smx

COMMS	Serial connection to I/O expander or DSC panel
AC	Mains fail/restore
TIP	TIP (to alarm panel telephone interface)
IP7	Input 7
IP6	Input 6
IP5	Input 5
IP4	Input 4
IP3	Input 3
IP2	Input 2
IP1	Input 1
-	- DC Supply & RING
+	+ 12V DC Supply

Relay 2   Relay 1

AC bypass jumper   J18   CID jumper   J17

SIM2   SIM1   Primary SIM

SYS   GSM   PWR   TEST
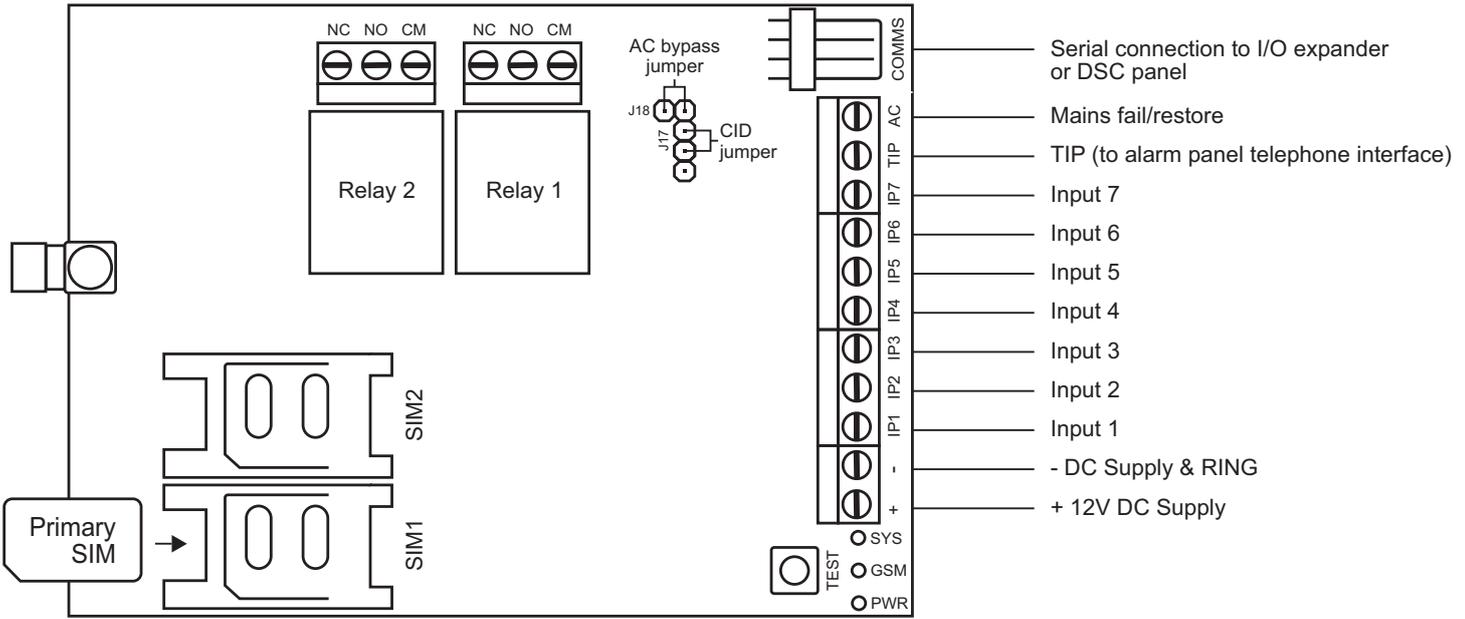
GETTING STARTED

SIM card preparation

Choose the right SIM cards
SIM cards from any network on prepaid or on contract (recommended) can be used. Choose network/s with the best coverage in the area and the best SMS rates.

NOTE – Make sure that sufficient airtime or SMS bundles are loaded. Air time loading methods are network specific.

Disable SIM PIN before installation
The SMX will not function with a SIM PIN enabled. Disable the PIN by inserting it in a mobile phone and deselecting the SIM PIN function. If a PIN is not requested when the phone is switched on, the PIN has been disabled.

CLIP (Calling Line Identification Presentation)
A CLIP enabled SIM is required for missed call functions. Most pre-paid SIMs are CLIP enabled, but contract SIMs usually carry additional charges for CLIP.

SIM churning
Prepaid SIMs that do not produce billable events for about three months are churned (de-activated by the network). Configure a regular self test SMS to keep SIMs active.

