



AEROSPACE STANDARD

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Superseding AS5725B

Interface Standard, Miniature Mission Store Interface

RATIONALE

This SAE Aerospace Standard (AS) was developed by the Society of Automotive Engineers (SAE International). It defines implementation requirements for the electrical interface between platforms and miniature stores, and/or miniature store launch/carriage systems and miniature stores. This document was revised to incorporate editorial and technical comments received and coordinated by SAE AS-1B2 Aircraft/Store Interface Standards User Group. The changes include items that came out of the validation document development effort.

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1. SCOPE

1.1 Scope

This SAE Aerospace Standard (AS) defines implementation requirements for the electrical interface between:

- a. Aircraft carried miniature store carriage systems and miniature stores
- b. Aircraft parent carriage and miniature stores
- c. Surface-based launch systems and miniature stores

The interface provides a common interfacing capability for the initialization and employment of smart miniature munitions and other miniature stores from the host systems. Physical, electrical, and logical (functional) aspects of the interface are addressed.

1.2 Purpose

The purpose of this standard is to minimize proliferation of electrical interfaces between platforms, miniature stores, and associated carriage systems and thereby promote interoperability of miniature stores and carriage systems across different programs and services.

1.3 Application

This standard applies to all platforms, miniature stores and associated carriage systems that electrically interface with each other. The carriage systems include captive and releasable (canister type) aircraft mounted carriage devices, platforms such as unmanned combat air vehicles (parent carriage), dedicated carriage areas on aircraft, and surface-based launch systems. For simplicity within this document, all carrying devices are generically referred to as the miniature store carriage system (or simply carriage system) from an interface perspective. Additionally, the term store as used in this document refers to a miniature store unless otherwise indicated.

2. REFERENCES

2.1 General

The documents listed in this section are specified in Sections 2, 3, and 4 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in Sections 2, 3, and 4 of this standard, whether or not they are listed.

2.2 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS5652	10 Megabit/sec Network Configuration, Digital Time Division Command/Response Multiplex Data Bus
AS5653	High Speed Network for MIL-STD-1760
AS39029	Contacts, Electrical Connector, General Specification for
AS85049/80	Connector Accessories, Electrical, Dummy Contact, Sizes 16, 12, and 8, Category 7 (for MIL-DTL-38999 Connectors)

2.2.2 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

FC-PI	ANSI INCITS 352-2002 Fiber Channel - Physical interfaces
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2.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

STANAG 4294	(Part 1) Navstar Global Positioning System (GPS) System Characteristics
MIL-DTL-38999	Connectors, Electrical, Circular, Miniature, High Density, Quick Disconnect (Bayonet, Threaded, and Breech Coupling), Environment Resistant, Removable Crimp and Hermetic Solder Contacts, General Specification for
MS27488	Plug, End Seal, Electrical Connector
MIL-STD-704	Aircraft Electric Power Characteristics
MIL-STD-1760	Aircraft/Store Electrical Interconnection System
MIL-STD-1560	Insert Arrangements for MIL-DTL-38999, MIL-DTL-27599, and AS29600 Series A, Electrical Circular Connectors

2.4 Definitions

Definitions applicable to this standard are as follows.

2.4.1 AIRCRAFT

Any vehicle designed to be supported by air, being borne up either by the dynamic action of the air upon the surfaces of the vehicle, or by its own buoyancy. The term includes fixed and movable wing airplanes, helicopters, gliders, and airships, but excludes air-launched missiles, target drones, and flying bombs.

2.4.2 ELECTRICAL INTERFACE TYPES

The two electrical interface types for the carriage system/store electrical interconnection system shall be as specified below.

2.4.2.1 MINIATURE STORE CARRIAGE INTERFACE (MSCI)

The electrical interface on the miniature store carriage system structure where the miniature mission store is electrically connected either directly (blind mate) or via an interconnecting umbilical cable.

2.4.2.2 MINIATURE MISSION STORE INTERFACE (MMSI)

The electrical interface on the miniature mission store external structure or interconnecting umbilical cable that mates with an MSCI interface on the carriage system.

