KANSAS CITY KANSAS PUBLIC SCHOOLS / USD 500

PURCHASING OFFICE | 2010 N. 59TH STREET ROOM 370 \ KANSAS CITY, KS 66104

WEB SITE: WWW.KCKPS.ORG/PURCHASING

TWO WAY RADIOS FOR SCHOOL BUSES

BID NO:	**IFB 23-001**	**ISSUE DATE:**	**JANUARY 9, 2023**

Kansas City Kansas Public Schools will receive sealed bids, on this form at the Purchasing Office, 2010 N. 59th Street, Room 370, Kansas City, KS 66104 until **2:00 PM., January 16, 2023**, at which time bids received will be publicly opened and read, all in accordance with bid instructions, specifications and/or bid conditions attached hereto or as shown below.

Contact/Technical Contact:

Wayne C. Correll, Director of Purchasing | (913) 279-2270 | eMail: wayne.correll@kckps.org

BID INSTRUCTIONS:

NO EMAIL OR FAXED BIDS <u>WILL NOT</u> BE ACCEPTED.

All bids submitted must be received by the Purchasing Office by the specific bid closing date and time of 2:00PM Central Time. If emailed, it is the responsibility of the 'bidder' to ensure the bid date and time is met. FedEx and UPS currently deliver directly to the Central Office of the Kansas City Kansas Public Schools. Bids are not considered received until they are date and time stamped in the Purchasing Office. The Purchasing Office will not be responsible for late deliveries.

For questions regarding confirmation that your bid has been received by the Purchasing Office, please email Wayne Correll at wayne.correll@kckps.org.

A bid tabulation will be provided in response to an emailed request to wayne.correll@kckps.org .

Per attached specifications listed in this invitation to bid. Bidders must specify manufacturer/model number/delivery days, and unit price on each item or bid may be determined to be non-responsive.

- Pricing shall be FOB Kansas City, KS (freight and fuel expenses included).
- Award will be to <u>ONE</u> vendor.
- The District reserves the right to reject any or all bids, to waive any informalities, irregularities or technical defects in bids, and unless otherwise specified by the District to accept any item or groups of items in the bid, as may be in the best interest of the District.

- Time (days, weeks, etc.) required for delivery is a significant consideration with respect to this award process. The time required for delivery must be indicated in the space provided or your bid may be found non-responsive and may not be considered.
- Bid shall include copies of pertinent warranty information pertaining to the product offered. The bidder agrees that equipment furnished under any resultant purchase order issued by Kansas City Kansas Public Schools shall be covered by commercial warranties the contractor gives to any customer for such supplies. All warranty information and certificates shall be furnished and become the property of the District upon delivery and acceptance of said items and/or the contractor must honor services and all rights and remedies stated in the warranties.
- All items are new manufacture unless otherwise specifically stated in this bid.
- All products must have passed the first line quality standard as set by the manufacturer and no seconds, blemished articles or items having defective workmanship are included.
- Bidder shall notify the District immediately of any changes to specifications made by the manufacturer for the equipment listed.
- Bid may not be considered if a service charge, minimum dollar or minimum quantity order is applied.
- The outcome of this bid will be posted on the District's Purchasing site www.kckps.org/purchasing under Awards Section and will include a bid tabulation/summary.
- Bidder shall acknowledge all addenda for this bid and include the form acknowledgements with their bid.

INCLEMENT WEATHER/EMERGENCY POLICY
IF THERE IS A BUILDING CLOSING THE DAY OF THE OPENING OF PROPOSALS DUE TO INCLEMENT WEATHER OR AN EMERGENCY, THE OPENING OF PROPOSALS WILL OCCUR AT 2:00PM (CENTRAL) THE NEXT BUSINESS DAY THE DISTRICT IS OPEN.

Reference Attachment A for further Bid Conditions and Instructions

Specifications:

The following specifications are to serve as the minimum requirements for this solicitation, and should not be construed to exclude any other make or model of comparably equipped item of the same class designation. Any substitute must be approved in advance by the District.

Kansas City Kansas Public Schools – Two-Way Radio Specifications

Quantity	Description
1	Installation of 2 Site Linked Capacity Plus Trunking System in VHF. Install a 13 position Avteec Console for Dispatch. Price to include Labor, installation hardware, installation of repeaters at site, and the Avtec Console. Staging and programming of the Avtec console, swap outs of bus radios with new radios. USD 500 will be responsible for providing AC power within 5 feet of repeater installation, network connectivity between LCP sites, and network connectivity to master repeater for Avtec console.
215 (205 School Buses & 10 Transportation Vehicles)	**Motorola XPR2500 136-174 45w 128ch** (See Attachment B for Specification Sheet)
215	**MotoTRBO License Cap + Multi**
1	**First Programming**
1	**SLR5700 Repeater 136-174 50w** (See Attachment C for Specification Sheet) Transportation Main Site Repeater (Master)
1	**XPR8400 MSCP License Key** LCP Trunking License for SLR5700 Repeater
1	**Voice Network App Interface**
1	**Duplexer 155-162 mHz**
2	**Cable n male/n male 24", 1"**
1	**Cable Coax w/conn 24", 1"**
1	**Enclosure, One Up**
1	**Preselector 144-160 mHz**
1	**Cabinet 30"**
1	**TZ4000 SonicWall Firewall** (See Attachment F for Specification Sheet)
1	**Shelf for Firewall Rack Mount**
1	**SLR5700 Repeater 136-174 50w** (See Attachment C for Specification Sheet) 7C Harmon Site Repeater (Peer)
1	**XPRB400 MSCP License Key**
1	**Duplexer 155-162 mHz**
1	**Voice Network App Interface**
1	**Voice Network App Interface**
2	**Cable N male / n male 24", 1"**
1	**Enclosure, One Up**
1	**Preselector 144-160 mHz**
1	**Cabinet 30"**
1	**TZ4000 SonicWall Firewall**
1	**Shelf for Firewall Rack Mount** **Avtec Scout E4 Console**
17	**Scout E4 Console** (See Attachment D for Specification Sheet)
17	**PC For Scout Console Package**
17	**Touch Screen Monitor 22"**
17	**USB PTT Footswitch**
17	**Avtec USB Desk Mic**
17	**Avtec USB Dual Speaker**

Quantity	Description
17	**USB Hub 10 Port**
1	**Level 0 VP Gate License**
2	**Server 1 Rack Unit Hard Drive**
1	**Ethernet Switch 24 Port**
1	**Kit to Rack Mount AC**
1	**Folding Display 1U LCD**
215	**Antenna Kit VHF 17ft coax**
1	**FCC Licensing Assistance – R**equest 2 new repeater pairs with YG (Trunking) designation. One repeater site for existing Transportation Garage, and one for 2nd site at JC Harmon High School.
215	**Programable Mobile (2+)**
8	**MotoTRBO R7 136-174 1000ch Ena** (See Attachment E for Specification Sheet) VHF, 1000 Channel Capacity, Cap+ Trunking Ready, Full Color Large Display, Full Keypad, 4 Watt Tx Includes: IMPRES Lithium Ion Battery, IMPRES Single Unit Charger, Antenna, Belt Clip, 5 Year Warranty
2	**Voice Network Interface**
1	**Sonicwall TZ400 7 Port**
1	**Shelf for Firewall Rack Mount**

REQUIREMENT	EQUIPMENT	
Manufacturer:		
Model:		
	PRICING	
	Cost of All Equipment and Supplies	
	Installation	
	Removal of Existing Equipment, Haul Away and Disposal	$
	Other Costs (Please Specify)	
	Total Cost	$

Lead Time to Delivery	
From the date of receipt of order, what is the estimated lead time to delivery?	Days

Diversity Designation(s)	
MBE/WBE/Other Certification Is your firm certified MBE/WBE or Other? (Circle One)>>	Yes / No
If Certified MBE/WBE/Other, Please Identify Certification (example: "*MBE*")>>	

WE HEREBY AGREE TO FURNISH THE ITEMS ON WHICH PRICES ARE QUOTED ABOVE IN ACCORDANCE WITH ALL TERMS AND CONDITIONS PREVIOUSLY LISTED AND ANY ATTACHED SPECIFICATIONS.

BY: _____   DATE _____

TITLE: _____   FIRM: _____

PHONE: _____   EMAIL: _____

ATTACHMENT A – USD 500 STANDARD TERMS AND CONDITIONS

1. SCOPE: The following terms and conditions shall prevail unless otherwise modified by U.S.D. 500 within this bid document. U.S.D. 500 reserves the right to reject any bid which takes exception to these terms and conditions.

2. DEFINITIONS AS USED HEREIN:
   a. The term "bid request" means a solicitation of a formal sealed bid.
   b. The term "bid" means the price offered by the bidder.
   c. The term "bidder" means the offeror or Contractor.
   d. The term "U.S.D. 500" means Unified School District No. 500.
   e. The term "Board of Education" or "BOE" means the governing body of Unified School District No.500

3. COMPLETING BID: Bids must be submitted ONLY on the form provided in this bid document. All information must be legible. Any and all corrections and /or erasures must be initialed. Each bid sheet must be signed by the authorized bidder and required information must be provided.

4. CONFIDENTIALITY OF BID INFORMATION: Each bid must be sealed and submitted in or under cover of the enclosed envelope to provide confidentiality of the bid information prior to the bid opening. Supporting documents and/or descriptive literature may be submitted with the bid or in a separate envelope marked "Literature for Bid (Number)." Do NOT indicate bid prices on literature. All bids and supporting bid documents become public information after the bid opening and are available for inspection by the general public in accordance with the Kansas Open Records Act.

5. ACCURACY OF BID: Each bid is publicly opened and is made part of the public record of U.S.D. 500. Therefore, it is necessary that any and all information presented is accurate and/or will be that by which the bidder will complete the contract. If there is a discrepancy between the unit price and extended total, the unit price will prevail.

6. SUBMISSION OF BID: Bids are to be sealed and submitted to the Purchasing Department Office, 2010 North 59th Street, Room 370, Kansas City, Kansas, 66104, prior to the date and time indicated on the cover sheet.

7. ADDENDA: All changes in connection with this bid will be issued by the Purchasing Office in the form of a written addendum. Signed acknowledgement of receipt of each addendum must be submitted with the bid.

8. LATE BIDS AND MODIFICATION OR WITHDRAWALS: Bids received after the deadline designated in this bid document shall not be considered and shall be returned unopened.

9. BIDS BINDING: All bids submitted shall be binding upon the bidder if accepted by U.S.D. 500 within sixty (60) calendar days after the bid opening.

10. EQUIVALENT BIDS: When brand or trade names are used in the bid invitation, it is for the purpose of item identification and to establish standards for quality, style and features. Bids on equivalent items of substantially the same quality, style and features are invited unless items are marked "No Substitute." Equivalent bids must be accompanied by descriptive literature and/ or samples may be required and shall be supplied at no charge to the school district.

11. NEW MATERIALS, SUPPLIES AND EQUIPMENT: Unless otherwise specified, all materials, supplies or equipment offered by a bidder shall be new, unused, of recent manufacture, first class in every respect, and suitable for their intended purpose. All equipment shall be assembled and fully serviced, ready for operation when delivered.

12. WARRANTY: Supplies or services furnished as a result of this bid shall be covered by the most favorable commercial warranties, expressed or implied, that the bidder and/or manufacturer gives to any customer. The rights and remedies provided herein are in addition to and do not limit any rights afforded to U.S.D. 500 by any other clause of this bid reserves the right to request from bidders a separate manufacturer certification of all statements made in the Proposal.

13. METHOD OF AWARD AND NOTIFICATION: Bids will be analyzed and the award made to the lowest and best, responsive and responsible bidder(s) whose bid conforms to the specifications and whose bid is considered to be the best value in the opinion of U.S.D. 500.

14. U.S.D. 500 reserves the right to reject any or all bids and any part of a bid: to waive informalities, technical defects, and minor irregularities in bids received: and to award the bid on an item by item basis by specified groups of items or to consider bids submitted on an "all or nothing "basis if the bid is clearly designed as such or when it is determined to be in the best interest of U.S.D. 500.

15. The signed bid shall be considered an offer on the part of the bidder: such offer shall be deemed accepted upon the issuance by U.S.D. 500 of a Purchase Order or other contractual document.

16. DELIVERY TERMS: All deliveries shall be F.O.B. Destination and all freight charges shall be included in the bid price.

17. DAMAGED AND/OR LATE SHIPMENTS: U.S.D 500 has no obligation to accept damaged shipments and reserves the right to return at the Contractor's expense damaged merchandise even though the damage was not apparent or discovered until after receipt of the items. The Contractor is responsible to notify U.S.D. 500 Purchasing Office of any late or delayed shipments. U.S.D. 500 reserves the right to cancel all or any part of an order if the shipment is not made as promised.

