

SmartMotion ST352 - ST355

TWIN CELLULAR MODULE ROUTER



- + Two Independent cellular modules for advanced fail over feature
- + Powerful CPU and enhanced memory to support high demand customer applications
- + Load Balancing
- + Extended operational temperature range from -40 °C to +75 °C
- + 10-60 VDC operated with transient and reverse polarity voltage protection
- + GPS and GLONASS support
- + MicroSD card holder
- + Low power consumption mode for solar and battery power applications
- + Optional industrial grade WiFi
- + PoE PD, PoE PSE, In/Out, USB Host
- + Advanced security features

SmartMotion automatic wireless failover protects against loss of communications in wired or wireless networks by using dual LTE/4G cellular module technology that accommodates multiple cellular carriers. Smartmotion provides transfer speeds up to 50 Mbit/s and download speeds of up to 100 Mbit/s meeting the high demand required for video transfer.

The SmartMotion is designed and tested to meet the requirements of industrial, mobile, security and other harsh environment application where standard commercial designs fail. Specifications include wide operating temperature ranges from -40 to +75 °C (-40 to +70 °C LTE450 module), input voltage range 10 V DC to 60 V DC, and advanced sleep mode feature to allow low power consumption for solar and battery power applications.

The SmartMotion places intelligence out at the network edge with an extremely powerful CPU and enhanced embedded memory capacity providing full support for LTE/4G (long Term Evolution) speeds and applications. A secure Web interface allows users to configure and manage the SmartMotion from remote locations. The router can also upgrade its configuration and firmware from the operator's central server, allowing for simultaneous mass reconfiguration of every router on the network. Users may insert Linux scripts and they can create multiple configurations for the same router. Users may switch from one configuration to another at any time.

The flexible SmartMotion concept includes 2 Ethernet ports with 2 independent LANs/IP addresses. The standard configuration also includes 1 USB host port, 1 microSD card holder, 4 SIM card holders for automatic failover to an alternate service provider, 2 binary inputs(I/O) , 1 binary output (I/O) and onboard GPS. An optional built-in WiFi module is also available, with industrial grade operating temperature.

The SmartMotion supports real time data encryption and the creation of VPN tunnels using IPsec, OpenVPN and L2TP. It supports DHCP, NAT, NAT-T, DynDNS, NTP, VRRP, control by SMS, and numerous other functions, as well as additional software like WebAccess/DMP , SmartCluster VPN Server and R-SeeNet.



ORDERING INFORMATION

BB - ST352XX02X

Accessories	
0	No Accessories (DIN holder included)
5 (set)	Accessories (PS-EU/UK/US/AUS, Antennas, ETH cable, DIN Clip, Quick Start Guide)
2	Metal enclosure
PoE	
0	No PoE
8	PoE PSE
9	PoE PD
WiFi	
0	No WiFi
1	WiFi 2.4 & 5 GHz
Cellular module	
52	LTE + LTE EMEA: 2x LTE module (800/900/1800/2100/2600), UMTS (900/1800/2100), GSM/GPRS/EDGE (900/1800)
55	LTE + LTE450 EMEA, APAC, LATAM: LTE (800/900/1800/2100/2600), UMTS, GSM/GPRS/EDGE + LTE450

Note: Antennas & Power Supply Sold Separately.

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HW SPECIFICATIONS

PORTS, LED, ANTENNAS	
2× ETH ports	RJ45, 10/100 Mbps
4× SIM	2 Mini SIMs (2FF) (rear panel)
LED Indicators	PWR, DAT, WAN, ETH, SIM, USR, POE, IN0, IN1, OUT
5× ANT - ANT, DIV	SMA connectors
1× Wi-Fi Antenna *Optional	R-SMA connector
1× USB	USB Host connector 2.0
1× SD Card	1× Micro SD Card slot (rear panel)
RST	RESET button (rear panel)

POWER	
Power Supply (sold separately)	10 – 60 VDC (2-Way Molex connector)
Power Consumption	Idle: 2.5 W Average: 4 W Peak: 11 W Sleep Mode: 10mW