2.4.3 MINIATURE STORE CARRIAGE SYSTEM

A system which provides for carriage and release of and electrical interfacing to miniature munitions or other stores that are compliant with the miniature store electrical interface standard defined in this document. The miniature store carriage system may be located external to the aircraft in a separate enclosure (possibly releasable) which is electrically interfaced to the aircraft via a MIL-STD-1760 compatible interface, or may be integrally contained within the structure of an unmanned or manned aircraft platform, or may be included in surface-based launch systems. The miniature store carriage system is typically referred to simply as the carriage system in this document.

2.4.4 STORE

Any device intended for internal or external carriage and mounted (either directly or through an intermediary carriage device) on aircraft suspension and release equipment, whether or not the item is intended to be separated in flight from the aircraft. Stores relevant to this standard are miniature stores classified in two categories as specified below. (Note that the generic term store is typically used to refer to miniature stores in this document when the distinction of category is not important.)

2.4.4.1 MINIATURE MISSION STORE

A small munition or other store with an MMSI carried at a station on a miniature store carriage system.

2.4.4.2 SUBPACK

An in-flight separable physical package which contains multiple miniature mission stores intended for release as a single entity (for aerodynamic purposes, etc.) from a carriage system. Subpacks provide individual external MMSIs for each carried miniature mission store. A separate external MMSI may additionally be provided (as required) on each subpack for interfacing to internal subpack electronics.

2.4.5 STORES MANAGEMENT SYSTEM

The avionics subsystem which controls and monitors the operational state of aircraft installed stores and provides and manages the communications between aircraft stores and other aircraft subsystems.

2.4.6 SUSPENSION AND RELEASE EQUIPMENT

All airborne devices used for carriage, suspension, employment, and jettison of stores, such as, but not limited to, racks, adapters, launchers, and pylons.

2.4.7 DELAY

Signal or data delay is the elapsed time between the input stimulus and output response of a particular signal or data path.

2.4.8 POWER INTERRUPTION

An excursion of supplied interface power below the specified normal steady-state limits established by this standard.

2.4.9 L1_P(Y) SIGNAL

The L1_P(Y) signal is the GPS L1_p carrier component of L1, bi-phase shift key (BPSK) modulated by the P(Y) code plus data bit stream, as described in STANAG 4294.

2.4.10 L2_P(Y) SIGNAL

The L2_P(Y) signal is the GPS L2_p carrier component of L2, bi-phase shift key (BPSK) modulated by the P(Y) code plus data bit stream, as described in STANAG 4294.

2.4.11 L1_C/A SIGNAL

The L1_C/A signal is the GPS L1_c carrier component of L1, bi-phase shift key (BPSK) modulated by the C/A code plus data bit stream, as described in STANAG 4294.

2.4.12 FIBER CHANNEL (FC)

Fiber channel is the name for a high-speed network standard. Fiber channel allows for both copper and fiber optic implementations.

2.4.13 SAFETY CRITICAL

An interface operation (electrical, logical or a combination of both) at the MSCI or MSSI, is deemed safety critical when it causes the store to perform functions that have the potential to generate store behavior that may present a hazard to the platform, crew, or ground handling personnel.

2.5 Acronyms and Abbreviations

The following acronyms and abbreviations are applicable.

A	Ampere
BC	Bus controller
dB	Decibel
dBmW	Decibels above 1 milliwatt (mW)
dBW	Decibels above 1 watt (W)
DC	Direct current
DFC	Down fiber channel
FC	Fiber channel
GHz	Gigahertz
GPS	Global positioning system
HB	High bandwidth
HS	High speed
Hz	Hertz
ICD	Interface control document
ISO	International Organization for Standardization
JMMI	Joint miniature munitions interface
kHz	Kilohertz
MHz	Megahertz
MMSI	Miniature mission store interface

μs	Microsecond
ms	Millisecond
MSI	Mission store interface
MSCI	Miniature store carriage interface
MUX	Multiplex (digital data interface)
Ω	Ohm
pp	Peak-to-peak
RF	Radio frequency
rms	Root mean square
RT	Remote terminal
STANAG	North Atlantic Treaty Organization (NATO) Standardization Agreement
UFC	Up fiber channel
V	Volt

