Isco 2102 Wireless Module

Remote data retrieval eliminates repeated manhole entry

The 2102 Wireless Module reduces the need for confined space entry in sewer flow studies by providing remote data retrieval from monitoring instruments. Simply clip the 2102 onto one or more 2100 Series flow modules to form a complete, integrated system for acquiring and communicating open channel flow data.

The 2102 uses spread-spectrum digital radio for direct, reliable, two-way communication between down-hole equipment and a laptop computer in your vehicle.

You can retrieve data from the safety and comfort of your vehicle by simply returning to within range of the monitoring site and interrogating the instruments via a 2102 connected to your laptop computer (running Flowlink software). A single worker can safely and easily perform monitoring tasks that may otherwise require a hazardous entry crew of three or more.

The 2102 can also be interfaced with Isco 6700 Samplers, 4200 Series Flowmeters, and 4100 Series Flow Loggers, providing great versatility for labor saving "drive-up data retrieval" in I&I, CSO, SSO, stormwater, and other projects. The 2102 also avoids the monthly expense of using cellular phones and the hassles of conventional radio technology.

The 2102 wireless module stacks with 2100 Series flow modules and 2191 Battery Modules to provide a compact, integrated system for collecting and retrieving sewer flow data without repeated manhole entry.

Applications

♦ Efficient and reliable drive-up data retrieval and site service in I&I and other collection system studies.

♦ Above-ground applications requiring line-of-sight communication from remote monitoring sites to base station.

Standard Features

♦ "Plug and Play" setup – no special engineering or interfacing needed.

♦ Rugged NEMA 4x, 6P (IP68) case.

♦ When using the standard internal antenna, all equipment can be hidden in the manhole.

♦ Low power consumption, allowing a typical 50-day battery life using two 6-Volt alkaline batteries.

There's no need to get out of the vehicle into bad weather or busy traffic when retrieving data with the 2102 base module.

Specifications

2102 Wireless Communication Module

Size *(H x W x D)*	2.2 x 11.3 x 7.5 in (5.4 x 28.7 x 19.1 cm)
Weight	2.0 lbs (0.9 kg)
Enclosure *(self-certified)*	NEMA 4X, 6P (IP68)
Material	High-impact polystyrene
Carrier Detect Cycle	4 minutes
Average Connect Time	2 minutes
Power	10 to 16.6V DC <1 mA standby, 300 mA maximum 5 mA average at 4 minute power cycle
Typical Battery Life	50 days (with 2 alkaline batteries)
Operating temperature	0° to 140°F (-18° to 60**°C**)
Storage temperature	-40° to 140°F (-40° to 60**°C**)
Software	Serial Connection to IBM PC or compatible computer with Isco Flowlink Software (version 4.11 or above)

2191 Battery Module

Size *(H x W x D)*	6.0 x 9.6 x 7.6 in (15.2 x 24.4 x 19.3 cm)
Weight *(w/o batteries)*	3.2 lbs (1.4 kg)
Enclosure *(self-certified)*	NEMA 4X, 6P (IP68)
Material	High-impact polystyrene
Batteries Alkaline Capacity Lead-Acid Capacity	Two 6V alkaline lantern or lead-acid lantern 25 A/hrs 5 A/hrs

Spread Spectrum Radio

Frequency	902 to 928 MHz
Transmitter Output Power	1 Watt

Typical Range
    line of sight
    from inside manhole
	0.5 miles (0.8 km)
	100 ft (30 m)

Modulation, GFSK	120 kBs – 170 kBs
Occupied bandwidth	230 kHz
Receiver Sensitivity	-108dBm at 10-6 raw BER (bit error rate)
Selectivity	40 dB at fc ± 230 kHz 60 dB at fc ± 460 kHz
Data Transmission Error Detection Data Encryption Link Throughput	32 Bit CRC, resend on error Substitution, dynamic key 115 kBaud
FCC Identifier	KNY-205-108213
DOC (Canada) **Identifier**	2329 102 336A

Ordering Information

Note: 2102 Modules are available for use in the USA and Canada ONLY.

Description	Part Number
2102 Wireless Remote Module Stacks on 2100 monitoring system to provide two-way communication with 2102 base module (sold separately). Includes manual.	68-2000-003
2102 Wireless Base Module Connects to computer running Flowlink software for communication with 2102 remote modules. Includes power adapters for 12V DC vehicle cigarette lighter, and 120V. Requires Flowlink software and computer connect cable, sold separately. Includes manual.	68-2000-002
Computer connect cable Connects 2102 module to PC with 9-pin connector.	60-2004-046

Contact the factory for 2102 external antenna options. Above: 2102 with captive connector for external antenna of any type. Below: 2102 with directional antenna.

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