IMPORTANT
When using dual SIMs configure the SMX to periodically use the redundant SIM to avoid churning. *See remote configuration leaflet.*

Signal strength
Network signal strength can be improved by using a blade antenna or repositioning the unit. A minimum of 1-2 bars, indicated on a mobile phone in the same position, is required.

IMPORTANT:
DO NOT insert or remove SIM cards
while the unit is powered!

Install PC software and connect to the unit

Software installation   SMX USB dongle
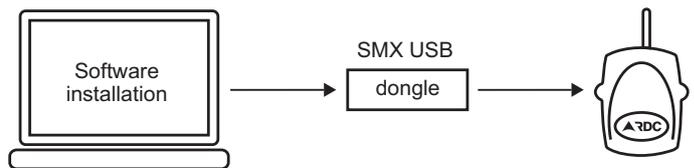
Status screen
Refer to the status screen in the programming application for SIM, network, battery and hardware status information.

Configure the message centre number/s
The unit cannot reply to SMS messages if the correct message centre number/s are not selected. Input the number/s manually if not listed.

Power requirements
The unit operates between 10-16V DC.
- 60mA   when idle with no inputs or relays active
- 300mA   (average) when GSM active
- 1000mA (peak) during power up
- 120mA   with I/O expander connected (idle with no inputs or relays active)

LED indications

....	Searching for GSM network
.. ..	Registered on GSM network - AC failure
. . . .	Registered on GSM network - AC present
......——......—.	Configuration failure

ARDC™

SMS MESSAGING

General setup

Set unit time
The unit time is automatically set by the PC programming software.

Unit reporting name
The reporting name is displayed in each SMS message to identify from which unit the message is received.

Set the auto test period
Program the unit to send an 'auto test' SMS to the reporting numbers once a day at a pre-set time. The feature also prevents prepaid SIM cards being churned by the network operator.

> **IMPORTANT**
> Due to the dual SIM feature, the TX-SMS should be commanded periodically to use the redundant prepaid SIM card so that it is not churned. *See the remote command guide on how to do this.*

AC input monitoring
The input monitors and reports AC failures (16VAC max). To ensure correct reporting, insert the DC bypass jumper when a DC voltage reflecting the AC status is used. *See diagram on first page.*

AC status delay - The delay prevents unnecessary SMSs caused by accidental unplugging and tripping or brownout.
Tripping/unplugging - standard setting 10 minutes
Brownout   - standard 5 seconds
Default setting   - 10 minutes

Battery monitoring
Low battery   - reported at 11.5V
Critical battery - reported below 10.5V
Battery restore   - reported when rises above 12V

Set vibration tamper monitoring sensitivity
A built-in vibration sensor sends a tamper SMS when movement of the unit is detected. Set the sensitivity appropriate to the installation from 0 - most sensitive to 255 - disabled.

Hardwired input messaging

Use direct connections to alarm panels or other low voltage equipment (maximum input 16V DC).

Below 2V DC = low
Above 10V = high

Enter message recipient numbers
Enter up to 10 mobile numbers to which SMS messages will be sent.

Enter the input messages
Input messages define the wording of SMS messages that are sent when inputs are triggered. Set messages for both high and low triggers. A blank field generates no message.

Configure message distribution
Use message distribution to avoid unwanted SMS messages to selected users. Select which input messages are sent to which of the 10 message recipient numbers.

Contact ID messaging

Connect the TIP and Ring terminals on the unit to the alarm panel telephone interface and install jumper J17.
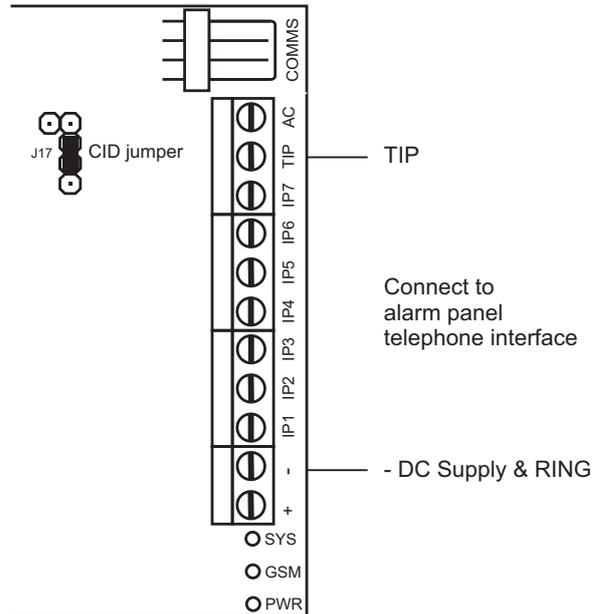
NOTE: the Contact ID account code is not sent as the unit identifies itself via the Unit Reporting Name description.