3. GENERAL REQUIREMENTS

3.1 System Configurations and Interface Nomenclature

In the baseline carriage configuration for miniature stores, a host captive carriage or releasable carriage system interfaces to a host aircraft as a MIL-STD-1760 mission store. The carriage system in turn has internal electronics which service a number of miniature store interfaces, to which miniature munitions/stores electrically connect. The stores connect to the carriage system in either a direct blind mate fashion or via a retained (by the carriage system) umbilical cable. Appendix A of this standard defines additional high bandwidth (HB) requirements for carriage systems attached to a host MIL-STD-1760 interface.

The stores may also be carried by autonomous carriage platforms (unmanned combat air vehicles, etc.) which inherently provide all required avionics capabilities necessary to initialize and employ the subject stores. In these instances, the autonomous platform is considered to be the carriage system from an interface requirements standpoint. The requirements of this document apply to mated halves of the miniature store interface, consisting of a miniature store carriage interface (MSCI) on the carriage system structure and a miniature mission store interface (MMSI) on the store structure or the upper (carriage system) end of an umbilical cable attached to the store. The overall system interface arrangement is illustrated in Figure 1.

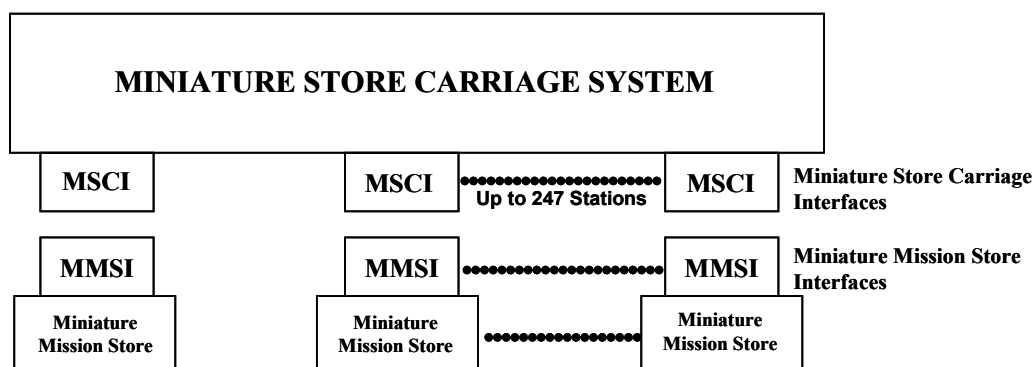


Figure 1 - Overall system interface arrangement

Note that in some physical configurations multiple stores may be carried in subpacks mounted on a carriage system. In these cases, the subpack will be released from the carriage system and the stores will subsequently be released from the subpack once it is in free flight. For these configurations, an individual MMSI (which will mate with an individual MSCI on the carriage system) will be provided on the subpack for each contained store, as illustrated in Figure 2. An additional MSCI/MMSI interconnection may be incorporated if the subpack contains internal electronics (separate from the stores) which must be interfaced to. Interconnection of the MMSIs to the stores is the responsibility of the subpack/store provider in these configurations, and is not addressed in this standard. Subpack/store developers should consider, however, whether the stores will also be carried individually (i.e., without a subpack) on carriage system stations and thus require direct mating compatibility with MSCI interfaces.

