending and receiving devices must use the same port number. You can isolate a CAN network by giving it a different CAN port number. The CAN port number can be set using the following command:

Command: can port <port number>

Example: can port 5500

Port number - the desired port number (1-65535)

2.5.3 Disabling CAN

The CAN port can be disabled using the following command:

Command: can disable

Example: can disable

2.5.4 CAN Port Status

At any time, you can check the status of the CAN Port using the following command:

Command: can

Example: can

2.5.5 CAN Port Status

At any time, you can check the status of the CAN Port using the following command:

Command: can stats

Example: can stats

2.6 Rebooting the Device

At any time, you can reboot the device using the following command:

Command: reboot

Example: reboot

2.7 Device Firmware Version

At any time, you can query the device firmware version using the following command:

Command: version

Example: version

3 Diagnostic Utilities

3.1 sw

Command: sw {id | dyn | sta [<cmd>] | vlan [<cmd>]}

3.2 netstat

The netstat (network **stat**istics) utility displays network connections (both incoming and outgoing), routing tables, and a number of network interface statistics. It is used for finding problems in the network and to determine the amount of traffic on the network as a performance measurement.

Command: netstat

3.2 arp

The Address Resolution Protocol (ARP) is used to determinine a network host's link layer or hardware address when only its Internet Layer (IP) or Network Layer address is known.

Command: arp [<ihandle>]

3.2 ping

The Ping utility is used to test whether a particular host is reachable across an Internet Protocol (IP) network and to measure the round-trip time for packets sent from the local host to a destination computer, including the local host's own interfaces.

Command: ping <host>

3.2 telnet

The Telnet (teletype network) utility is used on the Internet or local area networks to provide a bidirectional interactive communications facility.

Command: telnet <host>

3.2 sendto

The sendto utility is used to transmit a UDP message to another host.

Command: sendto <host> <port> [<length>] [<count>]

4 Mounting Options

4.1 DIN Clip

Part Number: AXM-ECG52254-B000

Din rails are commonly used on a variety of industrial equipment to mount components on the rails, including PLCs and terminals. For convenient field installation and service, the DIN Clip allows AXM-52254-M001 modules to be located near the industrial control equipment on the DIN rail.

The AXM-ECG52254-B000 DIN rail clip mounts to the rear of Arcx AXM-52254-M001 modules. The rugged plastic clip securely mounts to all common profiles of 35mm DIN rail (i.e., Top Hat rail) and is compatible with A-series mounting rails.

Arcx AXM-52254-M001 with AXM-ECG52254-B000 DIN Clip

4.2 Mounting Bracket

Part Number: AXM-ECG52254-B001

The AXM-ECG52254-B001 Mounting Bracket option allows device mounting in a variety of different orientations. The AXM-ECG52254-B001 Mounting Bracket mounts to either the rear or the side of Arcx AXM-52254-M001 modules and can be fastened vertically or horizontally. This allows the device to be located and oriented in a manner convenient for field installation and service.

AXM-ECG52254-B001 Mounting Bracket

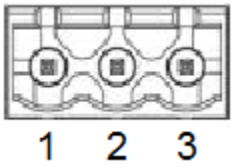
5 Connections and Wiring

5.1 Power

Description

The AXM-ECG52254-M001 requires 24VDC input power. There is an Power status LED on the device front panel. Connection details are shown below.

Connection Details



Manufacturer Part Number: Phoenix Contact 1757255

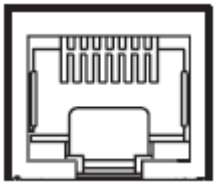
Power Connector Wiring Specification		
Pin	**Signal**	**Voltage**
1	+24V	24V
2	COM	0
3	CHAS	-

5.2 EtherNet

Description

The AXM-ECG52254-M001 supports two Ethernet ports. There is an Ethernet status LED on the device front panel. Green indicates that Ethernet an IP address has been assigned and red indicates that no IP address has been assigned to the port.

Connection Details



Manufacturer Part Number: Molex 847000001

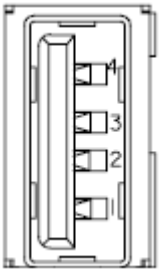
Ethernet Connector Wiring Specification	
Pin	**Signal**
1	TX (+)
2	TX (-)
3	RX (+)
4	-
5	-
6	RX (-)
7	-
8	-

5.3 USB

Description

The USB port has been included for future use.

Connection Details



Manufacturer Part Number: Molex 89485-8000

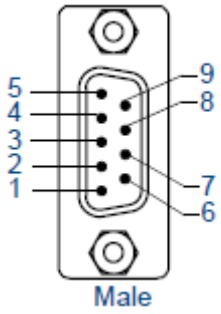
USB Connector Wiring Specification	
Pin	**Signal**
1	
2	
3	
4	

5.4 Serial

Description

The AXM-ECG52254-M001 supports two serial ports. These ports support both RS-232 and RS-422 communication protocols for data transmission. There is a Serial status LED on the device front panel. A Green light indicates that the Serial port has been enabled. The connector specification for the Serial Ports is shown below.

Connection Details

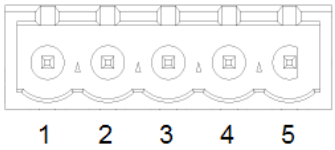
Serial Connector Wiring Specification			
Diagram	**Pin**	**Signal**	**Function**
	**1**	-	-
	2	RXD	Receive Data
	3	TXD	Transmit Data
	4	-	-
	5	GND	Ground
	6	-	-
	7	RTS	Request To Send
	8	CTS	Clear To Send
	9	-	-

5.5 CAN

Description

There is a CAN status LED on the device front panel. A Green light indicates that the CAN port has been enabled. See Connection Details below for more information.

Connection Details



Manufacturer Part Number: Phoenix Contact 1748222

CAN Connector Wiring Specification		
Pin	**Signal**	**Voltage**
1	CAN-	0
2	CANL	-
3	SHLD	-
4	CANH	-
5	CAN+	24V