Permanent Cable PD Sensor (HFCT) Options

HFCT (Radio Frequency Current Transformer)

HFCT's are used to detect and measure partial discharge in shielded Cables. Permanent installation of HFCT's allows the user to survey or monitor their cables safely at any time.

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Product Brochure

Permanent HFCT for periodic and full-time PD testing

Shielded cables are used at 2500V and above and can have elaborate terminations. If these terminations are not done correctly, partial discharge and eventual failure can occur. Partial discharge can also result from cable defects or damage.

HFCT's need to be mounted on the ground straps of shielded cable to detect partial discharge. By mounting them on the ground strap adjacent to a solid ground point, they remain at a safe potential under any system conditions.

HFCT's are specially designed to detect high frequencies well above the power system frequency. This allows them to be sensitive to very low PD currents in the presence of large power system currents.

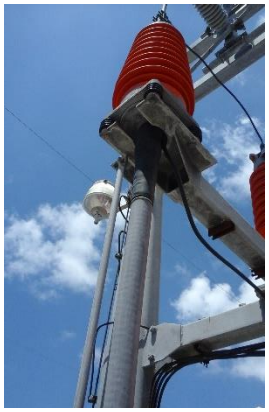
Permanent HFCT locations

Medium and high voltage shielded cables terminate typically in one of two ways, indoor and outdoor.

Indoor terminations are inside metal clad switchgear. They are inside locked cabinets to prevent accidental contact. This means that the HFCT must be installed and cabled to outside the cabinet while de-energized. Once installed, the user can access the sensor connection safely at any time. These HFCT's do not need to be weatherproof

Cable termination in metal-clad switchgear

Outdoor terminations can be in switchyards, attached to structures. There, ground straps typically are safely accessible while the station is energized. Sometimes cable terminations are at the top of what are called riser poles. These straps are not easily or safely accessible. All outdoor locations are exposed to the weather and need to be protected.



Cable termination in 69KV switchyard

Cable termination on riser pole

Indoor HFCT (EA part # HFCT50 / HFCT100)

This is a split core HFCT suitable for installation indoors. Because it is split, it can be installed without disconnecting the ground strap. IT is available with a 50 or 100mm inner diameter. Standard is 50mm.

Feature	Specification
Bore Diameter	50mm /100mm
Outer Diameter	96 mm
Height	24 mm
Frequency Response	100 KHz – 20 MHz
Impedance	50 Ohms
Connector	Male BNC
IP Rating	54
Operating temperature	-40C to +55C

Outdoor 3 phase HFCT (EA part # HFCT-WP3)

This is a 3 phase HFCT suitable for installation outdoors. Because it is not split, it cannot be installed without disconnecting the ground strap.

Outdoor three phase HFCT)

Feature	Specification
Bore Diameter	36 mm
Outer Dimensions	400mm x 370mm x 200mm
Weight	6 Kg
Frequency Response	100 KHz – 20 MHz
Impedance	50 Ohms
Connectors	Male N Type
IP Rating	66
Operating temperature	-40C to +55C

Outdoor single phase HFCT (EA part # HFCT-WP1)

This is a single phase HFCT suitable for installation outdoors. Because it is not split, it cannot be installed without disconnecting the ground strap.

Feature	Specification
Bore Diameter	34 mm
Outer Dimensions	160mm x 160mm x 130mm
Weight	2.5 Kg
Frequency Response	100 KHz – 20 MHz
Impedance	50 Ohms
Connectors	Male N Type
IP Rating	66
Operating temperature	-40C to +55C

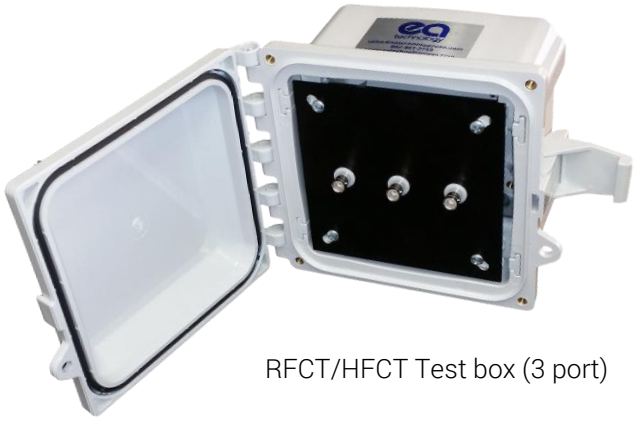
Outdoor single phase HFCT)

RFCT/HFCT Test Box (EA part # RFCT-TBx)

The RFCT/HFCT test box provides a location where the sensor connections can be made to the test equipment. This box provides a sealed lockable point where the cables from the RFCT are terminated. The CableData Collector, UltraTEV Plus2, or UltraTEV Monitor can connect at this point.