18. CREDIT TERMS: Bidder shall indicate all discounts for full and/or prompt payment. Discounts shall be considered as a cost factor in the determination of award, except discounts offered for payment within less than ten (10) calendar days. Discounts offered shall be computed from date of receipt of correct invoice or receipt and acceptance of products, whichever is later.

19. SELLER'S INVOICE: Invoices shall be prepared and submitted in duplicate to address shown on the Purchase Order. Invoices shall contain the following information: Purchase Order number, contract number, item number, description of supplies or services, sizes, unit of measure, quantity, unit price and extended totals.
20. TAX EXEMPT: U.S.D. 500 is exempt from Federal, State and local taxes by KS-FZLEKBLQ. Sites of all transactions under the order(s) that shall be derived from this bid request shall be deemed to have been accomplished within the State of Kansas.
21. SAFETY: All practices, materials, supplies and equipment shall comply with the federal Occupational Safety and Health Act, as well as any pertinent Federal, State and/or local safety or environmental codes.
22. DISCLAIMER OR LIABILITY: U.S.D. 500 will not hold harmless or indemnify any bidder for any liability whatsoever.
23. TERMINATION RIGHTS: KCKPS shall have the right to terminate/cancel the Agreement for its convenience and without penalty upon thirty (30) days prior written notice to the Contractor.
24. HOLD HARMLESS: The Contractor agrees to protect, defend, indemnify and hold the Board of Education, its officers, employees and agents fee and harmless from and against any and all losses, penalties, damages, settlements, costs, charges, professional fees or other expenses or liabilities or every kind and character arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings or causes of action of every kind and character in connection with or arising directly or indirectly out of this agreement and/or the performance hereof. Without limiting the generality of the foregoing, any and all such claims, etc., relating to personal injury, infringement of any patent trademark, copyright (or application for any thereof) or of any other tangible or intangible personal or property right, or actual or alleged violation of any applicable statute, ordinance, administrative order, rule or regulation, or decree of any court, shall be included in the indemnity hereunder. The Contractor further agrees to investigate, handle, respond to, provide defense for and defend any such claims, etc., at his/her sole expense and agrees to bear all other costs and expenses related thereto, even if such claim is groundless, false or fraudulent.
NO MUTUAL INDEMNIFICATION:
K.S.A.72-8201a: Contracts; indemnification or hold harmless provisions, void.
    (a) It is the public policy of the state of Kansas that all contracts entered into by the board of education of a school district, or any officers or employees thereof acting on behalf of the board, provide that the school district and board of education shall be responsible solely for the district's or board's actions or failure to act under a contract.
    (b) The board of education of a school district or any officers or employees thereof acting on behalf of the board shall not have the authority to enter into a contract under which the school district or board agrees to, or is required to, indemnify or hold harmless against damages, injury or death resulting from the actions or failure to act on the part of any party to a contract other than the board or district.
    (c) The provisions of any contract entered into in violation of this section shall be contrary to the public policy of the state of Kansas and shall be void and unenforceable.
25. INSURANCE: Upon receipt of award, Contractor shall provide Certificate of Insurance as required within three (3) days after notification issued by the Purchasing Department.
    A. The following general insurance requirements apply to any and all work under this contract by all Contractors and subcontractors of any tier.
    (1) Any and all insurance required by this contract with each and any and all insurance required by this contract shall be maintained during the entire length of this contract, including any extensions thereto, and until all work has been completed to the satisfaction of the Kansas City Kansas Public Schools. Any and all insurance must be on an occurrence basis.
    (2) No Contractor or subcontractor shall commence work under a contract until all insurance requirements contained within the solicitation have been complied with and until evidence of all insurance requirements in each and every contract with each and every subcontractor of any tier and shall require the same to comply with all such requirements.
    (3) The Kansas City Kansas Public Schools shall be covered as an Additional Insured under any and all insurance required by this contract. Confirmation of this shall appear on all certificates of insurance and on any and all applicable policies. The title of the awarded contract shall also appear on any and all applicable policies.
    (4) The Kansas City Kansas Public Schools shall be given no less than thirty (30) days' written notice of cancellation. The Kansas City Kansas Public Schools shall be given not less than thirty (30) days' prior written notice of material changes of any insurance required under this contract. The Kansas City Kansas Public Schools shall be given written notice of renewal of coverage not less than thirty (30) days prior to the expiration of any particular policy.
    (5) Each and every agent shall warrant when signing the certificate of insurance that he is acting as an authorized representative on behalf of the companies affording insurance coverage under the contract and that he is licensed by the State of Kansas to conduct insurance business in the State of Kansas and that the companies affording insurance coverage are currently licensed by the State of Kansas and are currently in good standing with the Commissioner of Insurance for the State of Kansas.
    (6) Any and all companies providing insurance required by this contract shall meet the minimum financial security requirements as set forth below. The rating for each company must be indicated on the certificate of insurance.
    For all contracts, regardless of risk, companies providing insurance under this contract must have a current:
    (a) Best's Rating not less than A, and
    (b) Best's Financial Size Category not less than Class VII

(7)   In the event the Contractor neglects, refuses, or fails to provide insurance required by the contract documents, or if such insurance is canceled for any reason, Kansas City Kansas Public Schools shall have the right, but not the duty, to procure the same, and the cost thereof shall be deducted from monies then due or thereafter to become due to the Contractor or Kansas City Kansas Public Schools shall have the right to cancel the contract.

B.   Worker's Compensation and Employer's Liability Insurance

The Contractor shall procure and maintain Worker's Compensation and Employer's Liability Insurance in the following limits.   Such insurance is to cover each and every employee who is or may be engaged in work under this contract.

Worker's Compensation..Statutory
Employer's Liability
    Bodily Injury by Accident...$1,000,000 each accident
    Bodily Injury by Disease ....$1,000,000 each employee
    Bodily Injury by Disease ....$1,000,000 policy limit

C.   Comprehensive General Liability Insurance

The Contractor shall procure and maintain Comprehensive Insurance in an amount not less than $1,000,000 for bodily injury and property damage combined single limit.   The following specific extensions of coverage shall be provided and indicated on the certificate of insurance:

(1)   Comprehensive Form
(2)   Contractual Insurance
(3)   Personal Injury
(4)   Broad Form Property Damage
(5)   Premises – Operations
(6)   Completed Operations

This coverage shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under this contract.   Policy coverage must be on an occurrence basis.

D.   Automobile Liability Insurance

The Contractor shall procure and maintain Automobile Liability Insurance in an amount not less than $1,000,000 for bodily injury and property damage combined single limit.   The following extensions of coverage shall be provided and indicated on the certificate of insurance.

(1)   Comprehensive Form
(2)   Owned, Hired, Leased and non-owned vehicles

If the Contractor does not own any vehicles in the corporate name, non-owned vehicles coverage shall apply and must be endorsed on either the Contractor's personal automobile policy or the Comprehensive General Liability coverage required under this contract.

E.   Commercial Crime insurance (when applicable)

The Contractor shall procure and maintain Commercial Crime/Fidelity insurance in an amount not less than $1,000,000.00, including coverage for theft or loss of KCKPS property.

26.   LAW GOVERNING: All contractual agreements shall be subject to, governed by, and construed according to the laws of the State of Kansas.

27.   ANTI-DISCRIMINATION CLAUSE: No bidder on this request shall in any way, directly or indirectly, discriminate against any person because of age, race, color handicap, sex, national origin, or religious creed.

28.   BID BOND/PERFORMANCE BOND (Applicable to Construction/Remodel/Repair Projects, Unless Waived by the District)

A.   Each proposal must be accompanied by a certified or cashier's check, or a bid bond in the amount of five percent (5%) of the Contractor's total bid.

B.   A Performance Bond and a Material and Labor Payment Bond in amounts equal to one hundred percent (100%) of the contract price shall be furnished by the successful bidder.   Bonds shall be issued by a surety acceptable to the Board.

29.   DISQUALIFICATION:

A.   The Director of Purchasing may, at her/his sole discretion, disqualify a bidder for one or any combination of the following reasons:

1.   Bidder's product does not meet the specifications or bid conditions of the solicitation;
2.   Bidder's tendered bid is not received on the District's bid form;
3.   Bidder's tendered bid is not signed;
4.   Required bid bond is not furnished at time of bid opening;
5.   Failure to comply with bid instructions, terms and conditions that are judged to be essential to the competitive process and in the best interests of the District.

B.   Disqualification of bidders on future bids may be considered for any one or combination of the following reasons:

1.   Refusal of the bidder to complete a contract or bid;
2.   Bidder's past history of late deliveries or partial/incomplete shipments,
3.   Bidder's products or services have proven unreliable, unworkable or have not accomplished the result requested in the District's specifications.

30. SUPPLIER DIVERSITY: The Kansas City Kansas Public Schools encourages supplier diversity and participation of MBE/WBE/DBE designated businesses. However, such participation will not result in any selection or scoring advantage in the bid evaluation process.

<u>INCLEMENT WEATHER / EMERGENCY</u>:
IF THERE IS A SCHOOL CLOSING THE DAY OF A SCHEDULED BID OPENING DUE TO INCLEMENT WEATHER OR AN EMERGENCY, THE BID OPENING WILL OCCUR AT 2:00 PM (CENTRAL) THE NEXT BUSINESS DAY THAT THE DISTRICT IS OPEN.

MOTOTRBO™ XPR™ 2500 MOBILE RADIO

DIGITAL, NOW WITHIN REACH

Picking up cargo or re-routing school buses, how do you make sure your people stay connected and safe? MOTOTRBO™ can help by putting the power of digital communications within reach. Versatile and powerful, the MOTOTRBO XPR™ 2500 combines the best of two-way radio functionality with the latest digital technology for enhanced voice communications.

MOTOTRBO XPR™ 2500 mobile radios are compact and capable for the busy mobile worker who needs digital technology at an affordable cost. You get all the advantages of digital – including systems capability, twice the calling capacity and clearer voice communications.

The MOTOTRBO XPR 2500 has systems capability, so when you need the flexible coverage of IP Site Connect or the traffic-handling capability of Capacity Plus, the XPR 2500 can deliver.

XPR 2500 is the perfect fit for your analog system, as well. With easy scalability and analog interoperability, you can move to digital at your own pace and budget. The XPR 2500 can help you achieve even greater productivity, safety and cost-efficiency.

Empower your teams to communicate more effectively with the MOTOTRBO XPR 2500.

FEATURES

- Analog / Digital
- Voice Communications
- Alphanumeric Display
- Intelligent Audio
- Basic Privacy
- Dual Capacity Direct Mode
- Voice Announcement
- Digital Mobile Radio (DMR) Standards Compliant
- Narrowbanding Compliant
- Transmit Interrupt (Decode)
- IP54 Rated

OPTIONS

- Enhanced Privacy
- Radio Management Suite
- Transmit Interrupt (Encode)

COMPATIBILITY

- Over The Air Programming (OTAP)
- IP Site Connect
- Capacity Plus
- Linked Capacity Plus

AFFORDABLE VOICE COMMUNICATIONS FOR THE BUSY PROFESSIONAL WHO WANTS BETTER CONNECTIVITY

HEAR AND BE HEARD CLEARLY ON THE MOVE

When it comes to exceptional audio quality, digital technology can't be beaten. The XPR 2500 delivers clarity throughout your coverage area plus unique features to help employees hear and be heard clearly. With its Intelligent Audio, for example, drivers don't need to adjust their radio volume when there is a lot of background road noise, as the radio adjusts itself.

Unleash the power of your XPR 2500 mobiles with Motorola Original® accessories. They're the only accessories designed, built and tested with your radio to optimize its performance. (See separate accessory fact sheet for full portfolio.)

MIGRATE AT YOUR OWN PACE

Keeping operations running smoothly during a change in communication systems is vital to your operation. Now you can transition to digital with great confidence and low risk at a price you can afford. It's easy to migrate because the XPR 2500 operates in both analog and digital modes. Analog and digital channels can be configured concurrently on the same radio, and scanning can be digital, analog or dual-mode. So you can use your existing analog system and move to digital when time and budget allow.

CONNECT MORE PEOPLE, MORE PRODUCTIVELY

Whether your people are delivering packages or transporting students, you'll appreciate our mobile's easy scalability. All it takes is a simple software upgrade to add key features like enhanced scrambling for increased voice privacy or the transmit interrupt suite to prioritize critical communication.

And when you want to expand capacity or coverage, rely on IP Site Connect which uses the Internet to extend coverage to employees anywhere in the world. Use single-site Capacity Plus to reach many more workers without adding new frequencies, and count on Linked Capacity Plus for affordable wide area trunking.