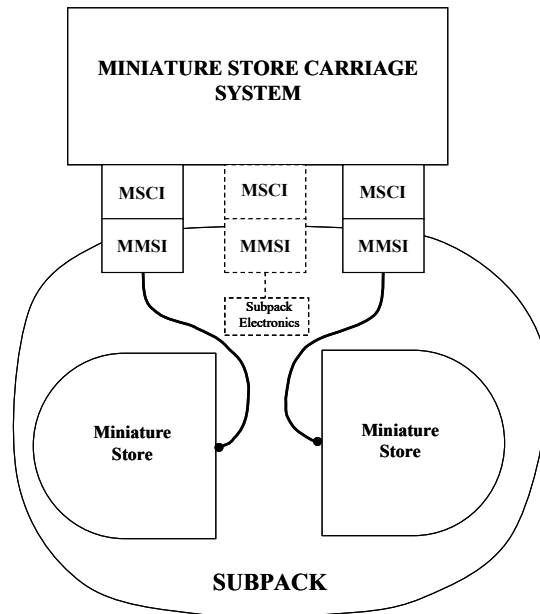


Figure 2 - Subpack carriage arrangement

3.2 Interface Signal Set and Classes

The interface signal set, as shown in Figure 3, shall be comprised of interfaces for HB, data bus, dedicated discrete, and carriage system power signals. Detailed electrical requirements for each of these functions at the MSCI and MMSI shall comply with the requirements of Section 4 herein. Equipment shall not be functionally damaged by the removal of a termination on any interface.

The MSCI shall implement, and the MMSI shall be compatible with, one of the following interface classes:

- a. Class I: Class I shall consist of the full interface without the auxiliary power interface.
- b. Class IA: Class IA shall consist of the full interface including the auxiliary power interface.
- c. Class II: Class II shall consist of the full signal set without the HB, up fiber channel (UFC), down fiber channel (DFC) signals, and auxiliary power interface.
- d. Class IIA: Class IIA shall consist of the Class II signal set plus the auxiliary power interface.

Subsequently stated signal interface requirements apply only to systems which implement an interface class for which the signal is applicable.

3.2.1 High Bandwidth (HB) Interface

The HB interface shall support the non-concurrent transfer of two general signal types (Type A and Type B). Miniature mission stores may be either the source or the sink for these signals. Type A signals shall be compatible with a transmission passband of 20 Hz to 20 MHz. Type B signals shall be compatible with a passband of 20 MHz to 1.6 GHz. The nominal source and sink impedance of the HB interface shall be 50 Ω . The requirements in 3.2.1 and subparagraphs apply with the interfaces terminated by the proper nominal impedance and include the effect of the applicable mating contacts.

