

RJSML-MG7F3G

Managed military Ethernet switch - 7 fast ports + 3 Gigabit ports

Military ethernet switch for harsh environment with industrial EMI compliancy

Sealed, rugged & managed switch

Amphenol offers a 10 ports managed Ethernet switch RJSML-MG-7F3G.

Note: this model replaces the RJSML-9MG1 and the RJSML-9RG1.

The switch can withstand a variety of extreme conditions: whatever the situation - high temperatures, extreme shocks and vibrations, dust particles or even liquid immersion there is a solution available.

The switch electronics are sealed within a waterproof IP68 metallic enclosure.

The conductive cadmium plating is suitable for most demanding EMI-RFI environments. Black paint is also offered when RoHs is required (others colors available).

The I/O interface includes redundant power inputs as well as waterproof rugged RJ45 connectors from the RJF TV FIELD threaded product series based on MIL-DTL-38999 (Series III) metallic shell size 19.

This serie enables the transformation without tooling of any standard RJ45 cordset into a robust and waterproof connection system.

Military applications

- Data acquisition & transmission
- Battlefield communication C4ISR
- Rugged Networks
- Mobile communications
- Test equipment
- Avionic & shipboard systems

Key features

- **Rugged environmental feature**
 - Rugged metal packaging with cadmium or paint protection
 - Mil-DTL-38999 III connectors for both power and Ethernet ports
 - IP65/IP68 rated when mated
 - Power filtering and protection (-704 option)
 - MIL-STD-461E (CE03) 600V spike suppressior
 - MIL-STD-704A
 - MIL-STD-1275A
 - RTCA/DO-160B
 - MIL-STD-810F shocks
 - RTCA/DO- 160C Vibrations
 - Wide operating temperature range of -40°C to 70°C
 - MIL-STD-810F Altitude 50,000 ft 15,000 m
- **Ethernet features**
 - 3 ports 10/100/1000-BaseT(X) + 7 ports 10/100-BaseT(X)
 - Full-Duplex operation with flow control (no collisions!)
 - Auto-detecting, auto-crossover and auto-polarity
 - MIL-STD-810F shocks
 - RSTP for redundant rings
 - QoS and CoS priority queuing
 - SNMPv3 authentication and encryption
 - IGMP for multicast filtering
 - VLAN for trafic segregation
 - And much more !



IEEE Ethernet standards

Models	Features	802.3/u	802.3x	802.3z	802.1p	802.1D	802.1w	802.1Q
RJS XX MG 7F3G XX	Managed - Gigabit	●	●	●	●	●	●	●
IEEE 802.3/u	10 Mbps & 100 Mbps fast Ethernet			IEEE 802.1p	Priority queuing - QoS, CoS, ToS/DS			
IEEE 802.3x	Full-Duplex with flow control			IEEE 802.1D/w	Rapid spanning tree for redundant rings			
IEEE 802.3ab	1000 Mbps Gigabit Ethernet			IEEE 802.1Q	VLAN for traffic segregation			

Ethernet features

RJ45 ports	10 shields RJ45 ports 10/100 BaseT(X) or 1000 Base T(X)
Connectors for RJ45 ports	RJFTV: jam nut receptacle based on MIL-DTL-38999 III Olive drab cadmium or Nickel plated
RJ45 speed	10 or 100 Mbps auto -negotiation
Typical latency	16 us + frame time @ 10 Mbps (varies on load and settings) 5 us + frame time @ 100 Mbps
Full / Half Duplex	Automatic or configurable
RJ45 MDI/MDIX	Auto-crossover
RJ45 TD and RD polarity	Auto-polarity
MAC addresses supported	8192
Memory bandwidth	32 Gbps (gigabit) ; 3.2 Gbps for all other models
Ethernet isolation	1500 Vrms 1 minute
Ring features	Link loss recovery time: 30 ms plus 5 ms per hop
<i>(for Ring model only)</i>	Maximum switches in ring: 50+ Dual Ring support

Environmental specifications

EMI emissions	EN55022 class A, FCC part 15, IC ES-003
EMC immunity	IEC61326-1, IEEE C37.90
Shocks	MIL-STD-810F: 40g, 11ms, 18 saw tooth shocks
Vibrations	RTCA/DO-160C sinusoidal vibrations 5-55 Hz: 0.01 inch ; 55-500 Hz: 1.5 g
Altitude	MIL-STD-810F: 50.000 ft - 15.000 m
Temperature	Operating -40°C to +70°C Storage -40°C to +85°C

