



FlatMesh™

Product Data Sheet: Digital Interface Node



The Digital Interface Node is a robust IP66/IP67 rated digital data logger that transforms your data collection from manual to automated sampling. This wireless digital data logger is compatible with a large variety of sensors that carry a digital output and enables a simple connection to the Senceive back-end & front-end platforms. Interact and manage your data online and change reporting times and thresholds remotely.

Ideal for many applications including:

- Understanding diaphragm wall movements when installing in-place inclinometers in large excavation and construction projects.
- Managing your geotechnical assets in mining, railways & highway using piezometers, extensometers and inclinometers.
- Environmental applications such as continuous logging of weather station data including precipitation, wind strength and temperature.

Key features

- Versatile mounting options
- NFC compatibility, enabling on the spot adjustments to the node
- "Sleep mode" functionality
- Power sensors requiring up to 20 Watts
- Configurable output voltage enabling longer sensor chains
- Waterproof to IP66 / IP67
- Compatible with our InfraGuard™ responsive reporting option for networked and dynamic reporting.
- Hardware support for these connection protocols: RS232, RS422, RS485, SDI-12, MODBUS and CAN
- Low power, long battery life with changeable batteries
- Automatic power sharing and switchover between battery and external DC supply
- Firmware is remotely upgradeable over the air via the gateway, reducing costly site visits



Digital Interface Node

Compatible Sensors

Manufacturer	Product	Known Limitations
Sisgeo	Full Range	Validated with 100x IPI sensors with battery powered DIN
Geokon	In-place Inclinometers	Validated with 64x IPI sensors with battery powered DIN Models 6180, 6185, 6140
GeoSense	In-place Inclinometers	Validated with 50x bi-axial IPI sensors. ModBus variant only. IPI V1/2, I1/2 & H1/2
Osprey Measurement Systems	In-place Extensometer	Validated with 50x extensometer segments with battery powered DIN
Vaisala	Weather Stations	WXT530 Family
YieldPoint	Geotechnical Mining Sensors	dExto, dExto-Civil, dMPBX, dConv, dMicro, dGMM, dCable, dReba
Delta-T	Soil Moisture Sensors	SDI-12 - 100cm & 40cm variants
Vega	Radar Liquid Level Sensors	VEGAPULS C21, C22 & C23
Campbell Scientific	Rain Gauge	SDI-12 - Tipping Bucket
DGSI	In-place Inclinometers	GeoFlex Segments
MDT Solutions	SMART Range of Extensometers	MPBX, Cable Bolt, Contractometer, GMM100 Ground Movement Monitor
RIKA	Rain Gauge	Radar-based rainfall sensor
Soil Instruments	In-place Inclinometers	C2, C12, Geosmart segments



Digital Interface Node

Physical Specifications

Parameter	Value
Dimensions excluding antenna and bracket	246 x 137 x 88 mm
Dimensions including antenna and bracket	246 x 303 x 106 mm
Total Mass	836 g without batteries 1090 g with 2 batteries 1346 g with 4 batteries
Housing Material	Polycarbonate
Protection	IP66 and IP67
Mounting Options	Pole mount, wall mount
Operating Temperature Range	-40°C to +85°C

FlatMesh Radio Specifications

Parameter	Value
Communication Type	Proprietary FlatMesh v3 Mesh Networking Protocols IEEE 802.15.4 compliant
Frequency Band	2400 – 2485 MHz ISM Band
Maximum Transmit Power (EN 300 328 v2.2.2)	6.5 dBm
Maximum Permitted Antenna Gain	4 dBi
Range	Up to 300 m depending on the environment and fitted antenna Consult with Senceive for your application
RF Module	Senceive F3N_NF



Digital Interface Node

Auxiliary Power Input

Parameter	Value
Connector	M12 Male 3-pole A-coded Screw clamp
Input Voltage (DC)	10 V to 28 V (recommended 24 V)
Maximum Input Current (A)	4A fuse limited
Power (W)	Minimum 40W recommended Max Limitation: <100W Limited Power Source

Internal Batteries

Parameter	Value
Battery Type	Primary lithium-thionyl chloride (Li-SOCl ₂) with Hybrid Pulse Capacitor (HPC) Consult with Senceive for battery recommendations for extremely low temperature climates
Nominal Voltage	3.6 V
Nominal Capacity	19Ah
Cable and Connector	75mm 22AWG UL1007 onto JST-PAP-02V-S
User serviceable	Yes
Quantity	2 or 4 required

Sensor Interface

Parameter	Value
Connector	M12 Female 8-pole A-coded Screw clamp
Output Voltage (DC)	0.8 V to 22 V
Output Current	Up to 2A
Digital Interfaces	RS232 RS422(1) RS485(1) SDI-12 CAN (1): With software-controlled termination and biasing

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Digital Interface Node



Certifications

- CE, FCC, IC, ACMA
- Registered design DM/232 478

Digital Interface Node Supported Devices - Battery Life in Years

Manufacturer	Product Family	Product Name	Max no. sensors	External power required	5-min sampling	1-hour sampling		6-hour sampling	
					5 sensors	5 sensors	25 sensors	5 sensors	25 sensors
Sisgeo	Full IPI Range*	All	100	No	1 year	6 years	2 years	12 years	9 years
Geokon	In Place Inclinator	Model 6180/6185	64	No	2 years	9 years	3 years	15 years	10 years
Geosense	In Place Inclinator	IPI	50	No	2 years	7 years	3 years	15 years	10 years
Osprey Measurement Systems	In Place Extensometer	IPX	50	No	5.5 years	15 years	9 years	15 years	15 years

*Excluding DEX-S range

Vaisala weather station

Number of sensors in chain	Estimated Battery Life at Reporting Rate		
	30 minutes	1 hour	6 hours
1 (WXT532, 533, 536)	50 days	50 days	50 days
1 (WXT531, 534, 535)	6 months	6 months	6 months

Digital Interface Node



Ordering Information and Accessories

Model	Description
F3N1 - DIN	FlatMesh Digital Interface Node (excluding batteries)
F3N1 - DIN (S)	FlatMesh Digital Interface Node (including standard batteries)
F3N1 - DIN (LT)	FlatMesh Digital Interface Node (including low temperature batteries)
FS-DIN-SENCON	Connector for Digital Interface Node sensor
FF-MP-DIN-WM	Wall mount
FF-MP-DIN-WMK	Magnetic wall mount
FF-MP-DIN-PM	Pole Mount (with jubilee clip)
SP-C03168-2	Standard batteries (2 pack)
SP-C03169-2	Low temperature batteries (2 pack)
FX-C-5M FX-C-2M FX-C-1M	N-type antenna extender (5 m) N-type antenna extender (2 m) N-type antenna extender (1 m)
FA-MK-CB	N Type Antenna Bracket for 6.35 mm screw / tie wrap / jubilee clip
FA-MK-CBM	N Type Antenna Bracket with magnets
FP-AC40DIN-UK FP-AC40DIN-EU FP-AC40DIN-US FP-AC40DIN-ANZ	Mains power supply with pre-fitted connector to power the Digital Interface Node Choose plug to suit
FP-DIN-SP45	45W Solar Panel for Digital Interface Node
FP-DIN-PWRCON	Female Cable Mount, IP67-Rated, M12A Connector Plug