IMPROVE THEIR EFFECTIVENESS

With enhanced features and integrated systems capability, the XPR 2500 helps your workers be more effective at what they do. Voice announcement, for example, calls out channel and zone changes so they don't have to look at the radio while they're on the go. And convenient one-touch programmable buttons provide fast access to their favorite radio features.

INTEGRATE YOUR DEVICES SEAMLESSLY

Make sure your new MOTOTRBO system is ready when you are. We can bring together the right experts and processes to help you integrate MOTOTRBO mobile radios into your existing system, quickly and cost-effectively. Motorola's Implementation Services include Coverage Mapping, Site Integration, Device Programming and IP Networking Services.

GET DURABILITY THAT ENDURES

The XPR 2500 is made to last. It is rated IP54 (splashproof, dustproof), so it can be used even in harsh environments. The radio is backed by a two-year Standard Warranty (US and Canada) with a minimum one-year warranty on Motorola-branded accessories. Because accidents happen, Motorola recommends Service from the Start Comprehensive, which delivers accelerated turnaround on radio repairs (including physical, chemical and liquid damage) and even covers shipping costs. By reducing your downtime, Service from the Start Comprehensive helps you to lower your total cost of ownership and focus on your business operations, not your technology.

PRODUCT SPEC SHEET
MOTOTRBO™ XPR™ 2500 MOBILE RADIOS

GENERAL SPECIFICATIONS

	XPR 2500	
	VHF	**UHF BAND 1**
Channel Capacity	128	
Typical RF Output Low Power High Power	1-25 W 25-45 W	1-25 W 25-40 W
Frequency	136-174 MHz	403-470 MHz
Dimensions (H x W x L)	1.7 x 6.7 x 5.3 in (44 x 169 x 134 mm)	
Weight	2.9 lbs (1.3 kg)	
Current Drain Standby Rx @ Rated Audio Transmit	0.81 A max 2 A max 1-25 W: 11.0 A max / 25-45 W: 14.5 A max	0.81 A max 2 A max 1-25 W: 11.0 A max / 25-40 W: 14.5 A max
FCC Description	1-25 W: ABZ99FT3090 25-45 W: ABZ99FT3091	1-25 W: ABZ99FT4092 25-40 W: ABZ99FT4093
IC Description	1-25 W: 109AB-99FT3090 25-45 W: 109AB-99FT3091	1-25 W: 109AB-99FT4092 25-40 W: 109AB-99FT4093

RECEIVER

Frequency	136-174 MHz	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz[1]	
Frequency Stability (-30°C, +60°C, +25°C Ref)	± 0.5 ppm	
Analog Sensitivity (12 dB SINAD)	0.3 uV 0.22 uV (typical)	
Digital Sensitivity (5% BER)	0.25 uV 0.19 uV (typical)	
Intermodulation (TIA603D)	75 dB	70 dB
Adjacent Channel Selectivity (TIA603D)	50 dB @ 12.5 kHz 75 dB @ 25 kHz[1]	50 dB @ 12.5 kHz 70 dB @ 25 kHz[1]
Spurious Rejection (TIA603D)	75 dB	70 dB
Rated Audio	4 W (Internal) 7.5 W (External - 8 ohms) 13 W (External - 4 ohms)	
Audio Distortion @ Rated Audio	3% (typical)	
Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz[1]	
Audio Response	TIA603D	
Conducted Spurious Emissions (TIA603D)	-57 dBm	

TRANSMITTER

Frequency	136-174 MHz	403-470 MHz
Channel Spacing	12.5 kHz / 25 kHz[1]	
Frequency Stability (-30°C, +60°C, +25°C Ref)	± 0.5 ppm	
Low Power Output	1-25 W	1-25 W
High Power Output	25-45 W	25-40 W
Modulation Limiting	± 2.5 kHz @ 12.5 kHz ± 5.0 kHz @ 25 kHz[1]	
FM Hum and Noise	-40 dB @ 12.5 kHz -45 dB @ 25 kHz[1]	
Conducted / Radiated Emission	-36 dBm < 1 GHz -30 dBm > 1 GHz	
Adjacent Channel Power	60 dB @ 12.5 kHz 70 dB @ 25 kHz[1]	
Audio Response	TIA603D	
Audio Distortion	3%	
FM Modulation	12.5 kHz: 11K0F3E 25 kHz[1]: 16K0F3E	
4FSK Digital Modulation	12.5 kHz Data: 7K60F1D and 7K60FXD 12.5 kHz Voice: 7K60F1E and 7K60FXE Combination of 12.5 kHz Voice and Data: 7K60F1W	
Digital Vocoder Type	AMBE +2™	
Digital Protocol	ETSI TS 102 361-1, -2, -3	

[1] 25 kHz may not be available in the U.S. for Part 90 operation due to the FCC's Narrowbanding requirements.
Specifications subject to change without notice. All specifications shown are typical.
Radio meets applicable regulatory requirements.

PRODUCT SPEC SHEET
MOTOTRBO™ XPR™ 2500 MOBILE RADIOS

MILITARY STANDARDS

	810C		810D		810E		810F		810G	
	Method	Procedures	Method	Procedures	Method	Procedures	Method	Procedures	Method	Procedures
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.5	II
High Temperature	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Hot	501.5	I/A1, II
Low Temperature	502.1	I	502.2	I/C3, II/C1	502.3	I/C3, II/C1	502.4	I/C3, II/C1	502.5	I/C3, II
Temperature Shock	503.1	–	503.2	I/A1/C3	503.3	I/A1/C3	503.4	I	503.5	I/C
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I	505.5	I/A1
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.5	I, III
Humidity	507.1	II	507.2	II	507.3	II	507.4	–	507.5	II - Aggravated
Salt fog	509.1	–	509.2	–	509.3	–	509.4	–	509.5	–
Dust	510.1	I	510.2	I	510.3	I	510.4	I	510.5	I
Vibration	514.2	VIII/F, Curve-W	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24	514.6	I/24
Shock	516.2	I, II	516.3	I, IV	516.4	I, IV	516.5	I, IV	516.6	I, IV, V, VI

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature	-40°C / +85°C
Thermal Shock	Per MIL-STD
Humidity	Per MIL-STD
ESD	IEC 61000-4-2 Level 3
Dust and Water Intrusion	IP54, MIL-STD[2]
Packaging Test	Per MIL-STD

[2] Radio meets IP54 and MIL-STD rating with microphone sealing boot and rear accessory connector cover properly installed.
Specifications subject to change without notice.
All specifications shown are typical.
Radio meets applicable regulatory requirements.

For more information on the MOTOTRBO™ XPR™ 2500, visit **motorolasolutions.com/mototrbo**.

To find your nearest Motorola Channel Partner, go to **motorolasolutions.com/contactus**.

*MOTO**TRBO**™ DIGITAL REMASTERED.*

MOTOTRBO™ SLR 5000 SERIES REPEATER

For your business to be successful, you need dependable voice and data communications that reach every corner of your operations. The MOTOTRBO SLR 5000 Series repeater delivers high performance, high reliability two-way radio service with all the features you need to connect your workplace.

With its sleek form factor and low power consumption, it's engineered for low cost of ownership. And with a huge leap forward in technology, it represents the next generation in repeaters.

Versatile and powerful, MOTOTRBO combines the best of two-way radio functionality with the latest digital technology. It integrates voice and data seamlessly, offers advanced features that are easy to use and delivers increased capacity to meet your communication needs from the field to the factory floor.

Whether you need the simplicity of a single site conventional system, or the powerful trunking capabilities of Capacity Plus, Linked Capacity Plus or Connect Plus, the SLR 5000 Series delivers the power of digital two-way radio to your workforce. It can also operate as an analog repeater (conventional or MPT 1327), or as a mixed mode analog/digital repeater while you transition away from a legacy analog system.

NEXT GENERATION MOTOTRBO REPEATER

The SLR 5000 Series represents a huge leap forward in design and technology. Based on a wealth of field experience, customer feedback and technological innovation, the product delivers outstanding performance and efficiency for your business two-way radio system. From rock-solid reliability to clever touches like an integrated battery charger, the SLR 5000 Series is truly the next generation in repeaters.

HIGH PERFORMANCE

The SLR 5000 Series is designed to offer round-the-clock reliable operation, even at its continuous full transmit power of 50W. The high-quality design has been validated through Motorola's Accelerated Life Testing (ALT) program, and meets stringent quality criteria.

To deliver reliable coverage throughout your business premises, the product has a next-generation receiver design, with high sensitivity and improved noise blocking. Combined with the 50W transmit output power and digital error correction, this gives you clear voice quality, even in the most adverse conditions.

The SLR 5000 Series supports the full MOTOTRBO feature set, and is compatible with all the MOTOTRBO system architectures: single site conventional, IP Site Connect, Capacity Plus, Linked Capacity Plus and Connect Plus. The IP interface allows you to build applications and consoles directly into your system.

HIGH EFFICIENCY

The latest RF technology gives the SLR 5000 Series exceptionally good power efficiency. Together with its space-efficient 1U height and low thermal footprint, it gives you a very low cost of ownership.

The product has simple servicing requirements, with field-replaceable Power Amplifier, Power Supply and Modem modules. A front panel USB port allows easy configuration, with optional support for remote management. It also has built-in features such as a 3A battery charger, external alarm ports and an auxiliary power output to ease site installation.

DESIGNED FOR THE FUTURE

Motorola is committed to supporting you with even more sophisticated workforce communication solutions as your needs evolve, so the SLR 5000 Series is designed with the future in mind. Compared to first generation repeaters, it has 10x more processing power, 15x more memory and 125x more data storage. The architecture even has provision for expansion modules, should more functionality be required in the future.

MOTOTRBO SLR 5000 SERIES

With excellent performance, high reliability and clever design in a small, slim unit, the SLR 5000 Series repeater is at the heart of a MOTOTRBO professional two-way radio system. To find out more, please contact your local authorized Motorola Channel Partner.

MOTOROLA

GENERAL SPECIFICATIONS

	VHF	UHF
Frequency Range	136-174 MHz	400-470 MHz
Channel Capacity	64	
RF Output Power	1-50 W	
Dimensions (H x W x D)	1.75 x 19 x 14.6 in (44 x 483 x 370 mm)	
Weight	19 lbs (8.6 kg)	
Input Voltage (AC)	100-240 Vac, 47-63 Hz	
Current (standby), 110 / 240 V	0.18 / 0.25 A	
Current (transmitting), 110 / 240 V	1.5 / 0.9 A	
Input Voltage (DC)	11.0-14.4 Vdc	
Current (standby)	0.7 A	
Current (transmitting)	9.5 A	
Operating Temperature Range	-22 to +140 °F (-30 to +60 °C)	
Humidity	RH of 95%, non-condensing at 50 °C (122 °F)	
Max Duty Cycle	100%	
FCC Description	ABZ99FT3094	ABZ99FT4096
IC Description	109AB-99FT3094	109AB-99FT4096
Digital Vocoder Type	AMBE+2™	
Battery Charger Capacity	12 V, 3 A	
Connectivity	Tx (N female), Rx (BNC female), USB A receptacle, 2x Ethernet	
Supported System Types	Digital Conventional, IP Site Connect, Capacity Plus, Linked Capacity Plus, Connect Plus Analog Conventional, MPT 1327	

RECEIVER

	VHF	UHF
Frequency Range	136-174 MHz	400-470 MHz
Channel Spacing	25*/ 12.5 kHz	
Frequency Stability	0.5 ppm	
Sensitivity, 12dB SINAD	0.22 uV	
Sensitivity, 5% BER	0.22 uV	
Selectivity (TIA603D), 25* / 12.5 kHz	83 / 55 dB	80 / 55 dB
Selectivity (TIA603), 25* / 12.5 kHz	83 / 68 dB	80 / 68 dB
Selectivity (ETSI), 25* / 12.5 kHz	70 / 63 dB	
Intermodulation Rejection (TIA603D/ETSI)	82 / 73 dB	
Spurious Rejection (TIA603D/ETSI)	95 / 90 dB	
Audio Distortion	< 1%	
Transmitter Hum and Noise, 25* / 12.5 kHz	-45 / 50 dB	

TRANSMITTER

	VHF	UHF
Frequency Range	136-174 MHz	400-470 MHz
RF Output Power	1-50 W	
Max Duty Cycle	100%	
Channel Spacing	25*/ 12.5 kHz	
Frequency Stability	0.5 ppm	
Intermodulation Attenuation	40 dB	
Adjacent Channel Power (TIA603D), 25*/ 12.5 kHz	78 / 62 dB	
Adjacent Channel Power (ETSI), 25* / 12.5 kHz	78 / 62 dB	
Conducted Spurious Emissions	-36 dBm < 1 GHz, -30 dBm > 1 GHz	
Modulation Fidelity (4FSK)	FSK Error 5%, FSK Magnitude 1%	
Audio Response	TIA603D	
Audio Distortion	< 1%	
Receiver Hum and Noise, 25*/ 12.5 kHz	-45 / -50 dB	
Rated System Deviation, 25* /12.5 kHz	±5.0 / ±2.5 kHz	

* 25 kHz channels not available in the US
Availability is subject to individual country law and regulations. All specifications shown are typical unless otherwise stated and are subject to change without notice.