Weight approx 2.8 kg

Power supply

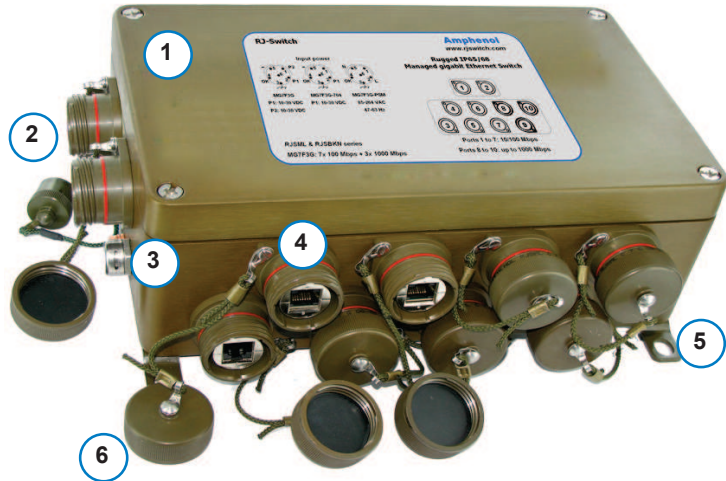
Input voltage	MG7F3G: 10-30 VDC, redundant power input (P1 and P2) MG7F3G-704: 10-30 VDC, single power input (P1 only) MG7F3G-PSM: single power input AC or DC <ul style="list-style-type: none"> - AC voltage: 85-264 VAC/Frequency 47-63 Hz - DC voltage: 120-370 VDC
Input power	5 W typical (all ports active)
Connectors for power	MIL-DTL-38999 III jam nut receptacle, olive drab cadmium or nickel plated 1 connector TVx07xx0935P: 6 cts # 22D (wire 0.4 mm ² maxi)
"OK" contact output	Sourcing power ; Maximum current : 0.5 A MG7F3G: ON if P1 and P2 have power and switch software is running MG7F3G-704: ON when software is running MG7F3G-PSM: ON when software is running; output power: 24VDC

Additional power protection for models MG7F3G-704 (option-704)

MIL-STD-461E	CE102 Conducted emission
DEF-STAN-59-41	DCE01/DCE02
DEF-STAN-61-5	Pt 6
MIL-STD-704A	600V input transient, applied for 10us
MIL-STD-1275A	Spikes: +/- 250 V for 100us Surges: 100 V for 50 ms at 0.5 mohm Ripple: 14VAC pk-pk

Description

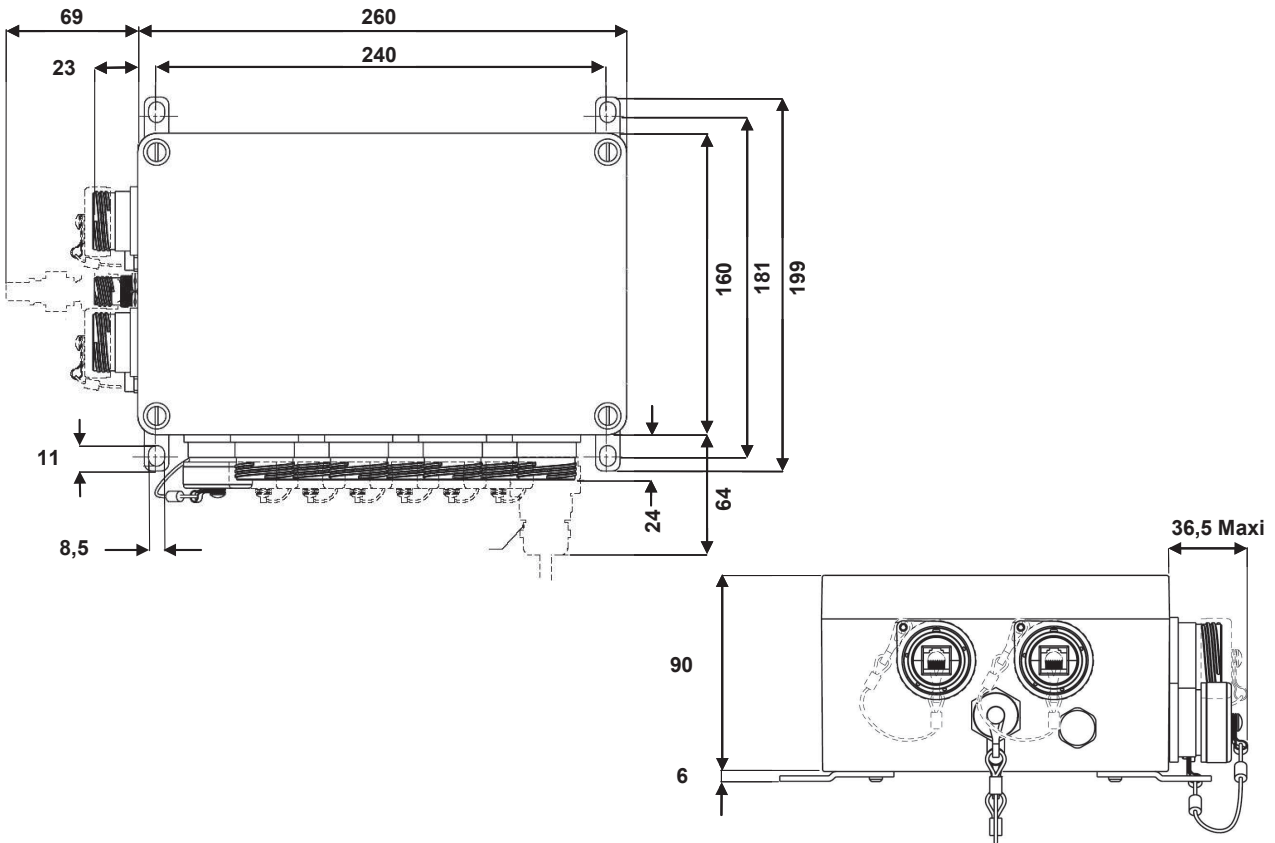
- 1 IP68 aluminium enclosure with cadmium conductive plating or black paint (RoHS)
- 2 Redundant power inputs
- 3 Balance pressure vent
- 4 10 rugged IP68 RJF TV Ethernet ports
- 5 Fixture for vertical mounting
- 6 Optional caps available



