

IBIS-FS

An innovative sensor for remote monitoring of structural movements and deformations

IDS Ingegneria Dei Sistemi S.p.A.
GeoRadar Division, Via Enrica Calabresi 24, 56121 Pisa (PI) Italy
Tel. +39 050 31241 Fax +39 050 3124201
georadarsales@idscorporation.com

IDS Brasil Engenharia de Sistemas Ltda.
Av. Paulista 2200 – 16 and.
São Paulo-SP, Brazil, CEP 01310-300
Tel. +55 11 3060 9364 Fax +55 11 3060 9364
idsbr@idscorporation.com

IDS Brasil Engenharia de Sistemas Ltda. Belo Horizonte
Av. Prof. Mario Werneck, 26
Conjto 503 Belo Horizonte - MG, Brazil, CEP 30455-610
Tel. +55 31 3286 1195 Fax +55 31 3286 1195
idsbr@idscorporation.com

IDS North America Ltd.
155 Terence Matthews Cres. Ottawa, Ontario K2M 2A8 Canada
Tel. +1 613 591-0500 Fax +1 613 591-0981
idsna@idscorporation.com

IDS North America Ltd. Montreal
418 Sherbrooke Street East, Montreal, Quebec H2L 1J6, Canada
Tel. +1 514 789-0082 Fax +1 514 398-0527
idsna@idscorporation.com

IDSNA, Inc.
15000 W 6th Ave., Suite 104, Golden, CO 80401, USA
Phone: + 1 303 232 3047 Fax: + 1 720 519 1087
idsna@idscorporation.com

IDS Australasia Pty Ltd.
Unit 5, 3-5 Hinkler Court, Brendale, Queensland, Australia, 4500
Tel. +61 7 3205 5524 Fax 61 7 3205 5536
idsau@idscorporation.com

IDS Australasia Pty Ltd, Perth
Unit 8, 3 La Fayette Boulevard, Bibra Lake, Western Australia, Australia 6163
Tel: +61 8 9418 8719 Fax: +61 7 320 55536
idsau@idscorporation.com



IBIS-FS: REAL TIME VIBRATION ANALYSIS UTILIZING MICROWAVE INTERFEROMETRY

IBIS-FS

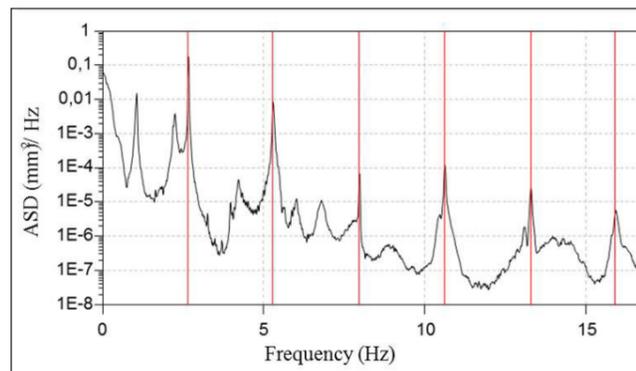
IBIS-FS is a microwave interferometry based system for remote static and dynamic monitoring of bridges and other structures including buildings, historical monuments and towers. IBIS-FS is able to remotely monitor for static applications such as structural load testing, structural displacement and risk of collapse as well as in the preservation of cultural heritage sites, without needing direct access to the site or the use of any invasive equipment. It is also able to perform dynamic monitoring applications including structural resonance frequency measurements, structural modal shape analysis and real-time deformation monitoring.