ENVIRONMENTAL	
Temperature Range	Operating: -40 to +75 °C Storage: -40 to +85 °C
Temperature Range LTE450	Operating: -40 to +70 °C Storage: -40 to +85 °C
Humidity	Operating: 0 to 95 % Storage (Non-condensing): 0 to 95 %
Cold Start	-35 °C
Operating Altitude	2000 m / 70 kPa
Ingress Protection Rating	IP30

MECHANICAL	
Metal case with metal DIN rail	
Enclosure Dimensions	55x97x125 mm
Weight Metal	375 g

STANDARDS AND REGULATIONS

INDUSTRY CERTIFICATIONS & APPROVALS		
	ST352	ST355
Telecom and emission for the 1st module	ETSI EN 301 511 V12.5.1, ETSI EN 300 440 V2.1.1, ETSI EN 301 908-1 V11.1.1, ETSI EN 301 908-2 V11.1.1, ETSI EN 301 908-13 V11.1.1	ETSI EN 301 511 V12.5.1, ETSI EN 300 440 V2.1.1, ETSI EN 301 908-1 V11.1.1, ETSI EN 301 908-2 V11.1.1, ETSI EN 301 908-13 V11.1.1
Telecom and emission for the 2nd module	ETSI EN 300 328 V2.1.1, ETSI EN 301 893 V2.1.1	ETSI EN 301 908-1 V11.1.1, ETSI EN 301 908-13 V11.1.1
Telecom and emission for the WiFi module		ETSI EN 300 328 V2.1.1, ETSI EN 301 893 V2.1.1
EMC	ETSI EN 301 489-1 v1.9.2, ETSI EN 301 489-1 V2.1.1, Draft ETSI EN 301 489-19 V2.1.0, Draft ETSI EN 301 489-52 V1.1.0, ETSI EN 301 489-17 V3.1.1	ETSI EN 301 489-1 v1.9.2, ETSI EN 301 489-1 V2.1.1, Draft ETSI EN 301 489-19 V2.1.0, Draft ETSI EN 301 489-52 V1.1.0, ETSI EN 301 489-17 V3.1.1
Safety	EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 + AC:2011, EN 62311:2008	EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 + AC:2011, EN 62311:2008
E-Mark – EMC for devices in transportation	E-Mark homologation number: 10R – 04 8180	E-Mark homologation number: 10R – 04 8180

WI-FI - 802.11 A/B/G/N, AP OR CLIENT MODES	
Supported Wi-Fi band	2.4 GHz, 5.4 GHz
Encryption	None, WEP, TKIP, AES
5 GHz supported channels	36, 40, 44, 48, 52, 56, 60, 64, 149, 153, 157, 161, 165
2.4 GHz supported channels	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
Number of clients	10
Authentication	Open, Shared, WPA-PSK, WPA2-PSK

POE PARAMETERS	POE PD parameters for opposite PSE	POE PSE
Input voltage range	42.5 – 57 V	44 – 57 V, 65 W
Power available	25.50 W	2x 25.50 W (ETH0, ETH1)
Maximum current	600 mA	
Insul. Strength	1.5 kV from the router	none
Standards IEEE 802.3at-2009 (PoE+) and IEEE 802.3af-2003 (PoE) supported. Cabling needed is Category 5, up to 12.5 Ω. It is possible to use a passive PoE injector		

GNSS SPECIFICATIONS	
Antenna	50 Ohms – active
Protocols	NMEA 0183 v3.0
Frequency	1575.42MHz
Sensitivity	Tracking: -161dBm Acquisition (Assisted): -158dBm Acquisition (Standalone): -145dBm
Acquisition time	Hot start: 1 s Warm start: 29 s Cold start: 32 s
Accuracy	Horizontal: < 2m (50 %); < 5m (90 %) Altitude: < 4m (50 %); < 8m (90 %) Velocity: < 0.2mps