MOTOROLA

For more information on how to make your business more efficient and better connected, visit www.motorolasolutions.com/ap/mototrbo

Availability is subject to individual country law and regulations.
All specifications shown are typical unless otherwise stated and are subject to change without notice.

Motorola Solutions Singapore Pte Ltd 12 Ang Mo Kio Street 64, Ang Mo Kio Industrial Park 3, UE Biz Hub, Block A, Level 7 Singapore 569088

MOTOROLA SOLUTIONS

Features

Supports 2000 endpoints (Scout EX), 8 active endpoints (Scout E8), or 4 active endpoints (Scout E4)

Uses Software Audio Package

Supports free seating

Supports ResourcePro screen control

Supports Scout Instant Recall Recorder (IRR)

Connects to 11 speakers

Supports telephony, radio, and auxiliary input/output endpoints

Supports five patches

Scout Enterprise Consoles

Avtec offers Scout EX, Scout E8, and Scout E4 consoles to support the right number of endpoints for any Scout position.

Scout EX, a software-based communication console which is known for its flexibility and reliability, is easy-to-use and provides interoperability for a dispatching position. Avtec's flagship console, Scout EX is a pure IP solution that provides access to thousands of radio, telephony, intercom, and auxiliary input/output endpoints and features a host of on-screen controls to enable the dispatcher to communicate quickly and effectively.

Scout E8 and Scout E4, two variations of the Scout EX console, function to the full extent of Scout EX but support fewer radio or telephony endpoints that are allowed to operate at one time. The Scout E8 console provides full functionality for eight active endpoints, Scout E4 for four. These consoles provide the same quality, durability, and operational flexibility as the Scout EX console but offer a scaled Scout console for of those who need access to fewer active endpoints. However, when using the ResourePro screen control with a Scout E4 or Scout E8 console, the dispatcher gains the flexibility to activate the number of endpoints allowed from the wide range of endpoints in the Scout system.

FEATURE SPECIFICATIONS

FEATURE	SCOUT EX	SCOUT E8	SCOUT E4
Number of Endpoints	2000	8	4
Telephony	Yes	Yes	Yes
Wide Range of Radio Interfaces	Yes	Yes	Yes
Auxiliary Input/Output Endpoints	Yes	Yes	Yes
Scout Instant Recall Recorder (IRR)	Yes	Yes	Yes
Standard VPGate (Level 0, 1, 2, or 3)	Yes	Yes	Yes
Number of Patches	5	5	5
Number of Unselect Channels	10	10	10
Total Number of Speakers	11	11	11
Free Seating	Yes	Yes	Yes

TIER 1 CONSOLES

The Tier 1 consoles enable access to endpoints using SIP, Outpost, ED-137, and advanced control station interfaces.

MODEL NUMBER	DESCRIPTION
SFW-SCOUT-EX-T1	Scout EX Tier 1 Console. Includes a license for a Scout Enterprise Console with Software Audio Package. Includes IRR.
SFW-SCOUT-E8-T1	Scout E8 Tier 1 Console. Includes a license for a Scout Enterprise Console with Software Audio Package with all features and functionality of Scout EX Console. Scout E8 enables access to maximum of eight channels concurrently. Includes IRR.
SFW-SCOUT-E4-T1	Scout E4 Tier 1 Console. Includes a license for a Scout Enterprise Console with Software Audio Package with all features and functionality of Scout EX Console. Scout E4 enables access to maximum of four channels concurrently. Includes IRR.

TIER 2 CONSOLES

The Tier 2 consoles enable access to all endpoints supported with Tier 1 consoles, plus endpoints that support trunking.

MODEL NUMBER	DESCRIPTION
SFW-SCOUT-EX-T2	Scout EX Tier 2 Console. Includes a license for a Scout Enterprise Console with Software Audio Package that enables access to conventional and trunked radios. Includes IRR.
SFW-SCOUT-E8-T2	Scout E8 Tier 2 Console. Includes a license for a Scout Enterprise Console with Software Audio Package with all features and functionality of Scout EX Console. Scout E8 enables access to maximum of eight conventional and trunked channels concurrently. Includes IRR.
SFW-SCOUT-E4-T2	Scout E4 Tier 2 Console. Includes a license for a Scout Enterprise Console with Software Audio Package with all features and functionality of Scout EX Console. Scout E4 enables access to maximum of four conventional and trunked channels concurrently. Includes IRR.

MOTOTRBO R7
PORTABLE
TWO-WAY RADIOS

MOTOTRBO™ R7 is a digital portable two-way radio that offers game-changing audio capabilities in a rugged, future-ready device. Its advanced audio processing ensures that your communications are loud and clear, while its rugged construction is ready for harsh environments, and advanced connectivity options get your workforce ready for tomorrow.

KEY FEATURES

- UHF/VHF, 800/900 MHz
- Wi-Fi 2.4/5.0 GHz
- WPA3 Wi-Fi security protocol compliant
- Bluetooth 5.2
- 2.4" 320 x 240 px. QVGA display
- Modern, intuitive user experience
- Full suite of accessories
- Sleek and ergonomic form factor

- Automatic Acoustic Feedback Suppression
- Adaptive Dual Microphone Noise Suppression
- Intelligent Audio
- IMPRES™ technology
- Programmable loudness up 107 phons
- Wideband speaker and microphones
- Simple audio configuration
- Up to 28 hours of battery life[1]

- IP68 (waterproof up to 2 meters for 2 hours)
- IP66 (concentrated water jet pressure)
- Intrinsically safe option (UL TIA-4950)
- Disinfectant and decontamination substance resistant housing[2]
- Robust and corrosion-proof side connector
- Rugged to MIL-STD 810
- 5 years of hardware repair, technical support, software updates and premium features

[1] Typical battery life, 5/5/90 profile at maximum transmitter power with GNSS, Bluetooth, Wi-Fi and Option Board applications disabled. Actual observed runtimes may vary.
[2] Please refer to the MOTOTRBO R7 user manual for a list of approved disinfectants and decontamination substances.

MOTOROLA SOLUTIONS

SPECIFICATIONS

GENERAL SPECIFICATIONS

	FULL KEYPAD MODEL (FKP)			NO KEYPAD MODEL (NKP)		
Band	UHF	VHF	800 / 900	UHF	VHF	800 / 900
Frequency	400-527 MHz	136-174 MHz	806-825 MHz, 851-870 MHz, 896-902 MHz, 935-941 MHz	400-527 MHz	136-174 MHz	806-825 MHz, 851 -870 MHz, 896-902 MHz, 935-941 MHz
High Power Output	4 W	5 W	2.5 W	4 W	5 W	2.5 W
Low Power Output	1 W					
Channel Spacing	12.5 kHz, 20 kHz, 25 kHz[1]					
Channel Capacity	1000 Channels			64 Channels		
Display	2.4" 320 x 240 px. QVGA display, with up to 10 lines of text			N/A		
FCC Description	AZ489FT7143	AZ489FT7144	AZ489FT7169	AZ489FT7143	AZ489FT7144	AZ489FT7169
IC Description	109U-89FT7143	109U-89FT7144	109U-89FT7169	109U-89FT7143	109U-89FT7144	109U-89FT7169
Power Supply (Nominal)	7.5 V					

MOTOTRBO R7 with 2200 mAh Slim IMPRES Li-Ion battery (PMNN4807)

Dimensions (H x W x D)	5.2 x 2.2 x 1.4 in. (131.8 x 56 x 34.7 mm)			5.2 x 2.2 x 1.2 in. (131.8 x 56 x 31.3 mm)		
Weight[2]	11 oz (316 g)			10 oz (289 g)		
Digital / Analog Battery Life[3]	19 / 14.5 hrs	20 / 15 hrs	15.5 / 19 hrs	19 / 14.5 hrs	20 / 15 hrs	15.5 / 19 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)					

MOTOTRBO R7 with 2850 mAh IMPRES Li-Ion battery (PMNN4809)

Dimensions (H x W x D)	5.2 x 2.2 x 1.4 in. (131.8 x 56 x 34.7 mm)			5.2 x 2.2 x 1.2 in. (131.8 x 56 x 31.3 mm)		
Weight[2]	12 oz (333 g)			11 oz (306 g)		
Digital / Analog Battery Life[3]	25 / 19 hrs	26 / 19.5 hrs	19 / 25 hrs	25 / 19 hrs	26 / 19.5 hrs	19 / 25 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)					

MOTOTRBO R7 with 3200 mAh HazLoc IMPRES Li-Ion battery (PMNN4810)

Dimensions (H x W x D)	5.2 x 2.2 x 1.6 in. (131.8 x 56 x 40.7 mm)			5.2 x 2.2 x 1.5 in. (131.8 x 56 x 37.3 mm)		
Weight[2]	13 oz (366 g)			12 oz (339 g)		
Digital / Analog Battery Life[3]	28 / 21.5 hrs	29 / 22 hrs	23 / 28 hrs	28 / 21.5 hrs	29 / 22 hrs	23 / 28 hrs
Operating Temperature	-4 °F to 140 °F (-20 °C to 60 °C)					

[1] 25 kHz channels not available in USA.

[2] Radio weight information is exclusive of General Option Board and antenna.

[3] Typical battery life, 5/5/90 profile at maximum transmitter power with GNSS, Bluetooth, Wi-Fi and Option Board applications disabled. Actual observed runtimes may vary.

Specifications are subject to change without notice. All specifications shown are typical values.

SPECIFICATIONS

TRANSMITTER SPECIFICATIONS

Channel Spacing	12.5 kHz, 20 kHz, 25 kHz[1]
4FSK Digital Modulation	• 12.5 kHz Data Only: 7K60F1D & 7K60FXD • 12.5 kHz Data & Voice: 7K60F1E & 7K60FXE • Combination of 12.5 kHz Voice and Data: 7K60F1W
Digital Protocol	• ETSI TS 102 361-1, -2, -3,- 4 • DMR Tier II, III
Conducted/Radiated Emissions (TIA603D)	• -36 dBm < 1 GHz • -30 dBm > 1 GHz
Adjacent Channel Power	• 60 dB @ 12.5 kHz • 70 dB @ 20 kHz / 25 kHz[1]
Frequency Stability	+/-0.5 ppm

RECEIVER SPECIFICATIONS

Analog Sensitivity (12dB SINAD)	0.16 µV (typical)
Digital Sensitivity (5% BER)	0.14 µV (typical)
Intermodulation (TIA603D)	70 dB
Adjacent Channel Selectivity, (TIA603A)-1T	• 60 dB @ 12.5 kHz • 70 dB @ 20 kHz / 25 kHz[1]
Adjacent Channel Selectivity, (TIA603D)-2T	• 45 dB @ 12.5 kHz • 70 dB @ 20 kHz / 25 kHz[1]
Spurious Rejection (TIA603D)	70 dB

GNSS SPECIFICATIONS

Constellation Support	GPS, GLONASS, BEIDOU, GALILEO
Time To First Fix, Cold Start	≤ 60 seconds
Time To First Fix, Hot Start	≤10 seconds
Horizontal Accuracy	< 5 meters

WI-FI SPECIFICATIONS

Frequency Range	2.4 GHz, 5 GHz
Standards Supported	Wi-Fi 5 / IEEE 802.11a/b/g/n/ac
Security Protocol Supported	WPA-3, WPA-2
Maximum Number of SSIDs	128 (64 for NKP Models)

HAZLOC CERTIFICATION

ANSI/TIA 4950 and CAN/CSA C22.2 No. 157-92 as intrinsically safe for use in Class I, II, III, Division 1, Groups C, D, E, F, G, Division 2, Groups A, B, C, D

SERVICE COVERAGE

Included: Technical support, software updates and premium features (5 years)	
Optional: Hardware repair, accidental damage (5 years)	

BLUETOOTH SPECIFICATIONS

Version	5.2
Range	Class 2, 33 ft (10 m)
Supported Profiles	Bluetooth Headset Profile (HSP), Serial Port Profile (SPP), Personal Area Network (PAN), Generic Attributes (GATT), In-door location (Bluetooth LE Passive Scanning)
Simultaneous Connections	1 audio accessory and up to 4 data devices

AUDIO SPECIFICATIONS

Digital Vocoder Type	AMBE+2
Audio Response (TIA603D)	+1, -3 dB
Audio Output Power (Rated/Max)	1 W / 3 W
Audio Distortion at Rated Audio	≤1.5%
Maximum Speech Loudness by Default (ISO5326)	102 phon @ 30 cm
Maximum Programmable Speech Loudness (Extra Loud Mode, Level 3)	107 phon @ 30cm
Hum and Noise	• -40 dB @ 12.5 kHz • -45 dB @ 20 kHz / 25 kHz[1]
Conducted Spurious Emissions (TIA603D)	-57 dBm

