

## High Performance, Low Loss In-The-Box RF Interconnects



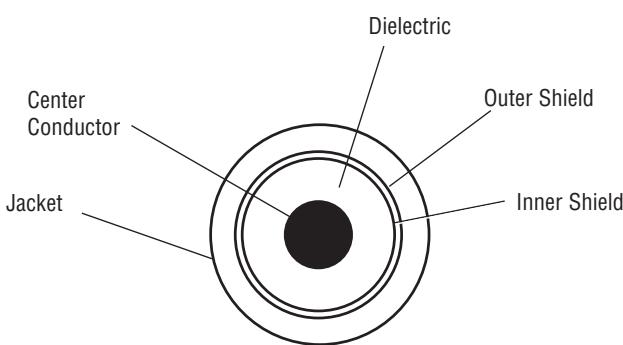
### Features & Benefits:

- Low loss improves performance
- Braid design maintains shielding when flexed and bent
- True flexible cable simplifies and eases installation
- Eliminates solder joint failures
- Buy as Assemblies or Cable and Connectors
- Short Lead Time

**Intra-Flex™** is an in-the-box interconnect solution. A true, flexible coax it can be used as an alternative to 0.141" diameter copper semi-rigid, tin-soaked braid cable or other similar sized solid PTFE dielectric cables. Intra-Flex™ exhibits approximately 12% lower attenuation compared to 0.141" sized coax. Used as a substitute for semi-rigid coax, Intra-Flex™ eliminates the need for custom-formed configurations dedicated to a specific location within the system. It also eliminates the time and cost to develop drawings depicting the shape. Used as a substitute for tin-soaked braid cable, Intra-Flex™ assemblies eliminate failures from cracked solder joints.

Intra-Flex™ may also be substituted where RG 58, RG142, RG223 and RG400 are used. It exhibits 36% to 51% improvement in maximum attenuation, and achieves 25dB to 50dB better shielding than these RG cables. Intra-Flex™ may be repeatedly flexed without return loss performance degradation or shortening the products life cycle due to mechanical failure.

# Intra-Flex™ Specifications:



## Cable Construction

**Center Conductor:** Bare Copper, 0.044" (1.12 mm)

**Dielectric:** Foam PE

**Inner Shield:** Silver Plated Copper Flat Ribbon Braid 0.126" (3.20 mm)

**Outer Shield:** 36GA Tinned Copper Round Wire Braid, 90%k 0.148" (3.76 mm)

**Jacket:** Black PVC 0.195" (4.95 mm)

## Connector Construction

- Body: Nickel Plated Brass
- Center Pin: Gold Plated
- Dielectric: PTFE

Physical & Mechanical Specifications		
Dimensions	in	mm
Outside Diameter	0.195	4.95
Weight per 1kft (305m)	40 lbs	18 kg
Minimum Bend Radius	0.2	5
Preferred Bend Radius	0.5	13
Number of Bends*	min radius: < 10 preferred radius: < 25	
Operating Temperature	-40°C to + 85°C	
Connector Retention	> 15 lbs	> 6.8 kg
Termination Method	Solder center, crimp braid	
Length Tolerances (< 2.0', 0.6m)	-0,+0.4	-0,+10
Electrical Specifications		
VSWR (max through 3 Ghz)	1.25:1	
Impedance	50 Ohms	
Velocity of Propagation	83 %	
Shielding Effectiveness	>80 dB	
Capacitance	24.3 pF/ft = 79.70 pF/meter	
Attenuation max @ +77°F (+25°C)		
(MHz)	dB/100 ft	dB/100 m
150	4.2	13.8
450	7.3	23.9
900	10.3	33.8
2000	15.6	51.2
2400	17.3	56.1
3000	19.4	63.6
Max attenuation, any frequency:	$(0.33404 \times \sqrt{Fghz}) + (0.000364 \times Fghz)$	
Connector Attenuation, max	Straight	Right Angle
(Includes attachment mismatch)	(0.1 x $\sqrt{Fghz}$ )	(0.15 x $\sqrt{Fghz}$ )
Power Handling**		
(Mhz)	77°F (25°C)	104°F (40°C)
150	590	480
450	340	270
900	240	190
2000	160	130
2400	140	110
3000	126	105

\*Assumes a single location on the cable is repeatedly flexed, and 3 Ghz operation.