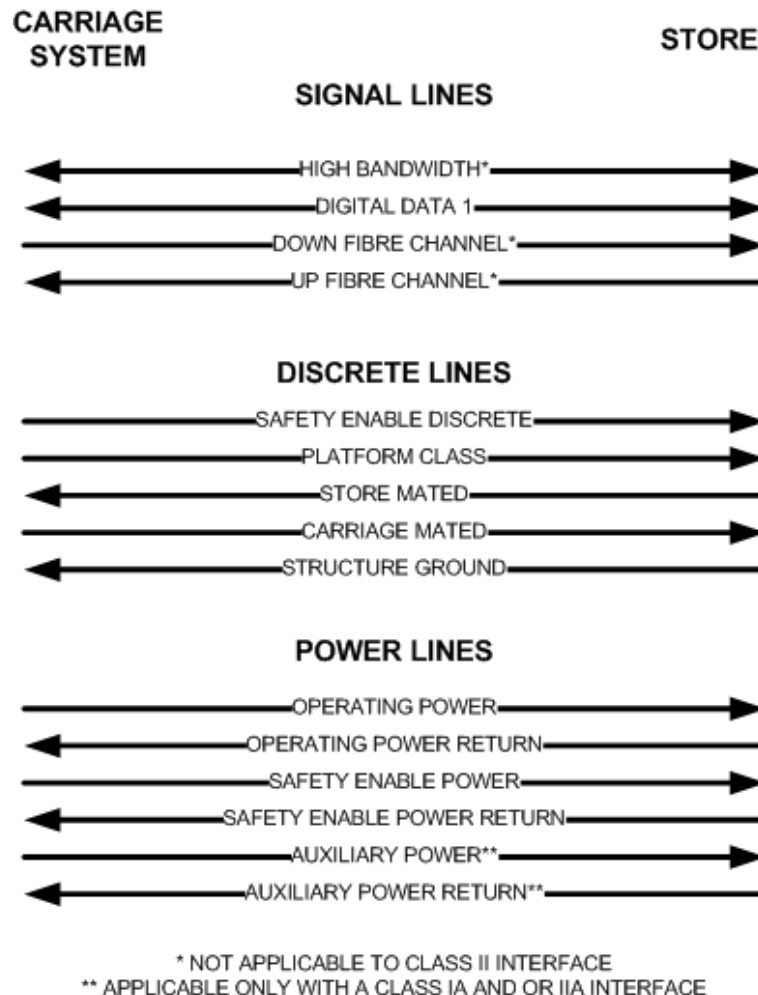


Figure 3 - Interface signal set

3.2.1.1 Type A Signal Requirements

The following Type A signal requirements shall apply at the MMSI when the miniature mission store is the source of the signal. When the miniature mission store is the sink of the signal, the Type A signal characteristics shall apply at the signal source. The signal path between the source and the MSCI output might affect the signal characteristics as seen at the MSCI. The signal path characteristics are undefined in this standard except for implementations described in Appendix A.

- Type A signals shall be limited to 1.3 V_{pp} within the range of ± 1.55 V under steady-state conditions or within the range of ± 2.0 V under transient conditions. The signal peak voltage shall return to within 5% of the steady-state voltage limits in less than 250 ms following a transient change in the DC component of the signal.
- The power spectral components above 20 MHz shall not exceed a limit line which decreases at a rate of 14 dB/octave. At 20 MHz the limit line shall be equal to the largest power spectral component determined over the nominal transmission passband stated in 3.2.1. The requirement shall apply up to 200 MHz.
- The slew rate shall not exceed 65 V/ μ s.

3.2.1.2 Type B Signal Requirements

The following Type B signal requirements shall apply at the MMSI when the miniature mission store is the source of the signal. When the miniature mission store is the sink of the signal, the following Type B signal characteristics shall apply at the signal source. The signal path between the source and the MSCI output might affect the signal characteristics as seen at the MSCI. The signal path characteristics are undefined in this standard. More detailed Type B signal characteristics may be included in subsequent issues of this document.

- a. Type B signal peak envelope power shall not exceed -20 dBm rms. This requirement applies to the sum of the individual peak envelope power values if more than one signal is simultaneously present.

3.2.2 Digital Data Interfaces

The digital data interface shall include a digital data 1 time division command/response serial multiplex data channel for transferring digital information, including store control and status data, between carriage systems and stores. The signals crossing the digital data 1 interface shall comply with the requirements of AS5652 as augmented by the requirements of Section 4 herein.

The digital data interface shall also include the high-speed 1760 (DFC and UFC) signal paths, in accordance with AS5653 as augmented by the requirements of Section 4 herein.

3.2.3 Store Mated Interface

The store mated interface shall be a discrete signal path available for the carriage system to monitor the electrically mated status with a store at the associated store station.

3.2.4 Carriage Mated Interface

The carriage mated interface shall be a discrete signal path available for the store to monitor its electrically mated status with a carriage system.

3.2.5 Safety Enable Discrete Interface

The safety enable discrete interface shall be a low power discrete used only to enable and inhibit safety critical store functions which are commanded via the carriage system digital data interface (see 3.2.2).

CAUTION

The safety enable discrete interface is provided to enable a safety or irreversible function within the store. The discrete shall only be enabled when the carriage system determines that safety criteria for the store safety or irreversible function have been met.

3.2.6 Power Interfaces

The carriage system shall supply and control all power to stores through the MSCI. Two 28 VDC power sources and an auxiliary power source shall be supplied through each interface. A dedicated power return shall be provided through the interface for each power source. The activation of power shall not be used for discrete functions.

3.2.6.1 Operating Power

28 VDC operating power shall be supplied to each store by the carriage system for basic operation of store internal electronics and performance of non-safety-critical functions.

3.2.6.2 Safety Enable Power

28 VDC safety enable power shall be supplied by the carriage system to each store as the power source for certain functions designated as safety critical. This power source shall only be activated when the carriage system has determined that it is safe to perform the subject functions.

3.2.6.3 Auxiliary Power

270 VDC auxiliary power shall be supplied by the carriage system to each store as the power source for stores that can make use of the higher DC voltage or that require power in excess of that available through the operating power interface. Stores may use either Operating power or Auxiliary power for basic operation of store internal electronics and performance of non-safety-critical functions.