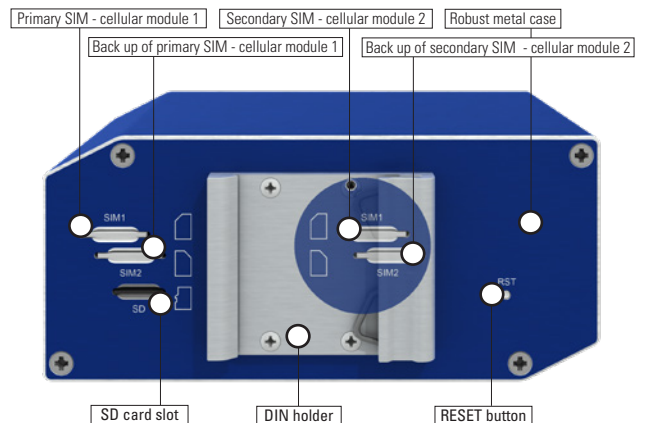
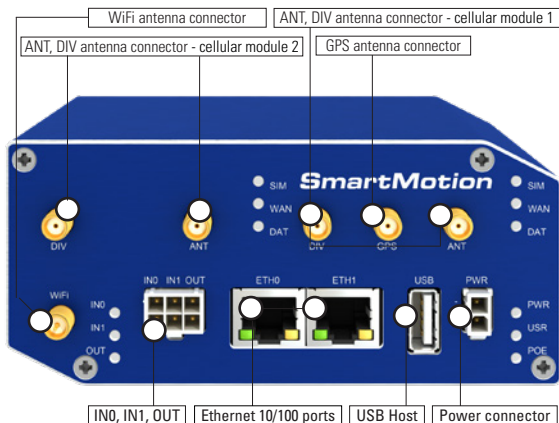
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CELLULAR MODULE PARAMETERS - ST352 - both cellular modules 2× LTE, ST355 - first cellular module			
LTE parameters	Bit rate 100 Mbps (DL) / 50 Mbps (UL) 3GPP rel. 8 standard Supported bandwidths: 5 MHz, 10 MHz, 20 MHz Supported frequencies: B20 (800 MHz), B8 (900 MHz), B3 (1800 MHz), B1 (2100 MHz), B7 (2600 MHz) Max power – typical 23 dBm	GPRS/EDGE parameters	Bit rate 237 kbps (DL) / 59,2 kbps (UL) GPRS multislot class 10, CS 1 to 4 EDGE multislot class 12, CS 1 to 4, MCS 1 to 9 Supported frequencies: 900 / 1800 MHz Max power – typical 26–33 dBm
HSPA+ parameters	Bit rate 42 Mbps (DL) / 5,76 Mbps (UL) 3GPP rel. 7 standard UE CAT. 1 to 6, 8, 10, 12, 14 3GPP data compression Supported frequencies: B8 (900 MHz), B3 (1800 MHz), B1 (2100 MHz) Max power – typical 24 dBm	GPRS/EDGE power classes	EGSM 900: Class 4 (33 dBm) GSM 1800: Class 1 (30 dBm) EDGE 900: Class E2 (27 dBm) EDGE 1800: Class E2 (26 dBm)
UMTS parameters	PS bit rate 384 kbps (DL) / 384 kbps (UL) CS bit rate 64 kbps (DL) / 64 kbps (UL) W-CDMA FDD standard Supported frequencies: B8 (900 MHz), B3 (1800 MHz), B1 (2100 MHz) Max power – typical 24 dBm		

CELLULAR MODULE PARAMETERS - ST355 - second cellular module			
LTE parameters	Bit rate 100 Mbps (DL) / 50 Mbps (UL), UE CAT. 3 3GPP rel. 9 standard Supported bandwidths: 5 MHz, 10 MHz, 20 MHz Supported frequencies: B31 (450 MHz) Rated Output Power: B31: CLASS 3 MIMO (Multi-Input Multi-Output) antenna support Max power - typical 23 dBm		