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature[2]	-22 °F to 140 °F (-30 °C to 60 °C)
Storage Temperature	-40 °F to 185 °F (-40 °C to 85 °C)
Thermal Shock	Per MIL-STD
Humidity	Per MIL-STD
Electrostatic Discharge	IEC 61000-4-2 Level 4
Dust and Water Intrusion	IP68 (Submersion up to 2m, 2hrs) IP66 for high pressure-water resistance per IEC 60529
Salt Fog	5% NaCl for 8 hrs at 35 °C, 16 hrs standing
Packaging Test	MIL-STD 810D and E

MILITARY STANDARDS (MIL-STD 810)

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F		MIL-STD 810G		MIL-STD 810H	
	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE	METHOD	PROCEDURE
Low Pressure	500.1	I	500.2	II	500.3	II	500.4	II	500.6	II	500.6	II
High Temp	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Hot	501.6	I/A1, II/A1	501.7	I/A1, II/A1
Low Temp	502.1	I	502.2	I, II	502.3	I, II	502.4	I, II	502.6	I, II	502.7	I, II
Temp Shock	503.1	I	503.2	A1/C3	503.3	A1/C3	503.4	I	503.6	I-C	503.7	I-C
Solar Radiation	505.1	II	505.2	I/A1	505.3	I/A1	505.4	I/A1	505.6	I/A1	505.7	I/A1
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.6	I, III	506.6	I, III
Humidity	507.1	II	507.2	II	507.3	II	507.4	-	507.6	II/Aggravated	507.6	II/Aggravated
Salt Fog	509.1	I	509.2	I	509.3	I	509.4	-	509.6	-	509.7	-
Blowing Dust & Sand	510.1	I / -	510.2	I, II	510.3	I, II	510.4	I, II	510.6	I, II	510.7	I, II
Vibration	514.2	VIII/CatF, XI	514.3	I/Cat10, II/Cat3	514.4	I/Cat10, III/Cat3	514.5	I/Cat24, II/Cat5	514.7	I/Cat24, II/Cat5	514.8	I/Cat24, II/Cat5
Shock	516.2	I, II	516.3	I, IV	516.4	I, IV	516.5	I, IV	516.7	I, IV	516.8	I, IV
Contamination by Fluids[3]									504.2	II	504.3	2.2.6 b

[1] 25 kHz channels not available in USA.

[2] Radio only. Battery requires -20 °C minimal operating temperature.

[3] Please refer to the MOTOTRBO R7 user manual for a list of tested disinfectants and decontamination substances.

Specifications are subject to change without notice. All specifications shown are typical values.

FEATURE COMPATIBILITY

GENERAL	R7 FKP		R7 NKP	
	CAPABLE	ENABLE	CAPABLE	ENABLE
UHF Band 4 W, VHF Band 5 W	•	•	•	•
Full Keypad	•	•	–	–
Color Screen	•	•	–	–
Analog and Digital	•	•	•	•
Voice and Data	•	•	•	•
Integrated Wi-Fi	•	•	•	•
Canned Text Messaging	•	•	•	•
Freeform Text Messaging	•	•	–	–
Text to Speech	○	○	○	○
Work Order Ticketing	•	•	•	•
Indoor Location Tracking	○	○	○	○
Bluetooth Audio	•	•	•	•
Bluetooth Data	○	•	○	•
Voice Announcement	•	•	•	•
Home Channel Reminder	•	•	•	•
Option Board¹	○	○	○	○
Enable GPS/GNSS	○	•	○	•
Priority Scan	•	•	•	•
Real-Time Clock	•	•	•	•
Audio Recording/Playback	○	•	○	•
Secure Linux Operating System	•	•	•	•
M-Radio Control App	•	○	•	○
AUDIO	CAPABLE	ENABLE	CAPABLE	ENABLE
Intelligent Audio in Analog and Digital	•	•	•	•
IMPRES Audio	•	•	•	•
Automatic Acoustic Feedback Suppressor	•	•	•	•
Microphone Distortion Control	•	•	•	•
User-Selectable Audio Profile	•	•	•	•
Trill Enhancement	•	•	•	•
Advanced Dual Microphone Noise Suppression²	•	•	•	•
SYSTEMS				
Dual Capacity Direct Mode	•	•	•	•
Conventional	•	•	•	•
IP Site Connect	○	•	○	•
Capacity Plus Single/Multi Site	○	○	○	○
Capacity Max	○	○	○	○

MANAGEMENT	R7 FKP		R7 NKP	
	CAPABLE	ENABLE	CAPABLE	ENABLE
CPS 2.0 and Radio Management	•	•	•	•
Over-the-Air Programming	•	•	•	•
Over-the-Air Software Update	•	•	•	•
IMPRES Energy	•	•	•	•
IMPRES Battery Management	•	•	•	•
Over-the-Air Battery Management	○	○	○	○
SAFETY	CAPABLE	ENABLE	CAPABLE	ENABLE
Sensor Integration	○	•	○	•
Integrated Accelerometer	•	•	•	•
Man Down / Fall Alert	○	○	○	○
Lone Worker	•	•	•	•
Basic Privacy	•	•	•	•
Enhanced Privacy	○	•	○	•
Transmit Interrupt	○	•	○	•
Digital Emergency	•	•	•	•
Emergency Search Tone	•	•	•	•
Remote Monitor	○	○	○	○
Radio Disable / Enable	○	○	○	○
IP68 (waterproof up to 2 meters for 2 hours)	•	•	•	•
IP66 (concentrated water jet pressure)	•	•	•	•
Rugged to MIL-STD 810	•	•	•	•
Secure Processor	•	•	•	•
Digital Certificates	•	•	•	•
CUSTOMIZATION	CAPABLE	ENABLE	CAPABLE	ENABLE
GCAI-Mini Accessory Port	•	•	•	•
6 Programmable Buttons	•	•	–	–
4 Programmable Buttons	–	–	•	•
Day/Night Screen Mode	•	•	–	–
Action List	•	•	–	–
Emergency Button	•	•	•	•
Label Recess	•	•	•	•
Option Board	○	○	○	○

• Included
○ Optional
– Not Included

¹ Pending option board installation.
² Noise suppression method differs between accessories.

Specifications are subject to change without notice. All specifications shown are typical values.

Attachment F

For more information, please visit
motorolasolutions.com/R7

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MOTOTRBO
R7

SonicWall TZ Series (Gen 7)

Integrated SD-Branch platform for next-gen SMBs & branches

The latest SonicWall TZ series, are the first desktop form factor next-generation firewalls (NGFW) with 10 or 5 Gigabit Ethernet interfaces. The series consist of a wide range of products to suit a variety of use cases.

Designed for small, mid-sized organizations and distributed enterprise with SD-Branch locations, the 7th generation (Gen 7) TZ series delivers industry-validated security effectiveness with best-in-class price-performance. These NGFWs address the growing trends in web encryption, connected devices and high-speed mobility by delivering a solution that meets the need for automated, real-time breach detection and prevention.

HIGHLIGHTS

- 10/5/2.5/1 GbE interfaces in a desktop form factor
- SD-Branch ready
- Secure SD-WAN capability
- SonicExpress App onboarding
- Zero-Touch Deployment
- Single-pane-of-glass-management through cloud or firewall
- SonicWall Switch, SonicWave Access Point and Capture Client integration
- Built-in and expandable storage
- Redundant power
- High port density
- Cellular failover
- SonicOS 7.0
- TLS 1.3 support
- Groundbreaking performance
- High connection count
- Fast DPI performance
- Low TCO

TZ Series (Gen 7) Spec Preview. View full specs »

Max Threat Prevention Throughput	Max Connections	Ports
2.5 Gbps	1.5 Million	8x1GbE, 2x2.5/5/10GbE

Find the right SonicWall solution for your business:

sonicwall.com/TZ

DATASHEET

> "The TZ570 is easy to onboard, use, and manage, and has an easy wizard and clear menus. I love to use SonicWall products, and really appreciate the support which SonicWall has extended."
>
> — Gaurav Pandey, Head IT, Delhivery
>
> **Read case study »**

The Gen 7 TZ series are highly scalable, with high port density of up to 10 ports. It features both in-built and an expandable storage of up to 256GB, that enables various features including logging, reporting, caching, firmware backup and more. An optional second power supply provides added redundancy in case of failure on select models.

Deployment of Gen 7 TZs are further simplified by Zero-Touch Deployment, with the ability to simultaneously roll out these devices across multiple locations with minimal IT support. Built on next-gen hardware, it integrates firewalling, switching and wireless capabilities, plus provides single-pane-of-glass management for SonicWall Switches and SonicWave Access Points. It allows tight integration with Capture Client for seamless endpoint security.

SonicOS and Security Services

The SonicOS architecture is at the core of TZ NGFWs. Gen 7 TZs are powered by the feature rich SonicOS 7.0 operating system with new modern looking UX/UI, advanced security, networking and management capabilities. Gen 7 TZ features

integrated SD-WAN, TLS 1.3 support, real-time visualization, high-speed virtual private networking (VPN) and other robust security features.

Unknown threats are sent to SonicWall's cloud-based Capture Advanced Threat Protection (ATP) multiengine sandbox for analysis. Enhancing Capture ATP is our patent-pending Real-Time Deep Memory Inspection (RTDMI™) technology. As one of Capture ATP's engine, RTDMI detects and blocks malware and zero-day threats by inspecting directly in memory.

By leveraging Capture ATP with RTDMI technology, in addition to security services such as Reassembly-Free Deep Packet Inspection (RFDPI), Anti-virus and Anti-spyware Protection, intrusion prevention system, Application Intelligence and Control, Content Filtering Services, DPI-SSL, TZ series firewalls stop malware, ransomware and other advanced threats at the gateway. For more information, refer the SonicOS and Security Services Datasheet.
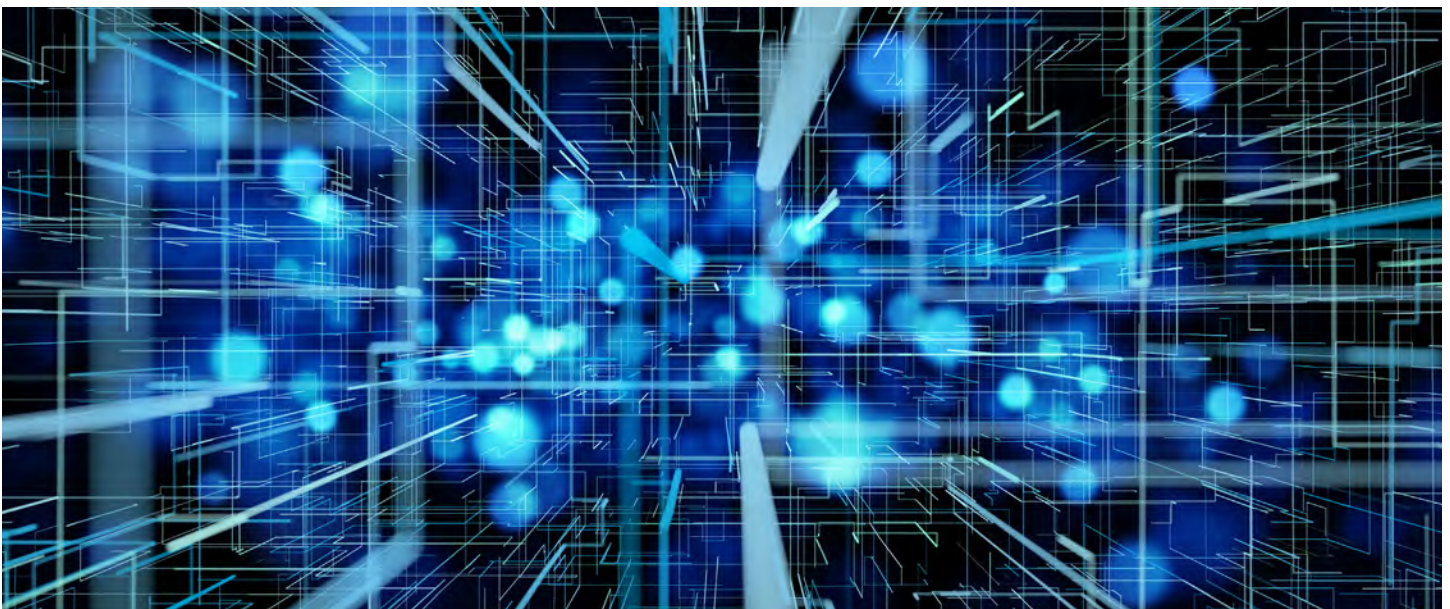
Deployments

