Overview

OCC's patented IRIS™ is a revolutionary fiber optic interconnect system for traffic-control enclosures and cabinets that disengages upon impact, protecting the installed fiber plant from destruction. IRIS allows for a fully restored fiber optic connection to be made, without field repair or re-termination of the fiber optic cable. Most importantly, IRIS protects the installed fiber plant from damage when the control enclosure is impacted, so it should be considered as a key component of any wide area disaster recovery plan.

IRIS is especially suited for Intelligent Transportation Systems that encompass a broad range of wireless (ITS), fiber optic communications-based information, control, and electronic technologies. When integrated into the transportation system infrastructure, these technologies help monitor and manage traffic flow; reduce congestion; provide alternate routes to travelers; enhance productivity; and save time, money and lives.

Destruction of a traffic-control cabinet results in lost synchronization, productivity and time, as well as the loss of thousands of dollars to repair multiple fiber optic cables at any given intersection. Protecting the installed fiber plant with IRIS greatly reduces the impact from both financial and out-of-service conditions.

Features & Benefits:

- **Protects fiber connectivity, while minimizing collateral damage and downtime.** Designed to sense mechanical axial and shear loads from within the control enclosure, IRIS's patented technology releases and separates, protecting the installed fiber plant. When the sensing ring is pulled by a horizontal force within a 360° horizon, the mechanical latch surrounding the engaged fiber optic connector is tripped. The multi-channel fiber optic connector disengages and retracts under positive pressure, ejecting the plug to break away from the receptacle in milliseconds, thereby avoiding collateral damage.

- **Withstands day-to-day environmental stresses.** The IRIS system operates flawlessly within harsh environments and will survive temporary submersion due to flooding. The sealing features also prevent accumulation of dust and debris, which reduces the need for repeated, costly field maintenance.

- **Designed for multiple, efficient connections.** The IRIS system can accommodate up to 12 fiber optic channels. For ITS applications, the plug side of IRIS features 6 ft. pigtails with choice of ST, SC or LC simplex connectors. IRIS allows installation of pretested fiber optic assemblies within minutes. Typical installation allows the receptacle pigtail to be spliced into the fiber plant, and the plug/receptacle connectors are all pre-terminated and test verified for easy installation.

(6.7h) IRIS™ Cable Assemblies – Features and Benefits
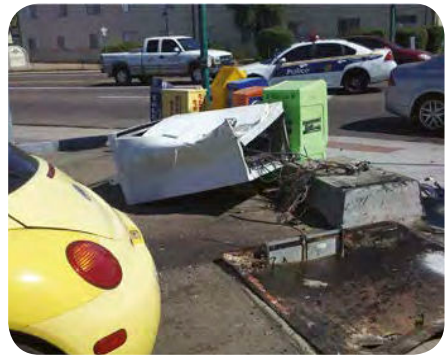
IRIS protects the outside plant investment by disengaging upon mechanical impact and is easily restored by rearming the IRIS connector installed within a new enclosure.

IRIS can operate within harsh environments and can survive temporary submersible conditions. Sealing features prevent dust and debris accumulation to extend the life cycle.

Mechanical triggering system enables fiber connector to disengage rapidly without damaging the fiber optic contacts.

IRIS' sensing ring tethered to the cabinet enables IRIS to be triggered upon impact from all four quadrants or 360˚.

IRIS' arming ring (shown here in red for demonstration purposes only) allows field service personnel to safely rearm or service the system without accidentally triggering the connector.

Turn-key pretested fiber optic assemblies enable efficient installations within minutes. The receptacle pigtail is spliced into the fiber plant. The plug connectors are all pre-terminated.

The IRIS system can accommodate up to 12 single-mode or multimode fiber optic channels. For ITS applications, the plug side of IRIS features 6 ft. pigtails with choice of ST, SC, or LC simplex connectors. The receptacle side is purchased with choice of fiber count and length of blunt end.

Hand operated tool available for simple and quick rearming of the IRIS connector.

