

REDCOM SIGMA® XRI-400

A unified C2 platform with call control, radio gateway, and console

REDCOM Sigma® XRI-400 is a tactical C2 platform that delivers voice, video, chat, and radio interoperability in a single ruggedized, low-SWaP box. Sigma XRI-400 bridges the gap between disparate radio systems used by military units, government agencies, and public safety organizations. By leveraging existing radio assets, Sigma XRI-400 enables these organizations to instantly connect to each other, regardless of radio network, endpoint, or frequency used. Because Sigma XRI-400 is a full-featured C2 platform, radio users can communicate directly with users on any SIP endpoint, and can be controlled and patched together on-the-fly via the REDCOM C2 Console app.

Sigma XRI key benefits:

- **One platform for controlling all IP and RF comms**
- **Reduces lifecycle costs and overall network footprint**
- **Reduces training time and improves operational tempo**
- **Reduces the complexity of installing & maintaining comms**



Intelligent radio interoperability

- Features 4 built-in analog radio interfaces.
- Agnostic to radio make, model, encryption, and waveform.
- Works with virtually any public safety or tactical radio.
- Communicate seamlessly over multiple nets, including VHF, UHF, HF, SATCOM, and TSM.
- Configurable PTT signaling modes per port and per caller.
- Supports patches, dialed calls, and independent monitoring.

Powered by REDCOM Sigma® software

- The C2 platform of choice for the U.S. Army and USAF.
- C2 Console app enables an operator to monitor and control all tactical comms from a single pane of glass.
- Ad-hoc and preconfigured channels enable instant PTT comms with any combination of endpoints or radio nets in a single voice channel
- Lightweight selectable video conferencing is ideal for chaotic, congested, or contested environments.

IP-based PTT voice integration

- Interoperable with unicast and multicast RTP-capable radios and PTT apps — including radios from Silvus Technologies, Persistent Systems, DTC, and Thales.
- Simultaneous access to multiple talk groups on a single radio network via individual Sigma radio lines — such as a TSM RF mesh network.
- IP-connected radio nets connect to the XRI via ethernet and do not use up any of the 4 analog radio ports.
- IP-connected radio nets and talk groups can be bridged together (as a channel, patch, or conference) with other IP-connected radio nets, analog-connected radio nets, SIP endpoints, and a console operator.

Resilient, future-proof design

- Powers up in less than two minutes.
- Resilient to hard shutdowns.
- Built to MIL-STD specs.
- No rip and replace — interoperates with legacy or existing technology.
- Enables tactical users to pivot to new C2 tech quickly and efficiently.



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Support for various C2 ecosystems

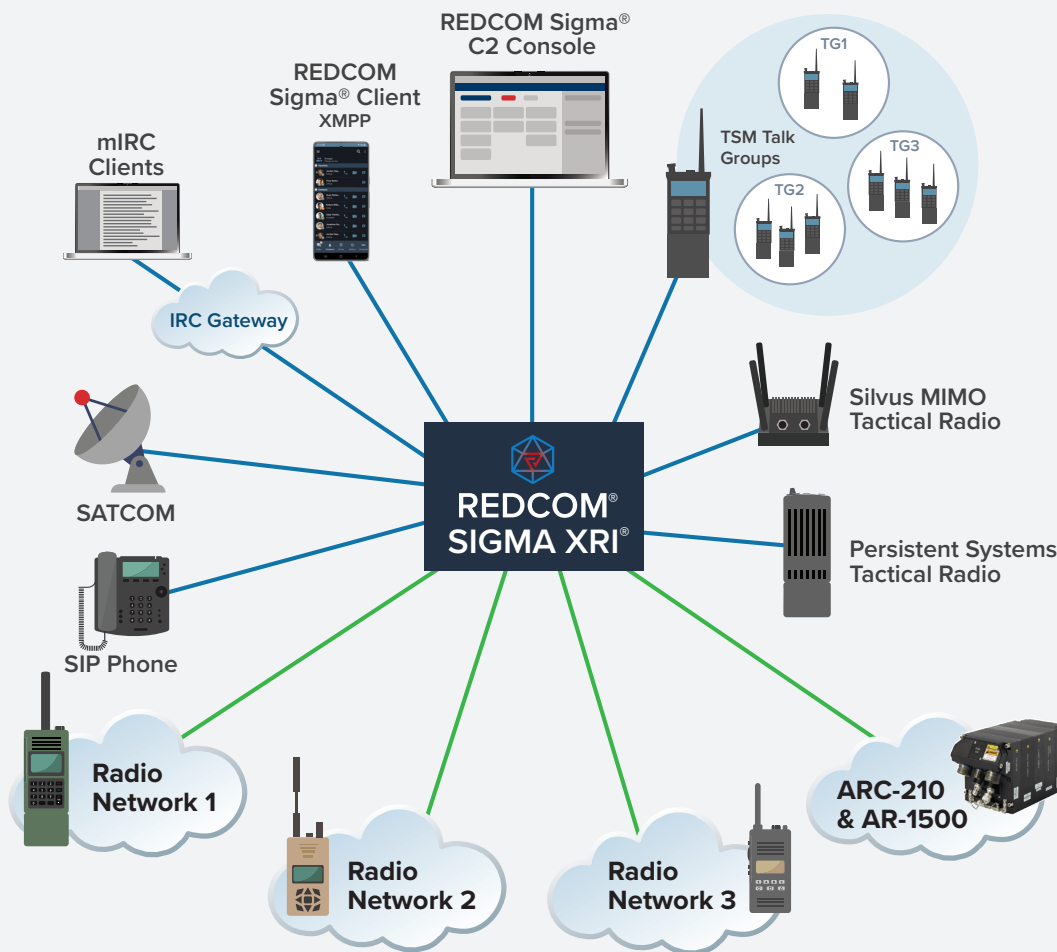
- Gives the warfighter flexibility to connect numerous disparate IP and RF comms endpoints.
- Provides warfighters with a C2 platform (voice, video, chat) for lower echelons that does not rely on higher HQ.
- Enables stand-alone comms in DIL (disconnected, intermittent, and limited) environments.
- Enables interoperability in the CJADC2 (Combined Joint All Domain Command & Control) theater.