The test box can be supplied with 1, 3, 6, or 9 connection points.

Feature	Specification
Outer Dimensions	190mm x 220mm x 150mm
Weight	2.5 Kg
Frequency Response	100 KHz – 20 MHz
Impedance	50 Ohms
Connectors	Male N Type
IP Rating	66



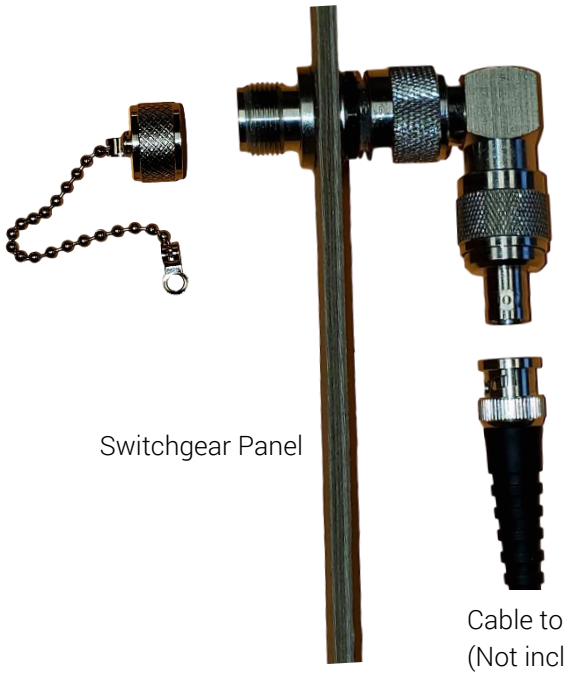
RFCT/HFCT Test box (3 port)

Operating temperature	-40C to +55C

Panel Mount RFCT/HFCT Connector Kit (EA part # RFCT-TCK)

The RFCT/HFCT test connector kit provides a connector outside the metal-clad switchgear where the sensor connections can be made to the test equipment. This weatherproof connector includes a dust cap for protection. The outside connector is an N-type and the RFCT/HFCT cable connection point is a male BNC.

Feature	Specification
Outer Dimensions	70mm x 70mm x 25mm
Weight	0.25 Kg
Impedance	50 Ohms
Test equipment connector	Male N-Type
RFCT/HFCT connector	Male BNC
IP Rating	65
Operating temperature	-40C to +55C



RFCT Test Connector Kit

RFCT/HFCT Test Connector Adapter (EA part # RFCT-APT)

The RFCT test connector kit provides an N-type connector where connections can be made to the test equipment. EA test equipment uses the standard BNC connector type. This adapter connects the test equipment to the switchgear connector. Three are needed for a CableData Collector and one is needed for an UltraTEV Plus2.

RFCT/HFCT Test Connector Adapter

Warning – Installation of HFCT equipment in proximity to high voltage can be dangerous. Follow all applicable safety rules and refer to EA's RFCT installation guideline document. Proper procedures must be followed, or injury or death can result.

EA Part Number	Description
HCFT50	Indoor HFCT, 50 mm bore HFCT50(1)
HCFT100	Indoor HFCT, 100 mm bore HFCT100(1)
HFCT-WP3	Permanent HFCT - Weatherproof 3 Phase Weatherproof HFCT (1) for three ground straps. Has 3 N-Type connectors, mounting kit
HFCT-WP1	Permanent HFCT - Weatherproof 1 Phase Weatherproof HFCT (1) for a single ground strap. Has 1 N-Type connector, mounting kit
RFCT-TBx	Permanent RFCT/HFCT Test Box– 1, 3, 6, or 9 ports (x = 1,3,6, or 9) External Enclosure (1) with (x) BNC test points
RFCT-TCK	Panel mount RFCT/HFCT Test Connector Kit BNC to N type adapter, N type right angle, weatherproof N type bulkhead, N type dust cap
RFCT-ADT	RFCT/HFCT Test Connector Adapter BNC to N type adapter (gold plated center pin)
HFCT50-Px	Permanent HFCT50 Kit with test box – 1, 3, 6, or 9 ports (x = 1,3,6, or 9) HFCT50 (x), 2M BNC cable (x) , Test Box (1) with (3,6, or 9) BNC test points
HFCT50-PMK	Permanent HFCT50 Kit with panel mount connector HFCT 50(1), 2M BNC cable (1), Panel Mount RFCT/HFCT Connector Kit (1)

Other kits are available upon request

Global Footprint

At EA Technology we specialize in asset management solutions for owners and operators of power network assets.

Founded in 1966 we have over 50 years' experience in the industry and 6 regional offices around the world to support our global customer base.

We work with a lot of our clients on a long-term basis to help them safeguard their power networks.

We advise our clients on strategy and implementation of a range of technology solutions to manage power assets, delivering maximum life and minimise cost

ea technology

Safer, Stronger, Smarter Networks

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