Small to Medium size Business

- Save space and money with an integrated gateway security solution mwith firewalling, switching and wireless capabilities

- Reduce complexity and get the business running without relying on IT personnel with easy onboarding using SonicExpress App and Zero-Touch Deployment, and easy management through a single pane of glass

- Attain business continuity by providing failover to cellular connectivity

- Protect network from attacks with a comprehensive security solution that incorporates VPN, IPS, CFS, AV and much more

- Leverage high port density to power on multiple PoE devices such as IP phones and IP cameras with TZ570P

- Boost employee productivity by blocking unauthorized access with traffic segmentation and access policies
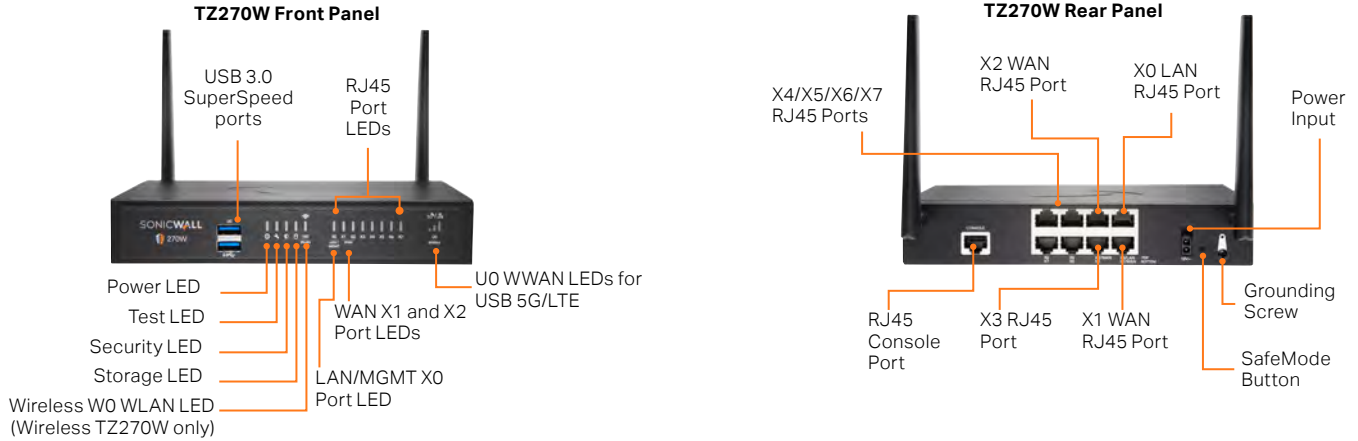

Distributed Enterprise with SD-Branches

- Enhance customer experience and adapt to the changing business needs by enabling next-gen branch connectivity with SD-Branch

- Drive business growth by investing in next-gen appliances with multi-gigabit and advanced security features, to future-proof against the changing network and security landscape

- Secure networks from the most advanced attacks with advanced security features and automatically block threats on decrypted traffic using protocols such as TLS 1.3

- Leverage end-to-end network security with seamless integration of SonicWave access points, SonicWall Switches and Capture Client

- Ensure seamless communication as stores talk to HQ via easy VPN connectivity which allows IT administrators to create a hub and spoke configuration for the safe transport of data between all locations

- Improve business efficiency, performance and reduce costs by leveraging Gen 7 TZ's hardware and software enhancements, plus features such SD-WAN technology

- Scale quickly and effortlessly with SonicExpress App and Zero-Touch Deployment

- Ensure business continuity by providing failover to cellular connectivity

- Maintain compliance with security features, and leverage built-in and expandable storage to store logs for audit purposes
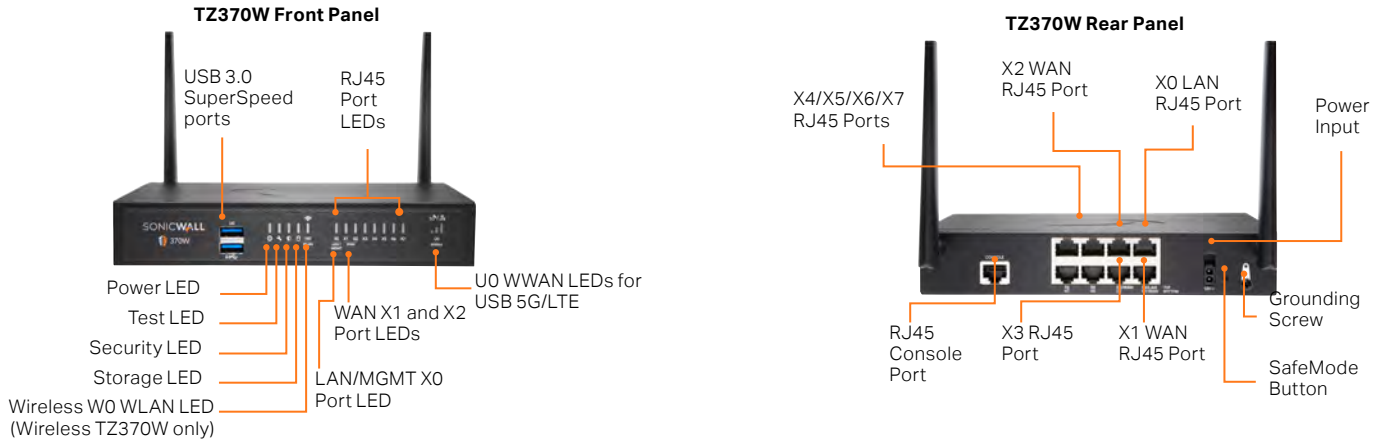

3 | SonicWall TZ Series (Gen 7)
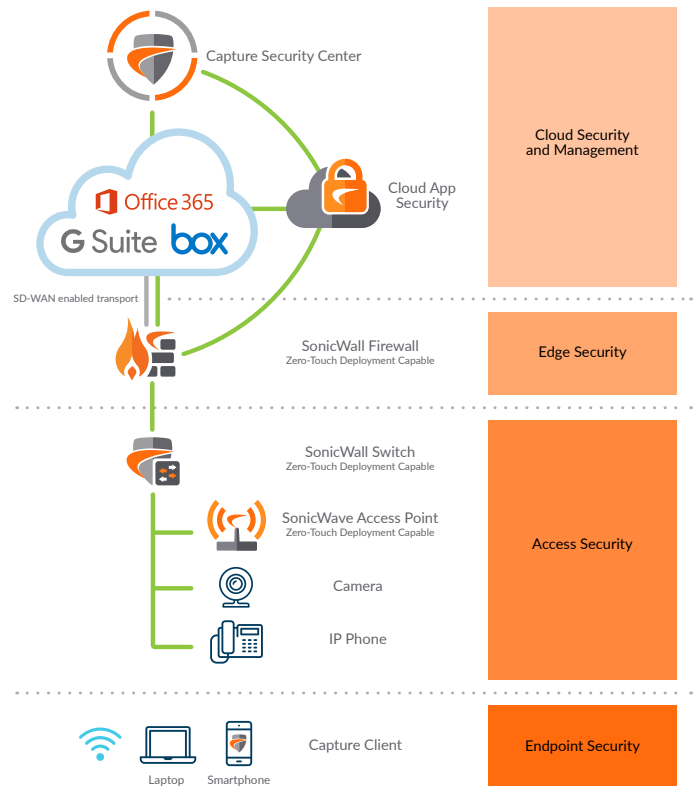
SonicWall TZ270 series

Designed for home offices and lean branches, the TZ270 series deliver industry-validated security effectiveness with best-in-class price-performance.

TZ270W Front Panel

USB 3.0 SuperSpeed ports
RJ45 Port LEDs
Power LED
Test LED
Security LED
Storage LED
Wireless W0 WLAN LED (Wireless TZ270W only)
WAN X1 and X2 Port LEDs
LAN/MGMT X0 Port LED
U0 WWAN LEDs for USB 5G/LTE

TZ270W Rear Panel

X4/X5/X6/X7 RJ45 Ports
X2 WAN RJ45 Port
X0 LAN RJ45 Port
Power Input
RJ45 Console Port
X3 RJ45 Port
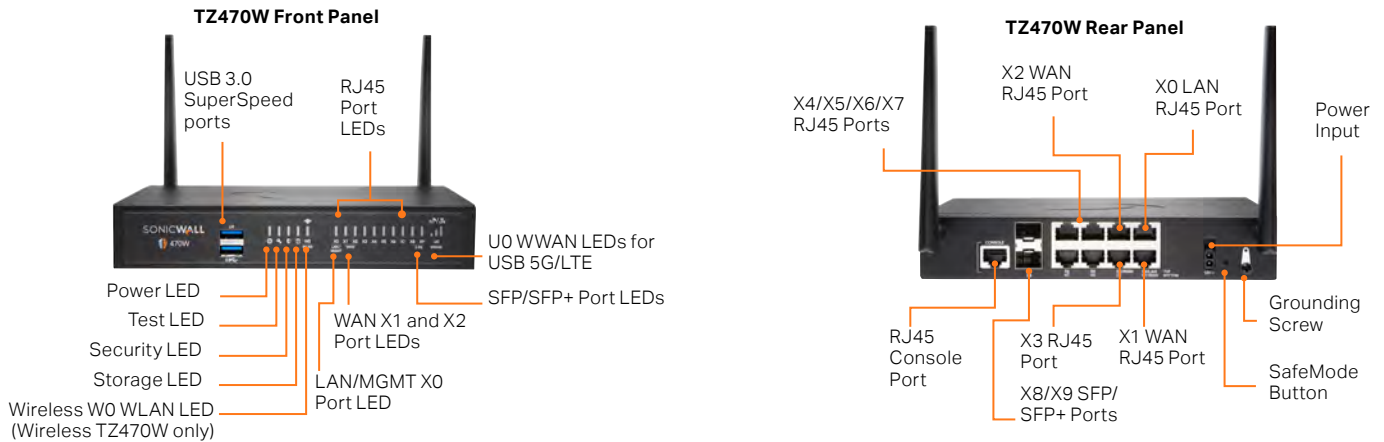X1 WAN RJ45 Port
Grounding Screw
SafeMode Button

SonicWall TZ370 series

Designed for small organizations and lean branches, the TZ370 series deliver industry-validated security effectiveness with best-in-class price-performance.

TZ370W Front Panel

USB 3.0 SuperSpeed ports
RJ45 Port LEDs
Power LED
Test LED
Security LED
Storage LED
Wireless W0 WLAN LED (Wireless TZ370W only)
WAN X1 and X2 Port LEDs
LAN/MGMT X0 Port LED
U0 WWAN LEDs for USB 5G/LTE

TZ370W Rear Panel

X4/X5/X6/X7 RJ45 Ports
X2 WAN RJ45 Port
X0 LAN RJ45 Port
Power Input
RJ45 Console Port
X3 RJ45 Port
X1 WAN RJ45 Port
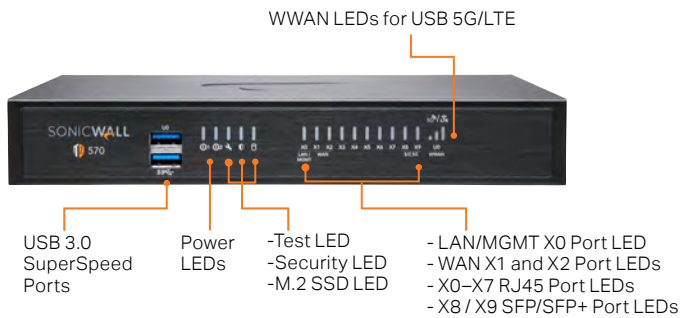Grounding Screw
SafeMode Button

SonicWall TZ470 series

Designed for small organizations and distributed enterprise with SD-Branch locations, the TZ470 series deliver industry-validated security effectiveness with best-in-class price-performance.