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ACCESSORIES		INCLUDED IN PACKAGE	INCLUDED IN SET PACKAGE	SOLD SEPARATELY
ORDER CODE	DESCRIPTION			
BB-WR-600N	Antenna LTE 450 MHz (only for ST355)		✓	✓
BB-TG.30.8113	Antenna LTE, Terminal		✓	✓
BB-AW-A2458G-FSRPK	Antenna Wi-Fi, 2.4 & 5.8 GHz		✓	✓
BB-RPS-v3-MO2-M	SmartFlex Power Supply, 12V/1A		✓	✓
BB-RPS-v3-PSE	SmartFlex Power Supply, 48V/1.35A (power cord required)			✓
BB-PWRCORD-US	USA - Power Supply Power Cord			✓
BB-PWRCORD-EU	EU - Power Supply Power Cord			✓
BB-PWRCORD-UK	UK - Power Supply Power Cord			✓
BB-PWRCORD-AUS	AU - Power Supply Power Cord			✓
BB-KD-ETH	Ethernet cable 1,5 m		✓	✓
BB-SBD40	DIN Rail Clip - metal	✓	✓	✓
BB-CPD3	DIN Rail Clip - plastic	✓	✓	✓
BB-KN-v3-MO2-3	PS Cable 2-wire, MO 2 pins, 3m, v3 routers	✓		✓
BB-KIO-v3-MO6-3	IO Cable 6-wire, 3m, v3 routers			✓
BB-CON-SFLEXSET	PWR connector, I/O connector + 8 pins	✓	✓	✓
Quick Start Guide		✓	✓	

SW FEATURES

SOFTWARE	
Network and Routing	DHCP Server, , DHCP Client, NAT/PAT, VRRP, Dynamic DNS client, DNS proxy, VLAN, QoS, NTP Client/ Server, IGMP, BGP, OSPF, RIP, SMTP, SMTPS, SNMP v1/ v2c/ v3, Backup routes, PPP, PPPoE, SSL, Port Forwarding, Host Port Routing, Ethernet Bridging
Security	HTTPS, SSH, VPN tunnels, SFTP, Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering), DMZ (via iptables)
VPN Tunnelling	Open VPN client and server and P2P, L2TP, PPTP, GRE, EasyVPN, DMVPN, IPSec with IKEv1 and IKEv2
Configuration	Web server, SSH, Four configuration switchable profiles, Automatic configuration update from server Backup configuration, Restore configuration
Firmware Management	Automatic firmware update from server, Locally via LAN and USB or remotely OTA (HTTP, HTTPS), Over-the-Air software updates, Over-the-Air cellular module update from FW
Diagnostic	One CLICK report – current configuration / factory identification / system log / kernel log / reboot log / routing table, Remote diagnostics possible via SSH
Status	Network Status, DHCP Status, IPSec Status, Statistics history for last 60 days
Log	System Log, Reboot Log, Kernel Log
Controlling and Diagnostic	SMS, SNMP v1/v2c/v3, Statures, Log
Event Engine	StartUp script & Up/Down script (Bash), Digital Input, Network Parameters, Data Usage, Timer, Power, Device Temperature Report Types: RAP, SMS, email, SNMP Trap
Other	IPv6 support

R-SEENET™

Router Management Software consisting of two parts:

R-SeeNet Server application can be programmed to automatically send SNMP queries (Simple Network Management Protocol) to each router defined in the network. The application retrieves status information from the routers and records it in the SQL database.

R-SeeNet PHP is a web-based application that accesses the SQL database and provides the network administrator detailed information on individual routers and network health.

WebAccess/DMP

WebAccess/DMP takes management of your devices to new levels of flexibility and efficiency. Giving you a complete view of your installed device population, SmartWorx Hub delivers invaluable configuration, diagnostic and management facilities directly to your desktop, wherever you are.

Manage a single device or your entire device population at the same time. Whether you need to modify configuration parameters, download or upgrade installed firmware and applications or view detailed information regarding network statistics, you can do it all from any location.