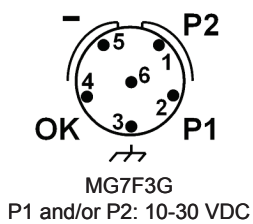
IMPORTANT NOTE

This model has no LED indicator.
Management is done through a web browser

Description (in mm)



Pin-out for the power connector



Part number code

Series	RJS	ML	MG7F3G	-	-	-
Type of Enclosure						
ML: MIL-DTL-38999 (series III) receptacles, OD Cadmium plating						
BKN: RAL 9005 (jet black) paint on aluminium box, nickel plated 38999 (series III) receptacles, ROHS compliant						
Type of Electronics						
MG7F3G: managed 6 ports 10/100 Base T(X) + 3 ports 10/100/1000 Base T(X)						
Optional: transient suppression module; 600V spike suppressor						
(Blank): no transient suppression module						
704: switch equipped with additional transient suppression module						
Optional: AC power supply						
(Blank): DC powered						
PSM: switch powered with 85-264 VAC instead of DC power						
Optional: Caps for receptacles fixed with cord directly to the receptacle						
(Blank): no caps included. The Ethernet ports are still sealed but the contacts are not protected.						
CAPS: attached caps for both power and data included						

Example: RJS ML MG7F3G 704 CAPS Managed switch in an aluminium enclosure with olive drab green conductive cadmium plating, 7 ports 10/100 Base T(X) + 3 gigabit ports, RJF TV threaded coupling receptacles, additional transient suppression module, caps are added to the switch.

Remark: All BKN Ethernet switches and nickel plated accessories are RoHs compliant.
704 and PSM options can not be selected together.
With the -704 option, a filter module is included inside the switch allowing to meet MIL-STD-461 and other aircraft standards.
With the -CAPS option, all the receptacles comes pre-equipped with a cap.

Accessories

Plugs for Ethernet ports
RJF TV 6 M G: cadmium OD plating
RJF TV 6 M N: nickel plating
Based on MIL-DTL-38999
No tool required !!!



Caps for Ethernet ports
RJSML C7G: cadmium OD plating
RJSML C7N: Nickel plating
A simple screwdriver is needed!



Plugs for I/O ports:
MIL-DTL-38999,
cadmium plated, crimp contacts
Two plugs (6 cts # 22D)
TV 06 RW 0935 S: cadmium OD plating
TV S06 RF 0935 S: nickel plating



Backshells for I/O plugs
We suggest to use MIL-DTL-38999 III backshells.
Consult the dedicated catalog (E118) for details.

Examples:
TVNSA 09 014 : shielding backshell,
cadmium OD plating
TVNSA 09 023: shielding backshell, nickel plating
+ 804221 straight heat shrink for sealing



Example: RJS ML MG7F3G 704 CAPS With a RJSML MG7F3G 704 CAPS switch, we suggest to use hereafter accessories :
RJF TV 6 M G (up to 10) for Ethernet ports
TV 06 RW 0935S + TVNSA 09 014 + 804221 for power ports