Improves tooth-to-tail ratio

- Solves Coalition and Joint interoperability challenges — connecting radios to Sigma XRI-400 reduces the need for liaison officers.
- Small and light enough to be mounted in a vehicle, pack- or hand-carried, or added to an existing data/comms rack.
- Flexible and scalable — a single XRI-400 supports IP phones, analog radios, IP-connected radios, and the REDCOM Sigma Client for Android, Windows, and ATAK.

BRIDGE DISPARATE RF & IP ENDPOINTS WITH REDCOM SIGMA® XRI-400

A single Sigma XRI-400 unit can bring together RF and IP devices from multiple military units or organizations, enabling tactical users to command, control, and communicate. The XRI hardware includes four analog ports to connect to four separate radio networks (represented by the green lines below), plus any number of IP-based radio nets that connect via ethernet. The REDCOM C2 Console app enables an operator to monitor and control all connections and dynamically patch them together.



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Radio Features

Unless noted otherwise, the radio features listed below apply to both the radio ports and to TSM talk group connections.

- **Dynamic (dialed) call sessions** — incoming and outgoing, with support for radios with and without DTMF dialpads including three-click seize/answer and automatic dialing.
- **Dynamic and static patches** — for patching a radio port to another radio port or a conference or even a speakerphone. Dynamic patches are managed by the C2 Console app, while static patches are managed by the Channels app.
- **Tunable 4-wire TX/RX audio interface** — for connection to radios or other devices with balanced or unbalanced audio via the 4 analog radio ports. Transmit and receive audio gains are independently configurable, and each radio port is selectable for line or mic levels. All audio is transformer-coupled to provide DC isolation of external signals and reduce noise.
- **Flexible PTT/PTS controls:**
 - Configurable Push-To-Talk (PTT) mode and Push-To-Signal (PTS) trigger mode per radio port to support any mix of discrete PTT/COR signals, tone-based signals, and voice detection. DTMF-based PTS trigger mode allows radio users to choose which portions of a conversation to share with other patched radio ports.
 - Smart PTS modes are per caller rather than per radio port and allow configurable RFC2833 events and/or DTMF digits as manual PTS control, with an automatic voice-operated transmit (VOX) function when no PTS is provided by the caller. The VOX noise threshold can also be configured per caller.
 - Bi-directional PTS signaling for radio-to-radio patches.
 - PTS forwarding through conferences and patches — allows PTS to traverse a conference to key connected radios.
 - Block VOX-based PTT/transmission to a radio line while the receiver is active, preventing a user from talking over the radio net when another party is already talking.
- Support for REDCOM's patented RTP-based PTS with positive acknowledgements.
- **Mobile clients** — PTT interoperability between radio users and smartphone users with REDCOM's Secure Client app.
- **Voice queuing** — Configurable PTT assertion timing/validation modes per radio port, with automatic store & forward audio queuing to prevent lost syllables at the beginning of each transmission:
 - Timer based
 - Trunk radio grant tone
 - Secure radio tone burst (to confirm secure fill)
- **Audio monitoring** — Monitor callers hear all of the audio transmitted/received from the target radio port, regardless whether the radio port is in an active call/patch. Each radio port can be monitored by multiple callers from the network and/or other local radio ports or even a conference.
- **Secure radio over IP** — TLS/SRTP encryption for privacy of signaling and audio information over IP networks.
- **Repeater squelch tail suppression** — to prevent tail noise bursts from oscillating between bridged repeater nets.
- **Optional inactivity timeout**
- **Optional RX audio suppression** — to blank out receive audio when saturated by a nearby transmitter or when transmit audio is echoed by a radio with handset sidetone.
- **User-programmable radio line templates**
- **Auto and manual answer modes**
- **Notification tones**
- **Radio ports status dashboard with realtime signal tracking**
- **Detect attached donor/gateway radio** — when enabled, the radio line's maintenance status will automatically track the presence or absence of the attached radio.