TZ470W Front Panel

USB 3.0 SuperSpeed ports
RJ45 Port LEDs
Power LED
Test LED
Security LED
Storage LED
Wireless W0 WLAN LED (Wireless TZ470W only)
WAN X1 and X2 Port LEDs
LAN/MGMT X0 Port LED
U0 WWAN LEDs for USB 5G/LTE
SFP/SFP+ Port LEDs

TZ470W Rear Panel

X4/X5/X6/X7 RJ45 Ports
X2 WAN RJ45 Port
X0 LAN RJ45 Port
Power Input
RJ45 Console Port
X3 RJ45 Port
X8/X9 SFP/SFP+ Ports
X1 WAN RJ45 Port
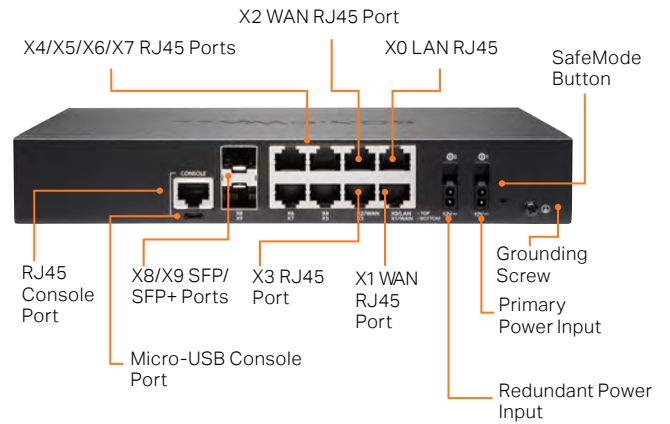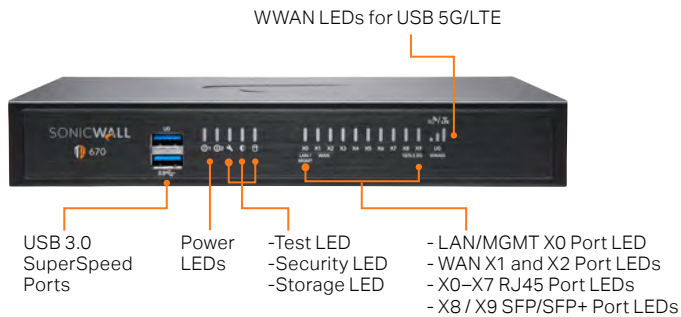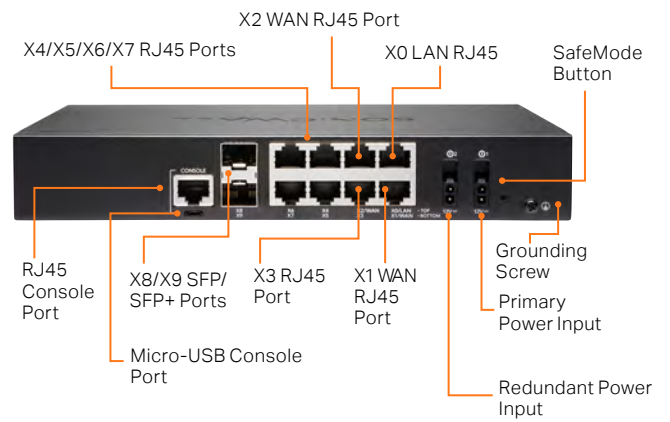Grounding Screw
SafeMode Button

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SonicWall TZ570 series

Designed for small to mid-sized organizations and distributed enterprise with SD-Branch locations, the TZ570 series deliver industry-validated security effectiveness with best-in-class price-performance.

TZ570W Front Panel

WWAN LEDs for USB 5G/LTE

USB 3.0 SuperSpeed Ports

Power LEDs

-Test LED
-Security LED
-M.2 SSD LED

- LAN/MGMT X0 Port LED
- WAN X1 and X2 Port LEDs
- X0–X7 RJ45 Port LEDs
- X8 / X9 SFP/SFP+ Port LEDs

TZ570W Rear Panel

X4/X5/X6/X7 RJ45 Ports

X2 WAN RJ45 Port

X0 LAN RJ45

SafeMode Button

RJ45 Console Port

X8/X9 SFP/SFP+ Ports

X3 RJ45 Port

X1 WAN RJ45 Port

Grounding Screw

Primary Power Input

Micro-USB Console Port

Redundant Power Input

SonicWall TZ670 series

Designed for mid-sized organizations and distributed enterprise with SD-Branch locations, the TZ670 delivers industry-validated security effectiveness with best-in-class price-performance.

TZ670W Front Panel

WWAN LEDs for USB 5G/LTE

USB 3.0 SuperSpeed Ports

Power LEDs

-Test LED
-Security LED
-Storage LED

- LAN/MGMT X0 Port LED
- WAN X1 and X2 Port LEDs
- X0–X7 RJ45 Port LEDs
- X8 / X9 SFP/SFP+ Port LEDs

TZ670W Rear Panel

X4/X5/X6/X7 RJ45 Ports

X2 WAN RJ45 Port

X0 LAN RJ45

SafeMode Button

RJ45 Console Port

X8/X9 SFP/SFP+ Ports

X3 RJ45 Port

X1 WAN RJ45 Port

Grounding Screw

Primary Power Input

Micro-USB Console Port

Redundant Power Input

SonicWall TZ Series (Gen 7) Specifications

Firewall General	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Operating system			SonicOS 7.0		
Interfaces	8x1GbE, 2 USB 3.0, 1 Console	8x1GbE, 2 USB 3.0, 1 Console	8x1GbE, 2x2.5G SFP+, 2 USB 3.0, 1 Console	8x1GbE, 2x5G SFP+, 2 USB 3.0, 1 Console	8x1GbE, 2x10G SFP+, 2 USB 3.0, 1 Console
Wireless support	2x2 802.11ac Wave 2 (TZ270W)	2x2 802.11ac Wave 2 (TZ370W)	2x2 802.11ac Wave 2 (TZ470W)	2x2 802.11ac Wave 2 (TZ570W)	N/A
Power over Ethernet (PoE) support	N/A	N/A	N/A	5 PoE or 3PoE+ (TZ570P	N/A
Storage expansion slot (Bottom)		Optional up to 256GB			Optional up to 256GB, 32GB included
Management		Network Security Manager, CLI, SSH, Web UI, GMS, REST APIs			
Redundant power supply	N/A	N/A	N/A	Yes	Yes
Single Sign-On (SSO) Users	1,000	1,000	2,500	2,500	2,500
VLAN interfaces	64	128	128	256	256
Access points supported (maximum)	16	16	32	32	32

Firewall/VPN Performance	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Firewall inspection throughput[1]	2 Gbps	3 Gbps	3.5 Gbps	4 Gbps	5 Gbps
Threat prevention throughput[2]	750 Mbps	1 Gbps	1.5 Gbps	2 Gbps	2.5 Gbps
Application inspection throughput[2]	1 Gbps	1.5 Gbps	2 Gbps	2.5 Gbps	3 Gbps
IPS throughput[2]	1 Gbps	1.5 Gbps	2 Gbps	2.5 Gbps	3 Gbps
Anti-malware inspection throughput[2]	750 Mbps	1 Gbps	1.5 Gbps	2 Gbps	2.5 Gbps
TLS/SSL inspection and decryption throughput (DPI SSL)[2]	300 Mbps	500 Mbps	600 Mbps	750 Mbps	800 Mbps
IPSec VPN throughput[3]	750 Mbps	1.38 Gbps	1.5 Gbps	1.8 Gbps	2.1 Gbps
Connections per second	6,000	9,000	12,000	16,000	25,000
Maximum connections (SPI)	750,000	900,000	1,000,000	1,250,000	1,500,000
Maximum connections (DPI)	150,000	200,000	250,000	400,000	500,000
Maximum connections (DPI SSL)	25,000	30,000	35,000	50,000	75,000

VPN	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Site-to-site VPN tunnels	50	100	150	200	250
IPSec VPN clients (maximum)	5 (200)	5 (200)	5 (200)	10 (500)	10 (500)
SSL VPN licenses (maximum)	1 (50)	2 (100)	2 (150)	2 (200)	2 (250)
Encryption/authentication		DES, 3DES, AES (128, 192, 256-bit)/MD5, SHA-1, Suite B Cryptography			
Key exchange		Diffie Hellman Groups 1, 2, 5, 14v			
Route-based VPN		RIP, OSPF, BGP			
Certificate support		Verisign, Thawte, Cybertrust, RSA Keon, Entrust and Microsoft CA for SonicWall-to- SonicWall VPN, SCEP			
VPN features		Dead Peer Detection, DHCP Over VPN, IPSec NAT Traversal, Redundant VPN Gateway, Route-based VPN			
Global VPN client platforms supported		Microsoft® Windows 10			
NetExtender		Microsoft® Windows 10, Linux			
Mobile Connect		Apple® iOS, Mac OS X, Google® Android™, Kindle Fire, Chrome OS, Windows 10			

Security Services	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Deep Packet Inspection services		Gateway Anti-Virus, Anti-Spyware, Intrusion Prevention, DPI SSL			
Content Filtering Service (CFS)		HTTP URL, HTTPS IP, keyword and content scanning, Comprehensive filtering based on file types such as ActiveX, Java, Cookies for privacy, allow/forbid lists			
Comprehensive Anti-Spam Service		Yes			
Application Visualization		Yes			
Application Control		Yes			
Capture Advanced Threat Protection		Yes			

Networking	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
IP address assignment		Static (DHCP, PPPoE, L2TP and PPTP client), Internal DHCP server, DHCP relay			
NAT modes		1:1, 1:many, many:1, many:many, flexible NAT (overlapping IPs), PAT, transparent mode			
Routing protocols		BGP, OSPF, RIPv1/v2, static routes, policy-based routing			
QoS		Bandwidth priority, max bandwidth, guaranteed bandwidth, DSCP marking, 802.1e (WMM)			
Authentication		LDAP (multiple domains), XAUTH/RADIUS, SSO, Novell, internal user database, Terminal Services, Citrix, Common Access Card (CAC)			

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Networking	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Local user database	150	250	250	250	250
VoIP	Full H323-v1-5, SIP				
Standards	TCP/IP, UDP, ICMP, HTTP, HTTPS, IPSec, ISAKMP/IKE, SNMP, DHCP, PPPoE, L2TP, PPTP, RADIUS, IEEE 802.3				
Certifications	Granted: FIPS 140-2 Level 2 (with Suite B), IPv6/USGv6, ICSA Network Firewall, ICSA Firewall Enterprise, ISCA Network Antivirus / AntiMalware Pending: Common Criteria NDPP (with VPN and IPS), DoDIN, CSfC				
High availability	Active/Standby with stateful synchronization				

Hardware	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Form factor	Desktop[4]				
Power supply	36W external	36W external	36W external	60W external (TZ570/570W), 180W external (TZ570P only)	60W external
Maximum power consumption (W)	16.84 (TZ270), 18.91 (TZ270W)	16.84 (TZ370), 18.91 (TZ370W)	19.95 (TZ470), 21.98 (TZ470W)	13.4 (TZ570), 15.3 (TZ570W), 108.75 (TZ570P)	13.1
Input power	100 - 240 VAC, 50-60 Hz, 3A	100 - 240 VAC, 50-60 Hz, 3A	100 - 240 VAC, 50-60 Hz, 3A	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz
Total heat dissipation (BTU)	57.42 (TZ270), 64.48 (TZ270W)	57.42 (TZ370), 64.48 (TZ370W)	68.03 (TZ470), 74.95 (TZ470W)	44.7 (TZ570), 52.17 (TZ570W), 370.84 (TZ570P)	55.1
Dimensions	3.5x13.5x19 (cm) 1.8x5.3x7.5 (in)	3.5x13.5x19 (cm) 1.8x5.3x7.5 (in)	3.5x13.5x19 (cm) 1.8x5.3x7.5 (in)	3.5x15x22.5 (cm) 1.38x5.91x8.85 in	3.5x15x22.5 (cm) 1.38x5.91x 8.85 in
Weight	0.82 kg / 1.81 lbs (TZ270), 0.85 kg / 1.87 lbs (TZ270W)	0.82 kg / 1.81 lbs (TZ370), 0.85 kg / 1.87 lbs (TZ370W)	0.83 kg / 1.82 lbs (TZ470), 0.87 kg / 1.92 lbs (TZ470W)	0.97 kg / 2.14 lbs (TZ570), 0.99 kg / 2.18 lbs (TZ570W), 1.05 kg / 2.31 lbs (TZ570P)	0.97 kg / 2.14 lbs
WEEE weight	1.18 kg / 2.6 lbs (TZ270), 1.24 kg / 2.73 lbs (TZ270W)	1.18 kg / 2.6 lbs (TZ370), 1.24 kg / 2.73 lbs (TZ370W)	1.24 kg / 2.73 lbs (TZ470), 1.27 kg / 2.8 lbs (TZ470W)	1.42 kg / 3.13 lbs (TZ570), 1.47 kg / 3.24 lbs (TZ570W), 1.57 kg / 3.46 lbs (TZ570P)	1.42 kg / 3.13 lbs
Shipping weight	1.41 kg / 3.11 lbs (TZ270), 1.47 kg / 3.25 lbs (TZ270W)	1.41 kg / 3.11 lbs (TZ370), 1.47 kg / 3.25 lbs (TZ370W)	1.43 kg / 3.15 lbs (TZ470), 1.51 kg / 3.33 lbs (TZ470W)	1.93 kg / 4.25 lbs (TZ570), 1.98 kg / 4.36 lbs (TZ570W), 2.08 kg / 4.58 lbs (TZ570P)	1.93 kg / 4.25 lbs
MTBF @25ºC in years	51.1 (TZ270), 27.1 (TZ270W)	51.1 (TZ370), 27.1 (TZ370W)	46 (TZ470), 24.1 (TZ470W)	26.1 (TZ570), 23.3 (TZ570W), 31.7 (TZ570P)	43.9
Environment (Operating/Storage)	32°-105° F (0°-40° C)/-40° to 158° F (-40° to 70° C)				
Humidity	5-95% non-condensing				