Set custom CID messages
Understandable messages can be input to replace standard Contact ID information.

CID message distribution
Unwanted messages can be limited by selecting the recipient numbers which should receive messages in the telemetry list.

turboCID™

Select this option to simulate a dial tone for alarm panel. Communication in this mode is substantially faster.

> **IMPORTANT**
> In order for the Contact ID interface to function, the following settings on the alarm panel must be made:
>
> **Communications format**   Ademco Contact ID
> **Dial format**   Tone
> **Wait for dial tone**   *Standard mode* - no
>   *TurboCID mode* - yes
> **Central station no. (primary)** 1234

RELAY SWITCHING

> **SPDT relays** - 10A, 110VDC, 380VAC (non-inductive loads)
> Lethal AC should not be switched via the relays.
> Switch DC to an external contactor as a safety precaution.

Relay control options

- Turn relay on and stay on (on)
- Turn relay off and stay off (off)
- Pulse relay on for a defined time and turn off again (pls)
- Toggle the state of the relay (tog)
  NOTE: The last command received will always determine the final relay state.

SMS command switching

Relays can be switched by sending SMS commands to the unit. The unit replies to the command to confirm that the operation was successful. If no confirmation SMS is received, check that the unit has not swopped to the alternate SIM card.

Basic command to operate relays - *$1234*rlyn*opr*

Examples
Pulse relay 2   - *$1234*rly2*pls*
Turn relay 1 off   - *$1234*rly1*off*
See separate SMS command guide for detailed instructions.

> **IMPORTANT**
> When using dual SIMs, the user may need to try both mobile numbers as the unit may have switched SIM cards.

SMS command shortcuts
Using the programming software, define simple SMS shortcut commands that will be executed by the SMX unit.

SMS sender verify - If enabled in the programming software, only remote SMS commands from the message recipient list will be accepted. *See security setup programming page.*

Missed call switching

Relays can be switched by missed calls from up to 500 mobile numbers, incurring no network charges.

The unit terminates incoming missed calls, confirming that the call was received. It does not necessarily confirm any action as the number may not be programmed into the unit.

Remember: Missed calls will not function properly if the SIM card is not CLIP enabled.

Access lifespan
In the programming software, limit the number of times a mobile number can switch a relay (1-255 operations). The "0" setting allows infinite operations.

Enable confirmation SMS
If enabled in the programming software, an acknowledgment SMS will be sent if the action is performed successfully.

> **IMPORTANT**
> When using dual SIMs, the caller may have to try both numbers.

Operational time windows and week day selection
Limit missed call operations to a time window and to selected days of the week.

Timer switching
64 Timers can be programmed to operate relays once a day at a selected time. Configure using the programming software or by remote SMS command. Timer function confirmation SMS's can be enabled and sent to the recipient numbers.

Machine to machine functions
M2M reporting happens independently of messages sent to the 10 recipient numbers.

Base station reporting
Send telemetry SMS messages to up to 4 base stations (normally at a control room). Input the following programming information:
1. Base station mobile numbers
2. M2M ID - Identifies the SMX unit at the base station
3. Define M2M telemetries - Define the recognizable event number for each telemetry.

If-this-then-that function
This function sends remote commands (up to 8) to another SMX or other device following a specific trigger. Input the following options in the programming software:
1. Select an event or trigger
2. Input the receiving unit's mobile number
3. Input the command to be sent

Example
Input 1 is connected to a water level sensor in a reservoir. When the water level drops the sensor triggers the input. The unit sends a command to another SMX connected to a pump at a nearby dam. A relay on the unit switches the pump on to fill the reservoir. Similarly, another remote command can be configured to switch the pump off.

DSC FUNCTIONS
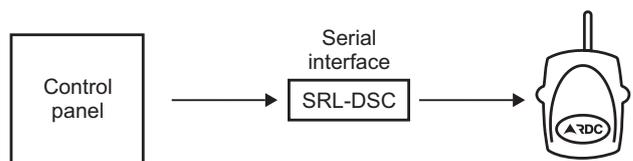
Connect the SMX to a DSC panel using a SRL-DSC interface module (sold separately). Enable the *DSC functions* serial connection option on the *General SMS messaging setup* page of the programming software.

The following functions can be performed by SMS command.

- Arm/disarm in stay or away modes and by partition
- Trigger panic alarm remotely
- The panel will report its status by SMS when it is armed or disarmed by SMS or locally via the keypad.

