CPAT® ARD4

// Vehicle-based Autonomous Recording Device

The ARD4 is the central control module of the CPAT FLEX system. It handles GPS positioning, real-time event recording and wireless communications. Thanks to its open Linux operating system, the new ARD4 platform is also a versatile mobile wireless communication hub.

- Records and manages data events in real-time mode (leakage, ingress, etc.)
- Vehicle communication hub with flexible configuration options
- WiFi, GPRS, CDMA and HSDPA communication modules
- Monitors vehicle fleet health status with On-Board Diagnostics (OBD-II)
- Accepts other CPAT FLEX add-on modules for increased monitoring capability
- Operates without any user intervention

// Monitoring Modules

The ARD4 interfaces to the CPAT FLEX add-on modules such as the DRV3 digital leakage receiver, DRV1/DRV2 analog leakage receivers and the ITX1 ingress transmitter through a series of dedicated connectors. It is totally autonomous and starts recording as soon as the vehicle starts up. Recorded data is uploaded to a central CPAT server using a WiFi connection or one of the real-time wireless communication options. When no wireless connection is available, the ARD4 will store up to 3 weeks of continuous recording in its memory.

// Wireless Communication Options

The ARD4 can be equipped with one the following internal telecommunication options:

- WiFi;
- CDMA;
- GPRS;
- HSDPA.

The ARD4 wireless options and communication ports allow multiple configuration options that will meet any mobile communication requirements. For example, the ARD4 Ethernet port could be used to upload the recorded data using a MoFi router equipped with a cellular card. Otherwise, the ARD4 equipped with a wireless option could be used to connect a laptop to the Internet. The ARD4's flexibility allows you to use only one cellular connection for all your vehicle-based communications.

// On-Board Diagnostic (OBD-II)

The main function of the On-Board Diagnostic (OBD-II) option is to provide vehicle diagnostic data and alarms to ensure proper vehicle operation. Monitored OBD-II parameters are speed, engine coolant temperature and a series of user selectable digital trouble codes (DCT). An alarm is generated for system administrators when user-defined parameters are exceeded.

// Dead-Reckoning (DR)

The Dead-Reckoning (DR) option is required for operators working in high-density urban areas where GPS reception is marginal due to physical obstructions. Using the DR module will greatly diminish GPS location errors in poor GPS reception areas and provide accurate vehicle and leakage/ingress event locations.

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// Specifications

// System

CPU	ARM9 (NXP) Model LPC3240
Operating system	Linux 2.6
Memory	SDRAM: 64 MB, NAND Flash: 64 MB
Power	12 VDC, 200 mA
Wireless modem modules	WiFi 802.11b-g, GPRS, CDMA, HSDPA
GPS module	uBlox LEA-6x

// Physical

Dimensions	3.3 cm x 11.2 cm x 22.3 cm / 1.3" x 4.4" x 8.8" [H x W x D]
Weight	652 grams / 23 ounces
Operating temperature	-20˚ to + 60˚ C / -4˚ to + 140˚ F

// External I/O Connectors

Communication port	2 USB serial ports (host)
Proprietary connectors	1 connector for each of the following: ITX1, DRV1, Dead-Reckoning and OBD-II modules 1 connector for each of the following: GPS and wireless communication module antennas
Network connector	RJ-45 10 Base-T Ethernet connector
Serial connector	1 connector (client interface)

// LED Indicators

GPS status LED	'Blanked' during GPS initialization, 'red' when invalid GPS position and 'green' when valid GPS position
Wireless communication LED	'Green' when uploading/downloading to a wireless cellular infrastructure, blinks 'red' if error during transmission and 'off' when module is not connected to network
Power LED	'Red' when booting, 'green' when on, 'red' on error and 'off' when power off
Diag LED	Flashing 'Green' when leakage is detected

// Protocol

Protocols	IP, FTP

// Wireless Security

Supported encryption	WEP, WPA (TKIP) and WPA 2 (AES)

// Ordering Information — P/N

ARD4 – WiFi Autonomous Recording Device Kit 9710-WK
Includes: ARD4 module, ARD4 power cable, WiFi wireless modem, GPS/WiFi modem antenna, DIN rail mounting kit and installation guide.

ARD4 – GPRS Autonomous Recording Device Kit 9710-GK
Includes: ARD4 module, ARD4 power cable, GPRS wireless modem, GPS/Cellular modem antenna, DIN rail mounting kit and installation guide.

ARD4 – HSDPA Autonomous Recording Device Kit 9710-HK
Includes: ARD4 module, ARD4 power cable, HSDPA wireless modem, GPS/Cellular modem antenna, DIN rail mounting kit and installation guide.

ARD4 – CDMA Autonomous Recording Device Kit 9710-CK
Includes: ARD4 module, ARD4 power cable, CDMA wireless modem, GPS/Cellular modem antenna, DIN rail mounting kit and installation guide.

// Options

On-Board Diagnostic Module (OBD-II)	9720
Dead-Reckoning (DR) Module	9750

// Related Items

ITX1 – Vehicle-based Return Band Transmitter Kit @ 6.78 MHz	9910-AK
Sub-VHF Antenna Kit for ITX1	6110
DRV3 – Portable Digital Leakage Detection Meter with (118-140 MHz) / (572-960 MHz) Dual-band Tuner	9930-K
DRV1 – Vehicle-based Leakage Detection Kit Lo-band (110-135MHz)	9950-LK
DRV1 – Vehicle-based Leakage Detection Kit Hi-band (118-155MHz)	9950-HK
DRV2 – Portable Leakage Detection Meter Lo-band Kit (110-135 MHz)	9850-LK
DRV2 – Portable Leakage Detection Meter Hi-band Kit (118-155 MHz)	9850-HK
Quarter-wave VHF Antenna Kit (leakage monitoring)	6400

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