



Aclara 

## Communicating Faulted Circuit Indicator (cFCI)

Used on its own or in conjunction with Aclara's line of Grid Monitoring smart line sensors, Aclara's communicating Faulted Circuit Indicator (cFCI) is a simple, yet extremely powerful fault indicator designed for use on a wide range of circuit locations.

### SIMPLY THE BEST

Aclara's cFCI is easy to install in minutes by a single lineman with a hotstick. With a single model that is remotely configurable, there is no need to order and stock multiple models based on different fault trigger or reset parameters. The line-mounted, battery-powered, self-contained all-in-one device avoids the need for pole mounted equipment or provisioning secondary power. With a factory-configured integrated radio, there is no need to dispatch networking engineers to configure devices. Critical fault alarms and load profile data can be reported directly to SCADA using DNP3 or to Aclara's purpose-built Sensor Management System (SMS) software for rich visibility of network conditions.

### 0A TO 600A COVERAGE

Aclara's cFCI gives you cost-effective visibility for core fault and load information wherever you need it and where you haven't had it before. The battery powered device operates down to 0A, enabling use on the widest range of circuit locations:

- End of feeders
- Laterals
- Rural or seasonal circuits with low load
- Circuits with DERs and renewables causing nulls or low current points

And with a max rating of 600A+ line current, the cFCI gives you the flexibility to still use it anywhere on your heavily loaded circuits.

Aclara's cFCI is easy to install in minutes.



### COMPREHENSIVE AND ACCURATE FAULT LOCATION

Aclara's cFCI includes ultra-bright LEDs to indicate both permanent and momentary fault events with visibility up to 150 meters in full daylight. Remotely configurable parameters for fault triggers, outage timers, and max blink duration allow you to configure the devices the way your engineers and troublemen want to use them to locate faults in the field. The devices immediately report events to SCADA or Aclara's SMS head-end system – timestamp, GPS location, phase, fault current and fault type. The SMS system includes capabilities to gather alarms from all devices and generates email or text message alerts to direct crews to the proper fault location on the circuit. With Aclara's innovative, high-precision current sensor, the cFCI reports fault current values up to 17kA with 1%! This enables exceptional accuracy for distance-to-fault algorithms.

### PART OF ACLARA'S GRID MONITORING FAMILY

Aclara's cFCI compliments the other parts of the Grid Monitoring family – the MV Sensor and Power Sensor. The cFCI can be used independently throughout your network or can be deployed in conjunction with MV Sensors and Power Sensors for a comprehensive and detailed view of powerflow conditions, power quality, fault and transient disturbance events. When used with Aclara's Sensor Management System (SMS) software, users have the benefits of SMS tools for remote monitoring and management of devices, visualization and reporting tools, Auto Phase ID capability, and predictive analytics to avoid developing failures.



# Communicating Faulted Circuit Indicator (cFCI)

## FEATURES

- Local and remote fault indication
- 1% accuracy load & fault current up to 17kA
- In-rush restraint
- Daily load profile reporting
- "0 Amp" operation
- Integrated backhaul radio and GPS
- Remotely configurable parameters for fault trigger and fault indication
- Automatic Phase ID
- DNP3 interface to SCADA\*
- Aclara Sensor Management System (SMS) management and analytics
- Line mounted, hotstick install
- Conductor sizes up to 1.5"
- Fault waveform capture

## BENEFITS

- Simple installation, configuration, fault & load reporting
- Visibility for low current locations throughout your network
- Unparalleled accuracy for fault location
- Single lineman install in minutes
- No pole-mounted equipment or secondary power required
- Low cost, high performance LTE-M cellular IoT communications
- Factory pre-configured communications – no need to dispatch networking staff
- Single model supports all FCI applications
- Remote firmware upgradeability simplifies feature updates and upgrades
- IEEE 495 standards compliant
- Supports mixed sensor deployment with other Aclara Grid Monitoring line sensors

## TECHNICAL SPECIFICATIONS

Line Voltage Frequency	69kV L-L, overhead conductors
Line Frequency	50 – 60 Hz
Conductor Size	#6 to 1590 kcmil (approx. 0.162 to 1.5" diameter)
Mounting Method	Line mounted, clamshell design Hotstick or insulated glove installation
Dimensions, case body (H x W x L)	5.8" x 4.9" x 11.2"
Weight	5.8 lbs.
Operating Temperature	-40°C to +60°C (-40°F to +140°F) Complies with IEEE 495 Temperature Cycling Test to +85°C
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Ingress Protection	IP66 per IEC 60529
Materials	UV stabilized polycarbonate
Device Powering	Lithium battery pack, field replaceable, battery life gauge
Device Management	DNP3* and Aclara SMS software
Communication Options	Integrated LTE Cat-M1 cellular, (17 world-wide bands) Aclara RF (future)
Antenna	Internal, omni-directional wide band 5G/4G antenna
GPS	Location and time-stamp reference
Fault Trigger	di/dt, RMS threshold, remotely configurable
Adjacent Cable Immunity	25 kA at 14"
Fault Reset	Fault LED Automatic Reset Time, configurable up to 24 hrs
Visual Fault Indication	360° visibility, 150m range Configurable blink duration up to 24 hrs Permanent and Momentary faults
Operating Current Range	0A to 600A, 700A emergency rating, unidirectional
Fault Withstand	25 kA, 170 ms
Oscillography & Waveform Capture	Fault Current Up to 4sec. total, up to 100 cycles pre-trigger COMTRADE export via Aclara SMS
Sample Rating	32 samples/cycle

\*DNP3 interface via SMS integrated DNP3 concentrator or natively from cFCI device in release 2 firmware.



# Communicating Faulted Circuit Indicator (cFCI)

## CONTINUED TECHNICAL SPECIFICATIONS

Measurement and Data Logging	Fault Current, up to 17kA, +/- 1% Load Current <100A; maximum error +/- 1A 100-600A; maximum error +/- 1% Hourly load profile data reported once per day
Alarms	Permanent Fault Momentary Fault Line Disturbance Outage (Loss of Current / Restoration)
On-board Non-volatile Data Storage	Up to 10 events, 4 fault waveforms, and >1 week load current data
Design Life	15+ years
Applicable Standards	IEEE 495-2007, Testing Faulted Circuit Indicators FCC Part 15, Electromagnetic Interference IEC 61000-4-2, Electrostatic Discharge IEC 61000-4-3, Radiated, Radio-frequency and Electromagnetic Immunity IEC 61000-4-4, Electrical Fast Transient IEC 61000-4-5, Surge Immunity IEC 61000-4-6, Conducted Immunity IEC 61000-4-8, Power Frequency Magnetic Field IEC 61000-4-9, Pulse Magnetic Field IEC 61000-4-10, Damped Oscillatory Magnetic Field IEC 61000-4-12, Ring Wave Immunity IEC 61000-4-18, Oscillatory Waves Immunity IEC 60695-1-30, -7-1, Fire Hazard IEC 60255-21-1, -2, Vibration, Shock and Bump IEC 60068, Environmental, Corrosion, Mechanical Vibration and Impact ISTA 1A, Transportation Vibration and Drop RoHS WEEE REACH ISO 9001