See the remote command guide for DSC commands.

DSC panel models currently supported: Pc5005, Pc5010, Pc5020, Pc1808, Pc1864, Power832, Power864.

I/O expander module

Sold separately
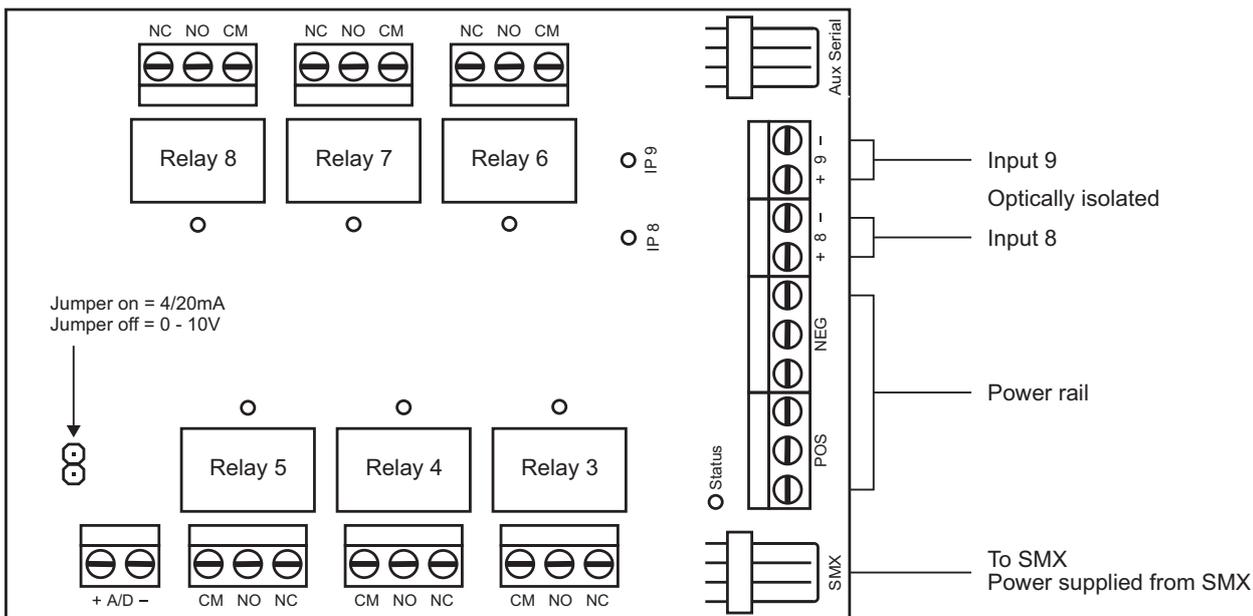
Connection and power

Connect the port marked "SMX" on the I/O expander board to the SMX unit's serial interface using the serial cable supplied.

Power rail terminals

Power to the expander is supplied from the SMX unit via the serial cable.

Power rail terminals are provided for peripherals. No outgoing or ingoing power is present. Users can connect these terminals to their own DC power source.

Relay switching

Relays on the I/O board function in the same way as the SMX onboard relays and are programmed similarly in the programming software. The relay specifications differ however.

> **SPDT I/O relays** - 3A, 60VDC, 22VAC (non-inductive loads)
> Lethal AC should not be switched via the relays.
> Switch DC to an external contactor as a safety precaution.

LED status indications

.... Unit not detected by SMX

· · · · · · · · · · Connected

Optically isolated inputs

Recommended when interfacing to equipment where dissimilar grounds are present (earth loop issues) or where harmful voltage spikes and surges may be conducted or induced into unit (e.g. electric fences).

Inputs are configurable and can support:
- Dry Contacts
- Open Collector – Pull to Ground (NPN)
- Open Collector – Pull to Supply (PNP)
- DC Voltage (5 – 18V DC)

Input triggers - Each input has a (+) and (-) terminal.

Activate input with a positive level
(-) connect to negative reference potential
(+) connect to positive triggering signal

Activate input with a negative level
(-) connect to positive reference potential
(+) connect to negative triggering signal

The voltage range between the (+) and (-) terminals is designed for between 5-18V DC. If higher voltages are required a resistor can be placed in series with the triggering signal line: 18 – 25V = 560 Ohm (1/4W)
25 – 32V = 2200 Ohm (1/4W)

Analogue input

Recommended for telemetry type applications where sensors (e.g. temperature, pressure, levels) are used to trigger SMS messages. The input is selectable to report high and low breaches between 0-10 V or 4-20 mA.

Input functions are programmable using the PC programming software.

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