Regulatory	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Major regulatory compliance (wired models)	FCC Class B, ICES Class B, CE (EMC, LVD, RoHS), C-Tick, VCCI Class B, UL, cUL, TUV/GS, CB, Mexico CoC by UL, WEEE, REACH, BSMI, KCC/MSIP, ANATEL	FCC Class B, ICES Class B, CE (EMC, LVD, RoHS), C-Tick, VCCI Class B, UL, cUL, TUV/GS, CB, Mexico CoC by UL, WEEE, REACH, BSMI, KCC MSIP, ANATEL	FCC Class B, ICES Class B, CE (EMC, LVD, RoHS), C-Tick, VCCI Class B, UL, cUL, TUV/GS, CB, Mexico CoC by UL, WEEE, REACH, BSMI, KCC/MSIP, ANATEL	FCC Class B, FCC, ICES Class B, CE (EMC, LVD, RoHS), C-Tick, VCCI Class B, UL/cUL, TUV GS, CB, Mexico DGN notice by UL, WEEE, REACH, BSMI, KCC/MSIP, ANATEL	FCC Class B, FCC, ICES Class B, CE (EMC, LVD, RoHS), C-Tick, VCCI Class B, UL/cUL, TUV/GS, CB, Mexico DGN notice by UL, WEEE, REACH, BSMI, KCC/MSIP, ANATEL
Major regulatory compliance (wireless models)	FCC Class B, FCC RF ICES Class B, IC RF CE (R&TTE, EMC, LVD, RoHS), RCM, VCCI Class B, MIC/TELEC, UL, cUL, TUV/GS, CB, Mexico CoC by UL, WEEE, REACH, ANATEL	FCC Class B, FCC RF ICES Class B, IC RF CE (R&TTE, EMC, LVD, RoHS), RCM, VCCI Class B, MIC/TELEC, UL, cUL, TUV/GS, CB, Mexico CoC by UL, WEEE, REACH, ANATEL	FCC Class B, FCC RF ICES Class B, IC RF CE (R&TTE, EMC, LVD, RoHS), RCM, VCCI Class B, MIC/TELEC, UL, cUL, TUV/GS, CB, Mexico CoC by UL, WEEE, REACH, ANATEL	FCC Class B, FCC P15C, FCC P15E, ICES Class B, ISED/ IC, CE (RED, RoHS), C-Tick, VCCI Class B, Japan Wireless, UL/cUL, TUV GS, CB, Mexico DGN notice by UL, WEEE, REACH, BSMI, NCC (TW) KCC/MSIP, SRRC, ANATEL	N/A

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Regulatory	TZ270 SERIES	TZ370 SERIES	TZ470 SERIES	TZ570 SERIES	TZ670 SERIES
Major regulatory compliance (PoE models)	N/A	N/A	N/A	FCC Class A, ICES Class A, CE (EMC, LVD, RoHS), C-Tick, VCCI Class A, UL/cUL, TUV/ GS, CB, Mexico DGN notice by UL, WEEE, REACH, BSMI, KCC/MSIP, ANATEL	N/A

Integrated Wireless[5] (TZ270W/370W/470W/570W ONLY)

Standards	802.11a/b/g/n/ac Wave 2, WEP, WPA, WPA2, 802.11i, TKIP, PSK,02.1x, EAP-PEAP, EAP-TTLS
Frequency bands	802.11a: 5.180-5.825 GHz; 802.11b/g: 2.412-2.472 GHz; 802.11n: 2.412-2.472 GHz, 5.180-5.825 GHz; 802.11ac: 5.180-5.825 GHz
Operating channels	802.11a: US and Canada 12, Europe 11, Japan 4, Singapore4, Taiwan 4; 802.11b/g: US and Canada 1-11, Europe 1-13, Japan (14-802.11b only); 802.11n (2.4 GHz): US and Canada 1-11, Europe 1-13, Japan 1-13; 802.11n (5 GHz): US and Canada 36-48/149-165, Europe 36-48, Japan 36-48, Spain 36-48/52-64; 802.11ac: US and Canada 36-48/149-165, Europe 36-48, Japan 36-48, Spain 36-48/52-64
Transmit output power	Based on the regulatory domain specified by the system administrator
Transmit power control	Yes
Data rates supported	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps per channel; 802.11b: 1, 2, 5.5, 11 Mbps per channel; 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps per channel; 802.11n: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 15, 30, 45, 60, 90, 120, 135, 150 Mbps per channel; 802.11ac: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 86.7, 96.3, 15, 30, 45, 60, 90, 120, 135, 150, 180, 200, 32.5, 65, 97.5, 130, 195, 260, 292.5, 325, 390, 433.3, 65, 130, 195, 260, 390, 520, 585, 650, 780, 866.7 Mbps per channel
Modulation technology spectrum	802.11a: Orthogonal Frequency Division Multiplexing (OFDM); 802.11b: Direct Sequence Spread Spectrum (DSSS); 802.11g: Orthogonal Frequency Division Multiplexing (OFDM)/Direct Sequence Spread Spectrum (DSSS); 802.11n: Orthogonal Frequency Division Multiplexing (OFDM); 802.11ac: Orthogonal Frequency Division Multiplexing (OFDM)

1. Testing Methodologies: Maximum performance based on RFC 2544 (for firewall). Actual performance may vary depending on network conditions and activated services.

2. Threat Prevention/GatewayAV/Anti-Spyware/IPS throughput measured using industry standard Keysight HTTP performance test tools. Testing done with multiple flows through multiple port pairs. Threat Prevention throughput measured with Gateway AV, Anti-Spyware, IPS and Application Control enabled with default firewall settings.

3. VPN throughput measured with UDP traffic using 1418 byte packet size AESGMAC16-256 Encryption adhering to RFC 2544. All specifications, features and availability are subject to change.

4. For rack mount, separate rack mount kit available.

5. All TZ integrated wireless models can support either 2.4GHz or 5GHz band. For dual-band support, please use SonicWall's wireless access point products.

Regulatory Model Numbers

TZ270/270W	APL57-100/APL57-101
TZ370/370W	APL57-100/APL57-101
TZ470/470W	APL57-0F1/APL57-0F2
TZ570/TZ570W/TZ570P	APL62-0F7/APL62-0F8/APL63-0F9
TZ670	APL62-0F7

PARTNER ENABLED SERVICES

Need help to plan, deploy or optimize your SonicWall solution? SonicWall Advanced Services Partners are trained to provide you with world class professional services. Learn more at:

www.sonicwall.com/PES

SonicOS 7.0 Feature Summary

Firewall

- Stateful packet inspection
- Reassembly-Free Deep Packet Inspection
- DDoS attack protection (UDP/ICMP/SYN flood)
- IPv4/IPv6 support
- Biometric authentication for remote access
- DNS proxy
- Full API support
- SonicWall Switch integration
- SD-WAN scalability
- SD-WAN Usability Wizard[1]
- SonicCoreX and SonicOS containerization[1]
- Connections scalability (SPI, DPI, DPI SSL)

Enhanced dashboard[1]

- Enhanced device view
- Top traffic and user summary
- Insights to threats
- Notification center

TLS/SSL/SSH decryption and inspection

- TLS 1.3 with enhanced security[1]
- Deep packet inspection for TLS/SSL/SSH
- Inclusion/exclusion of objects, groups or hostnames
- SSL control
- Enhancements for DPI-SSL with CFS
- Granular DPI SSL controls per zone or rule

Capture advanced threat protection[2]

- Real-Time Deep Memory Inspection
- Cloud-based multi-engine analysis
- Virtualized sandboxing
- Hypervisor level analysis
- Full system emulation
- Broad file type examination
- Automated and manual submission
- Real-time threat intelligence updates
- Block until verdict
- Capture Client

Intrusion prevention[2]

- Signature-based scanning
- Automatic signature updates
- Bi-directional inspection
- Granular IPS rule capability
- GeoIP enforcement
- Botnet filtering with dynamic list
- Regular expression matching

Anti-malware[2]

- Stream-based malware scanning
- Gateway anti-virus
- Gateway anti-spyware
- Bi-directional inspection
- No file size limitation
- Cloud malware database

Application identification[2]

- Application control
- Application bandwidth management
- Custom application signature creation
- Data leakage prevention
- Application reporting over NetFlow/IPFIX
- Comprehensive application signature database

Traffic visualization and analytics

- User activity
- Application/bandwidth/threat usage
- Cloud-based analytics

HTTP/HTTPS Web content filtering[2]

- URL filtering
- Proxy avoidance
- Keyword blocking
- Policy-based filtering (exclusion/inclusion)
- HTTP header insertion
- Bandwidth manage CFS rating categories
- Unified policy model with app control
- Content Filtering Client

VPN

- Secure SD-WAN
- Auto-provision VPN
- IPSec VPN for site-to-site connectivity
- SSL VPN and IPSec client remote access
- Redundant VPN gateway
- Mobile Connect for iOS, Mac OS X, Windows, Chrome, Android and Kindle Fire
- Route-based VPN (OSPF, RIP, BGP)

Networking

- PortShield
- Path MTU discovery
- Enhanced logging
- VLAN trunking
- Port mirroring (NSa 2650 and above)
- Layer-2 QoS
- Port security
- Dynamic routing (RIP/OSPF/BGP)
- SonicWall wireless controller
- Policy-based routing (ToS/metric and ECMP)
- NAT
- DHCP server
- Bandwidth management
- A/P high availability with state sync
- Inbound/outbound load balancing
- High availability - Active/Standby with state sync
- L2 bridge, wire/virtual wire mode, tap mode, NAT mode
- Asymmetric routing
- Common Access Card (CAC) support

VoIP

- Granular QoS control
- Bandwidth management
- DPI for VoIP traffic
- H.323 gatekeeper and SIP proxy support

Management, monitoring and support

- Capture Security Appliance (CSa) support
- Capture Threat Assessment (CTA) v2.0
  - New design or template
  - Industry and global average comparison
- New UI/UX, Intuitive feature layout[1]
  - Dashboard
  - Device information, application, threats
  - Topology view
  - Simplified policy creation and management

- Policy/Objects usage statistics[1]
  - Used vs Un-used
  - Active vs Inactive
- Global search for static data
- Storage support[1]
- Internal and external storage management[1]
- WWAN USB card support (5G/LTE/4G/3G)
- Network Security Manager (NSM) support
- Web GUI
- Command line interface (CLI)
- Zero-Touch registration & provisioning
- CSC Simple Reporting[1]
- SonicExpress mobile app support
- SNMPv2/v3
- Centralized management and reporting with SonicWall Global Management System (GMS)[2]
- Logging
- Netflow/IPFix exporting

- Cloud-based configuration backup
- BlueCoat security analytics platform
- Application and bandwidth visualization
- IPv4 and IPv6 management
- CD management screen
- Dell N-Series and X-Series switch management including cascaded switches

Debugging and diagnostics
- Enhanced packet monitoring
- SSH terminal on UI

Wireless
- SonicWave AP cloud management
- WIDS/WIPS
- Rogue AP prevention
- Fast roaming (802.11k/r/v)
- 802.11s mesh networking
- Auto-channel selection
- RF spectrum analysis
- Floor plan view

- Topology view
- Band steering
- Beamforming
- AirTime fairness
- Bluetooth Low Energy
- MiFi extender
- RF enhancements and improvements
- Guest cyclic quota

Integrated Wireless (TZ270/370/470/570W only)
- 802.11ac Wave 2 wireless
- Dual-band (2.4 GHz and 5.0 GHz)
- 802.11 a/b/g/n/ac wireless standards
- Wireless intrusion detection and prevention
- Wireless guest services
- Lightweight hotspot messaging
- Virtual access point segmentation
- Captive portal
- Cloud ACL

[1] New feature, available on SonicOS 7.0
[2] Requires added subscription

Learn more about SonicWall Gen 7 TZ Series

www.sonicwall.com/TZ

About SonicWall

SonicWall delivers Boundless Cybersecurity for the hyper-distributed era and a work reality where everyone is remote, mobile and unsecure. By knowing the unknown, providing real-time visibility and enabling breakthrough economics, SonicWall closes the cybersecurity business gap for enterprises, governments and SMBs worldwide. For more information, visit www.sonicwall.com.

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