3.2.7 Structure Ground Interface

A dedicated circuit shall be provided between the carriage system and store structure grounds. It shall provide an electrical connection between the carriage system and store structures to minimize shock hazards to personnel. This circuit shall not be used as a signal return path or power return path.

3.2.8 Platform Class Interface

The platform class interface shall be a discrete signal path available for the weapon to monitor the type of platform that is carrying the weapon.

3.2.9 Physical Interconnection Interface

Physical connector provisions for electrical mating of stores to carriage systems using both blind mate and retained umbilical interconnection techniques shall be incorporated into the interface.

4. DETAILED REQUIREMENTS

4.1 Carriage System Requirements

The carriage system shall meet the following requirements at each MSCl.

4.1.1 Carriage System: High Bandwidth (HB) Interface

The carriage system shall support bi-directional simplex transfer of Type A and Type B signals through the HB interface at each MSCl. The carriage system shall assign, control, and route HB signals associated with the interface via a signal routing network.

Each implemented routing network signal path shall meet the following electrical requirements.

4.1.1.1 Type A Signal Path Requirements

HB Type A signal paths shall be compatible with the transfer of Type A signals as defined in 3.2.1.

HB Type A signal paths associated with MIL-STD-1760 compatible miniature store carriage systems shall additionally satisfy the signal path requirements outlined in Appendix A.

4.1.1.2 Type B Signal Paths Requirements

HB Type B signal paths shall be compatible with the transfer of Type B signals as defined in 3.2.1.

The primary envisioned use for the HB Type B signal path is the transfer of RF signals from a GPS antenna to the store. When the path is used for this purpose, the carriage system shall support the transfer of L1_P(Y), LI_C/A, and L2_P(Y) signals as defined herein.

More detailed Type B signal transfer requirements may be included in subsequent issues of this document.

4.1.1.3 Ground Reference (Type A Signals)

When the miniature mission store is the signal source, the MSCI shall present a differential load as shown in Figure 4A. The signal return (shield) shall be electrically isolated from the carriage system structure ground. When the miniature mission store is the signal sink, the MSCI shall present a circuit whose ideal Thevenin equivalent is shown in Figure 4B. The signal return (shield) shall be electrically connected to the carriage system structure ground.

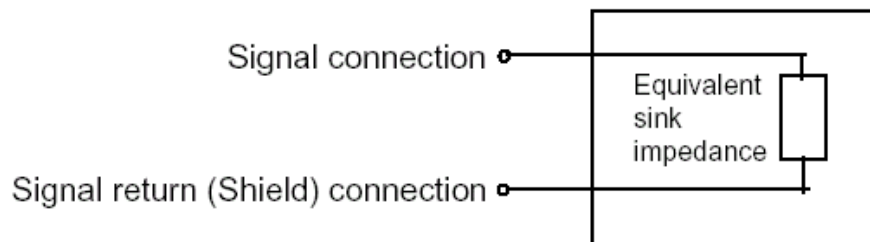


Figure 4A - Equivalent circuit of MSCI Type A interface (MMSI is signal source)

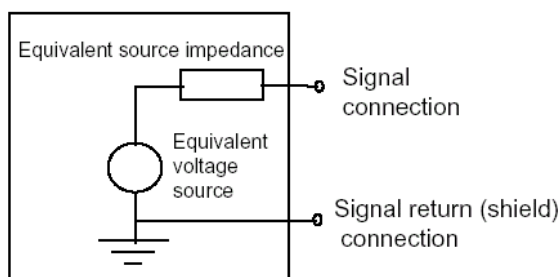


Figure 4B - Equivalent circuit of MSCI HB Type A interface (host platform is signal source)

Figure 4 - Equivalent circuits of MSCI HB Type A interfaces

4.1.1.4 Ground Reference (Type B Signals)

When the miniature mission store is the signal source, the MSCI shall present a non-differential load as shown in Figure 5A. The signal return (shield) shall be electrically connected to the carriage system structure ground. When the miniature mission store is the signal sink, the MSCI shall present a circuit whose ideal Thevenin equivalent is shown in Figure 5B. The signal return (shield) shall be electrically connected to the carriage system structure ground.