Interoperability Features

- **Flexible 4W audio ports** — The 4W audio ports on Sigma XRI-400 can be used to connect to almost any audio device (full-duplex or half-duplex; transmit-only, receive-only, or bi-directional). Supported devices include intercoms, speakers, PA systems, microphones, PTT headsets/handsets, or an always-open audio channel.
- **Discrete input/output analog interfaces** — Sigma XRI includes general purpose sensor/driver interfaces which can be wired up to virtually anything. For example: calling a special dial code can lock a door; or a sensor can trigger a blast announcement or preset conference when a condition passes a critical threshold.



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C2 Console Features

- Works with any Sigma XRI-reachable endpoint, such as a SIP device, an analog phone via a SIP trunk, or radio net.
- Provides the operator with visibility of all endpoint connections from a single pane of glass.
- Operator can listen and PTT to any conversations across multiple devices and talk groups.
- Operator can build patches on-the-fly simply by dragging and dropping connections together.
- Integrated radio control for radios with WebKDU
- TSM support: monitor and control multiple TSM talk groups simultaneously. A TSM talk group can be patched together with other TSM talk groups, non-TSM radio nets, and SIP devices.

REDCOM Sigma® XRI-400 Specifications

PHYSICAL

Dimensions (WxDxH)	8.4 x 5.75 x 2.6 in / 21.3 x 14.6 x 6.6 cm
Weight	2.6 lbs. / 1.2 kg
Power Input	10–33 VDC, 30W peak power draw
Optional AC Power Supply	Input power of 100-240VAC at 50-60Hz

ENVIRONMENTAL

Temperature (operational)	-40 to 70 °C (MIL-STD-810H, Methods 502.7 and 501.7, Procedure II)
Temperature (storage)	-40 to 70 °C (MIL-STD-810H, Methods 502.7 and 501.7, Procedure I)
Altitude (operational)	Up to 50,000 ft. (MIL-STD-810H, Method 500.6, Procedure II)
Altitude (storage)	Up to 50,000 ft. (MIL-STD-810H, Method 500.6, Procedure I)
Humidity (operational)	10% to 90% relative humidity, non-condensing
Humidity (storage)	10% to 90% relative humidity, non-condensing
Vibration	7.7 Grms (MIL-STD-810G, Method 514.7, Procedure I, Category 24: General Minimum Integrity Exposure)
Shock	20 G (MIL-STD-810G, Method 516.7, Procedure I)
Emissions	FCC Part 15 Sub-part B Class B compliant (validated). MIL-STD-461G (CE101, CE102, CS101, CS115, CS116, RE101, RE102, RS103).
Aircraft Electric Power	MIL-STD-704F compliant for 28 VDC utilization equipment (all MIL-HDBK-704-8 test methods)

PORTS

USB 2.0	2
Ethernet	2 x 10/100/1000
Video	1 x DisplayPort™ dual mode (DP++)
Analog	4x DB15
LEDs	Power, Disk Activity, 4x Port Status

SUPPORTED CODECS

SIP Endpoints & Generic RTP Lines	G.711a, G.711u, G.722, G.722.1, G.723.1, G.726, G.729, iLBC, Opus, Speex
TSM & Generic RTP Lines	AMR, MELPe

ANALOG PORT DETAILS

Receive audio interface	2-wire transformer coupled input for noise reduction and DC isolation Supports balanced 600 ohm or unbalanced connections Software-selectable input gain
Transmit audio interface	2-wire transformer coupled output for noise reduction and DC isolation Supports balanced 600 ohm or unbalanced connections Software-selectable output gain with line-level and microphone-level modes
Discrete interfaces for PTT and general-purpose output functions	1x solid-state relay, dedicated return, output limits: 56 VDC, 100 mA 1x solid-state relay, common ground/return, output limits: 56 VDC, 100 mA 1x form C mechanical relay, 1 Amp max
Discrete interfaces for COR/Retrans and general-purpose input functions	3x inputs with on/off sense and voltage sense, 0-58 VDC, common ground
Common ground isolated per port	Allows ground plane variations between XRI and each attached radio
FXO analog trunks	Optional REDCOM FXO adapter allows for the connection of a PSTN/PBX analog telephone line to one of the DB-15 ports on the XRI-400.

SOFTWARE

	Standard Config	Lite Config
REDCOM Sigma® Version	4.1.0+	4.1.0+
Active Chat Clients	100	50
Active Channels Clients	50	25
Generic RTP Radio Lines	20	10
Advanced Conferencing App	Included	Included
SIP/AS-SIP Registrations	100	50
SIP/AS-SIP Trunk Channels	20	10
C2 Console App	Included	Included
Conference Bridges	20	10
Conference Members (Audio/Video)	50	25
Conference App Power Users	2	2
Transcoded Sessions	10	5
Voice Mailboxes	10	5

Note: some features, such as TSM talk group integration, require a feature license. Please consult with your REDCOM solution advisor for pricing and configuration options.

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