○ (6.7h) IRIS™ Cable Assemblies – Performance Specifications

Performance Specifications

PARAMETER	SPECIFICATION	PERFORMANCE
Insertion loss (single-mode)	TIA 455-171	0.35dB – Typical, 0.50dB – max.
Operating temperature	TIA-455-5	-46°C to 85°C
Storage temperature	TIA-455-5	-62°C to 85°C
Cable retention[1]	TIA-455-6	200 lbs. for 10 min.
Cable sealing	TIA-455-1	Procedure I
Twist	TIA-455-36	100 cycles, ±90° twist
Mating durability	TIA-455-21	500 cycles
Impact[2]	TIA-455-2	Method B, 8 drops
Vibration	TIA-455-11	Condition C, 1.5 hrs./axis
Mechanical shock	TIA-455-14	Condition C, 5 shocks/axis
Thermal shock	TIA-455-71	Schedule C, -62°C 85°C, 5 cycles
Temperature humidity cycling	TIA-455-4	65°C at 95% RH
Life aging	TIA-455-11	85°C, 250 hrs.
Water pressure	TIA-455-98	Method A, Procedure A, 1M–24 hrs.
Sand and dust	TIA-455-35	16 hrs.
Salt spray	TIA-455-16	Condition C, 250 hrs.

Cost Analysis – No IRIS

SCENARIO	COMPONENT FAILURE	RESULT OF FAILURE	ESTIMATED RESTORE TIME	ESTIMATED RESTORE COST
Vehicle hits cabinet, dislodging it from its pedestal	Drop cable is pulled back from splice point or patch cables do not break away	Destroyed drop cable and possible damage to splice case and main fiber trunk; broken patch cables must be replaced or electronics destroyed	4 to 14 hours (if electronics, patch cable or drop cable is in stock)	$600.00 to $10,000.00 (depending on extent of damage)
Flood fills cabinet above fiber connection	Connector is backfilled with muddy water	System incapable of transmission	8 hours (after flood water subsides)	$2,750.00 (includes connector interface replacement)
Dust storm penetrates cabinet	Connector becomes contaminated with dust	System incapable of transmission	4 hours	$450.00

ESTIMATED DAMAGE MODEL $3,800.00 MINIMUM

Cost Analysis – With IRIS

SCENARIO	COMPONENT FAILURE	RESULT OF FAILURE	ESTIMATED RESTORE TIME	ESTIMATED RESTORE COST
Vehicle hits cabinet, dislodging it from its pedestal	None – IRIS connector trips. Backbone, drop cable and electronics stay intact	Temporary loss of signal	5 minutes (after cabinet is reset)	$35.00
Flood fills cabinet above fiber connection	None	No loss of signal	0 hours	$0.00
Dust storm penetrates cabinet	None	No loss of signal	0 hours	$0.00

ESTIMATED DAMAGE MODEL $35.00 MINIMUM

Assembly Ordering – IRIS

The OCC IRIS solution is a turn-key pre-tested fiber optic assembly system. It is designed to be ordered as a receptacle pigtail assembly and a plug/receptacle connector assembly. By ordering the IRIS system this way, you can be assured that you are receiving guaranteed performance and a simplified installation process. Our state-of-the-art facility can integrate the OCC IRIS connector into a customized cable assembly specific to your application requirements. Couple that with one of OCC's innovative deployment options and OCC can provide a complete system solution is easily installed and gets your system up and running fast.

What to know when ordering an IRIS cable assembly:

How many channels will I need?
IRIS plug connectors can accommodate up to 12 channels.

What type of assemblies do I need?
Typically you will need both a plug and a receptacle assembly. The IRIS receptacle assembly can be provisioned with the IRIS receptacle on one end and blunt ends on the other to enable splicing into the fiber optic outside plant. The plug assembly can be provisioned with the IRIS plug on one end and discrete connectors (LC, SC, or ST) on the other end. The discrete ends can then be plugged in to any monitoring or active equipment required. If you have questions about how to order these types of assemblies, give us a call and we can walk you through the process to find the best solution for your need.

What type of cable do you prefer and what length?
Various cable types are available to meet any application, and OCC can provision any assembly to the specific length that meets your need including armored and rodent resistant cables. Additionally, OCC offers a wide variety of fiber types including 9/125µm, 62.5/125µm, OM3, OM4 and more. Contact OCC Sales for help determining the best cable for your application.

Call 1-800-622-7711 and ask for a Sales Representative. We're ready to assist you.

IRIS Accessories

PART NUMBER	PRODUCT DESCRIPTION
T12000-99-001	IRIS arming tool
IR-CP709-2	IRIS conduit kit for traffic cabinet installations includes 9 ft. of braided steel trip wire, trip wire crimp barrels, anchor clamps and 2" conduit collar cap
IR-CP709-3	IRIS conduit kit for traffic cabinet installations includes 9 ft. of braided steel trip wire, trip wire crimp barrels, anchor clamps and 3" conduit collar cap
IR-CP709-4	IRIS conduit kit for traffic cabinet installations includes 9 ft. of braided steel trip wire, trip wire crimp barrels, anchor clamps and 4" conduit collar cap

IRIS Conduit Kit