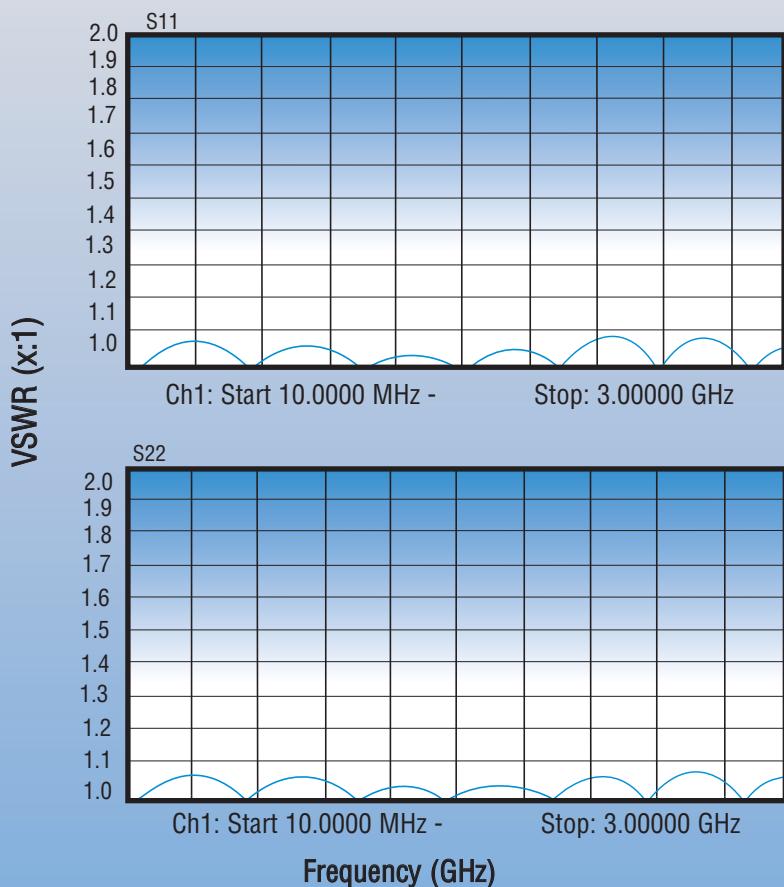
\*\* Sea level

Specifications subject to change without notice.

All Intra-Flex™ cable assemblies are 100% RF tested for VSWR and insertion loss.

## Intra-Flex™ Test Cable

### Typical VSWR vs Frequency



Assembly Configuration: ITF200-SMNM-030cm  
SMA male to Type N male, 30 centimeters long

### Cable Assembly Ordering Information

Cable Diameter

ITF200-XXXX-XXXX-XXXcm

Length (cm)\*\*

Example: 030 = 30cm

Connector Codes (2 or 3 Characters)

BM = BNC Male (3 Ghz only)

SM = SMA Male

SMR = SMA Right Angle

SFB = SMA Female Bulkhead

NM = Type N Male\*

NFB = Type N Female Bulkhead

NMR = Type N Right Angle\*

NF4F = Type N Female 4-Hole Flange

Conn. 1

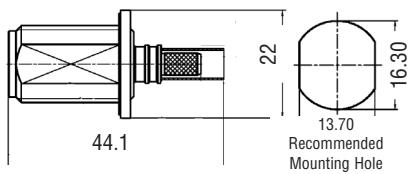
Conn. 2

\* Type N has Hex/Knurl Coupling Nut

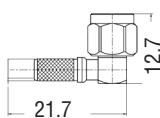
\*\* Length tolerances: ≤ 50cm: -0, +5mm  
50cm-100cm: -0, +10mm

**See Page 4 to Order Cable and Connectors Separately**

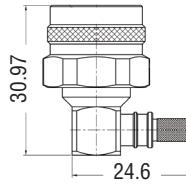
## Connector Ordering Information:



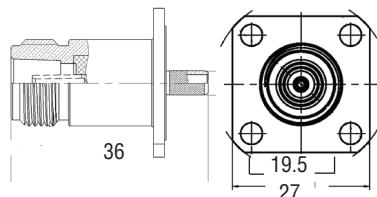
Type N Female Bulkhead  
3190-2430



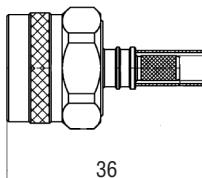
SMA Right Angle  
3190-2112



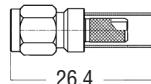
Type N Right Angle  
3190-2425



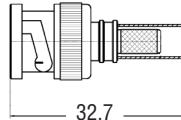
Type N Female 4-Hole Flange  
3190-2213



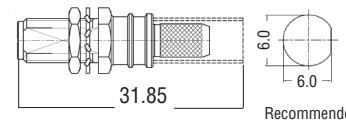
Type N Male  
3190-2349



SMA Male  
3190-2214



BNC Male  
3190-2429



SMA Female Bulkhead  
3190-2428

## Cable Ordering Information:

Number: MI 55026

\*Dimensions in millimeters

### About **TIMES MICROWAVE SYSTEMS**

Times Microwave Systems, was founded in 1948 as the Times Wire and Cable Company. Today, the company specializes in the design and manufacture of high performance flexible, semi-flexible and semi-rigid coaxial cable, connectors and cable assemblies. With over 60 years of leadership in the design, development, and manufacture of coaxial products for defense microwave systems, Times Microwave Systems is the acknowledged leader, offering high tech solutions for today's most demanding applications.

Cable assemblies from Times Microwave Systems are used as interconnects for microwave transmitters, receivers, and antennas on airframes, missiles, ships, satellites, and ground based communications systems, and as leads for test and instrumentation applications.

As a highly specialized and technically focused company, Times Microwave Systems has been able to continually meet the challenges of specialty engineered transmission lines for both the military and commercial applications, drawing upon our:

- Thousands of unique cable and connector designs
- Exceptional RF and microwave design capability
- Precise material and process controls
- Unique in-house testing capabilities including RF shielding/leakage, vibration, moisture/vapor sealing, phase noise and flammability
- Years of MIL-T-81490, MIL-C-87104, and MIL-PRF-39012 experience
- ISO 9001 Certification

With over 60 years of Times Microwave Systems aerospace cable and connector technology experience and unparalleled design expertise, Times Microwave Systems' staff of Field Applications Engineers can help to provide the right solution for your interconnect applications.



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