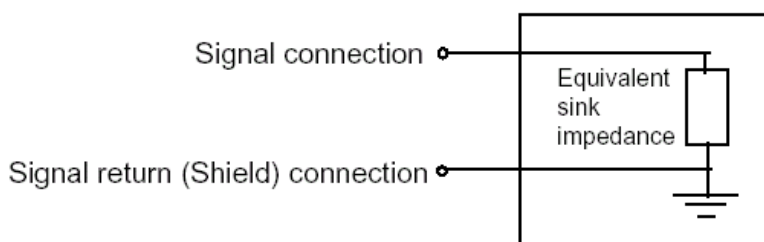


Figure 5A - Equivalent circuit of MSCI HB Type B interface (MMSI is signal source)

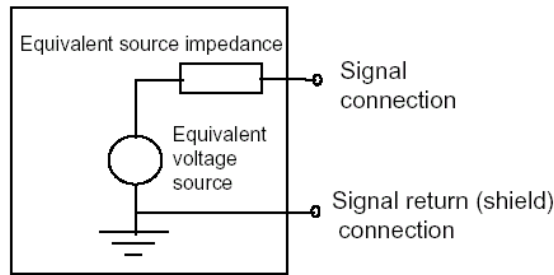


Figure 5B - Equivalent circuit of MSCI HB Type B interface (host platform is signal source)

Figure 5 - Equivalent circuits of MSCI Type B interfaces

4.1.2 Carriage System: Digital Data 1 Interface

The carriage system shall provide a digital data 1 interface at each MSCI for the transfer of digital messages through the MSCI to an AS5652-compliant remote terminal (RT) in the connected store. Each digital data 1 interface shall contain a data high connection, a data low connection, and a shield connection.

4.1.2.1 Functional Characteristics

- a. The carriage system shall be responsible for the bus controller (BC) function as described in AS5652.
- b. The carriage system shall provide the link mode service as defined in AS5652. Note: The link mode communications topology eliminates the need for an external addressing interface.
- c. The carriage system shall communicate with stores through the digital data 1 interface in accordance with the applicable logical communications requirements of MIL-STD-1760 Appendix B, with aircraft requirements applicable to the carriage system and mission store requirements applicable to the miniature mission store.

4.1.2.2 Electrical Characteristics

The carriage system shall comply with the electrical characteristics defined herein at the MSCI. The characteristics defined apply when measured on the data high connection referenced to the data low connection. Data high is that connection which is positive referenced to the data low connection in the first part of an AS5652 defined command or status word sync waveform. The detailed electrical characteristics shall be in accordance with AS5652.

4.1.3 Carriage System: Fiber Channel (FC) Interface

The carriage system shall provide a FC interface at each primary signal set MSCI for full duplex transfer of digital data. UFC and DFC signals shall be present. The carriage system shall send digital messages through the MSCI to a FC terminal (node) in the connected store on the DFC signal. The carriage system shall receive digital messages through the MSCI from a FC terminal (node) in the connected store on the UFC. Each implemented FC full-duplex link shall meet the following requirements and the requirements specified in AS5653 except as noted below.

The carriage system shall communicate with stores through the FC interface in accordance with the applicable logical communications requirements of MIL-STD-1760E Appendices B and D, with aircraft requirements applicable to the carriage system and mission store requirements applicable to the miniature mission store.

The carriage system shall assign, control, and route FC signals to their proper destinations by means of the services provided by the FC protocol.

4.1.3.1 FC Physical Layer Characteristics

The physical layer of AS5653 when present in the MSCI shall comply with FC physical interface [FC-PI 100-DF-EL-S] with the following signal assignments:

MSCI signal	FC-PI signal
DFC_H	TD+
DFC_L	TD-
UFC_H	RD+
UFC_L	RD-

4.1.4 Carriage System: Store Mated

The carriage system shall provide a connection for a store mated interface at each MSCI for monitoring the electrically mated status of an associated store. The carriage system shall provide the source for this interface. These requirements apply to the store mated connection referenced to the operating power return connection.

a. Open circuit voltage:

1. Minimum voltage of 4.0 VDC.
2. Maximum voltage, in accordance with MIL-STD-704 for 28 VDC.
3. Voltage transients shall not exceed the upper limit defined in MIL-STD-704 for 28 VDC.

b. Excitation current:

1. Minimum current of 5.0 mA.
2. Maximum current of 100 mA.

c. Resistance detection threshold. An interface disconnected condition shall be detected for any resistance level of 100 k Ω or greater. An interface connected condition shall be detected for any resistance level of 2.0 Ω or less.

