

CPAT® IRX1

// Ingress Monitoring / Headend-based Receiver

The IRX1 receiver detects, measures and localizes ingress events on a continuous basis. With the CPAT Flex ingress monitoring solution, you take the 'find' time out of the 'find-and-fix' equation, diminishing subscriber downtime related to ingress impairments.

- Very cost-effective receiver operating on a fixed upstream frequency
- Designed to detect ingress under severe upstream noise conditions
- Determines ingress location with a precision of ± 2.5 meters
- Tracks multiple vehicles equipped with an ITX1 transmitter
- RF return ports are continuously monitored for ITX1 test carrier detection
- No user intervention required to operate

// Monitoring capacity

The IRX1 (US Patent Pending: 13/187545 – CAN Patent Pending: 2,746,924) has a CPU that controls 4 distinct ingress monitoring module blocks running in parallel. Each block is equipped with 8 RF monitoring input ports, totaling 32 RF ports per IRX1. Return node combining on the IRX1 input ports could also be accommodated, depending on the upstream RF level available at the HE/Hub location.

Our CPAT FLEX monitoring system (US Patent: 7,360,124 – CAN Patent: 2,535,269) is designed to monitor today's amount of return nodes and then expand using additional IRX1 receivers. Its low profile chassis form factor, high density port number and node combining capability facilitate future expansion.

// General operation

As vehicles equipped with an ITX1 transmitter are driven through the plant, the ITX1 continuously transmits a low power ingress test carrier in the 5-42 MHz band. The ingress test carrier is specifically generated and configured to avoid any interference with the operator's return band signals, such as DOCSIS carriers. When a vehicle is driven into an ingress prone area, the transmitted signal enters the coaxial plant and travels up to the HE/Hub location for detection by the IRX1 ingress receiver.



As soon as the test carrier is detected at the input of the IRX1, its data is decoded. The decoded carrier data information contains vehicle ID, ingress event RF level and vehicle GPS position. The IRX1 stores and communicates upstream decoded data back to the CPAT server, through the 10/100 BaseT Ethernet connection. With the IRX1's high capacity processing power, there is no limit to the number of vehicles that can be equipped with an ITX1 transmitter module.

// Repair cycle

Once an ingress impairment is detected and stored in the CPAT database, the technician uses an ITX1 and a web browsing capable cell phone to precisely and rapidly find-and-fix the source of the ingress impairment.

// Specifications

// Electrical

Operating frequency / Bandwidth	6.78 MHz: 30 kHz
Measurement range	-23 to 50 dBmV
Sensitivity	-23 dBmV (BER < 10 ⁻⁶) (attenuator @ 0 dB)
AGC attenuator	0-15 dB in 0.5 dB steps
Level accuracy	±2 dB on signal pulses
Monitoring mode	Continuous shared detection between 8 RF ports
Frame capture time	10 ms
Continuous ingress detection capability	100 events/sec/IRX1
Communication port	10/100Base-T Ethernet
Power	120 VAC, 0.7A (60W) fully loaded

// Physical

Dimensions	Standard 1RU chassis 4.4 cm x 42.2 cm x 33 cm / 1.75" x 16.6" x 13" (H x W x D)
Operating temperature	0° to +60° C / 32° to + 140° F

// Ordering Information

IRX1 – Ingress Receiver @ 6.78 MHz P/N 9920-A

// Related Items

ITX1 – Vehicle-based Return Band Transmitter Kit @ 6.78 MHz 9910-AK

ARD4 – WiFi Autonomous Recording Device Kit 9710-WK