IBIS-FS Benefits

- **Increase structural health monitoring efficiency** through the use of a non-invasive vibration monitoring technique.
- **Accurate and remote** monitoring of a bridge or structure without the need to mount any fixed point reflectors on the surface.
- **Reduces the time necessary** for static or dynamic bridge structural testing to just a few minutes.
- **Real-time data** for structure displacement

IBIS-FS Features

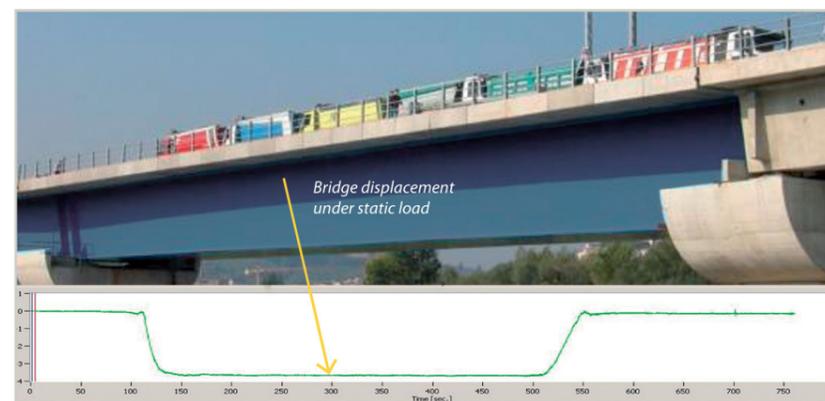
- **Remote sensing:** Real-time remote sensing at up to 1 km with no need for equipment to be installed on the monitored structure.
- **Accurate measurements:** Measures displacements of as little as 0.01 mm at up to 0.5 km. No standard instrument can achieve such accuracy.
- **Sampling:** Structural vibration sampling up to 200 Hz.
- **Always operative:** Operates day & night and in all weather conditions.



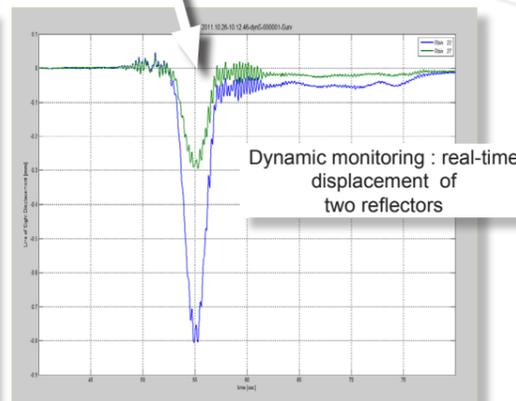
Structural resonance frequency



IBIS-FS monitoring an iron bridge



IBIS-FS static bridge monitoring



Dynamic monitoring : real-time displacement of two reflectors

IBIS-FS Configuration

IBIS-FS consists of portable radar head which can be mounted on a tripod anywhere within 1km of the target structure with a line of sight. IBIS-FS's IBIS Surveyor software is specifically developed to process the raw files generated during measurement sessions and includes a complete set of features for the static and dynamic evaluation of the overall structural displacement. The software is able to display a power image of the monitored scenario, the displacement of the overall scenario and the displacement among selected points of the scenario. IBIS-FS is available with several types of antenna, depending on the application.



SYSTEM SPECIFICATIONS

OVERALL WEIGHT (INCLUDING BATTERIES)	30 kg
RECOMMENDED LAPTOP	Panasonic CF-19 Tough-Book
AUTONOMY	More than 10 hours
MAXIMUM RANGE	1 km
FREQUENCY BAND	17.1 - 17.3 GHz
DISPLACEMENT ACCURACY	0.01 - 0.1 mm (depending on range)
POWER SUPPLY	SLA Battery 12VDC 12 AH
SPATIAL RESOLUTION	0.5 m. The resolution may change due to specific national radio regulations
ACQUISITION FREQUENCY	UP TO 200 Hz
ENVIRONMENTAL	IP65
POWER CONSUMPTION	25.5 W
CERTIFICATION:	EC, FCC, IC

SOFTWARE SPECIFICATIONS

IBIS SURVEYOR	<p>IBIS Surveyor is equipped with a complete set of features for the static and dynamic evaluation of the overall structural displacement. The software includes:</p> <ul style="list-style-type: none"> • power image of the monitored scenario • real-time and temporal histories of selected point displacement • Dynamic structural analysis tools to identify the resonance frequencies and modal shapes of the monitored structures.
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