4.1.5 Carriage System: Carriage Mated Interface

The carriage system shall provide a connection for a carriage mated interface at each MSCI. The carriage mated interface shall be connected within the carriage system to the operating power return connection at the associated MSCI. The path between the carriage mated interface and the operating power return connections shall have a resistance of 500 m Ω maximum when measured at the MSCI. This resistance applies for excitation current within the range of 5.0 to 100 mA.

4.1.6 Carriage System: Safety Enable Discrete Interface

The carriage system shall provide a safety enable discrete interface at each MSCI for transferring an enable/inhibit signal to the connected store. Safety enable, when in the enabled state, shall indicate carriage system consent for stores to perform safety-critical functions, such as commit to separate store or submunition function (bit D8) or the fire, launch, or release function (bit D10) of the Critical Control 1 data word in the mission store control message (refer to Appendix B of MIL-STD-1760), when commanded over the digital data 1 interface (see 3.2.2). When in the inhibited state, the safety enable discrete at a MSCI shall be electrically isolated from the safety enable discrete interface at all other MSCIs. The isolation shall be 100 k Ω minimum at DC.

4.1.6.1 Voltage Level

The voltage level measured between the safety enable discrete connection and safety enable power return connection at the MSCl shall be:

- a. Steady-state conditions:
 1. Enable: Minimum voltage of 19.0 VDC.
 2. Maximum voltage, in accordance with MIL-STD-704 for 28 VDC.
 3. Inhibit: 1.50 VDC (maximum).
- b. Voltage transients shall not exceed the limits defined in MIL-STD-704 limits for 28 VDC applications.

4.1.6.2 Current Level

Stores may require 100 mA steady-state through the MSCl during the enable state and the carriage system shall be able to supply that current. The carriage system is not, however, required to supply any current in excess of 100 mA. The carriage system shall comply with the requirements herein for store imposed load currents of 5.0 mA minimum through the MSCl.

4.1.6.3 Stabilization Time

With any resistive load between 320 Ω and 3.8 k Ω between safety enable discrete and safety enable power return, the voltage at the MSCl shall reach steady-state levels (see 4.1.6.1.a) within 3 ms during transition between enable and inhibit states.

4.1.6.4 Enable Lead Time

The safety enable discrete signal shall be applied to the MSCl at least 10 ms before transmitting any safety critical command over the digital data 1 interface.

4.1.6.5 Inhibit Delay

If the safety enable discrete at an MSCl has been enabled, the carriage system shall operate under the assumption that the store connected to that MSCl may remain in an enable state for up to 10 ms after the safety enable discrete signal has been returned to the inhibit state.

4.1.6.6 Duration of Application to Store

Once the safety enable discrete signal has been enabled by the carriage system to the store in conjunction with the commanding of either the commit to separate store or submunition D8 (bit 2) or the fire, launch, or release D10 (bit 0) of the Critical Control word in the mission store control message (refer to Appendix B of MIL-STD-1760), it shall be maintained at that state until one of the following conditions arises:

- a. The carriage system receives from the store, a mission store monitor message with the fired, launched or released (bit 0) or committed to store or submunition separation (bit 2) set in the Critical Monitor 1 word.
- b. The carriage system determines that the store has prematurely terminated its preparations because of store failure.
- c. The carriage system terminates the launch sequence prematurely.

4.1.7 Carriage System: Power Interfaces

The carriage system shall provide a set of power interfaces at each MSCl. This shall include connections for 28 VDC operating power and safety enable power, and 270 VDC auxiliary power in each interface signal set along with associated returns.