



TRANSPOLIS

Reinventing urban mobility for new business strategies

June 2015

SOCIAL CHALLENGES AND TRENDS INFLUENCING URBAN MOBILITY



CITIES

Cities today...

Earth's surface

2%

World population

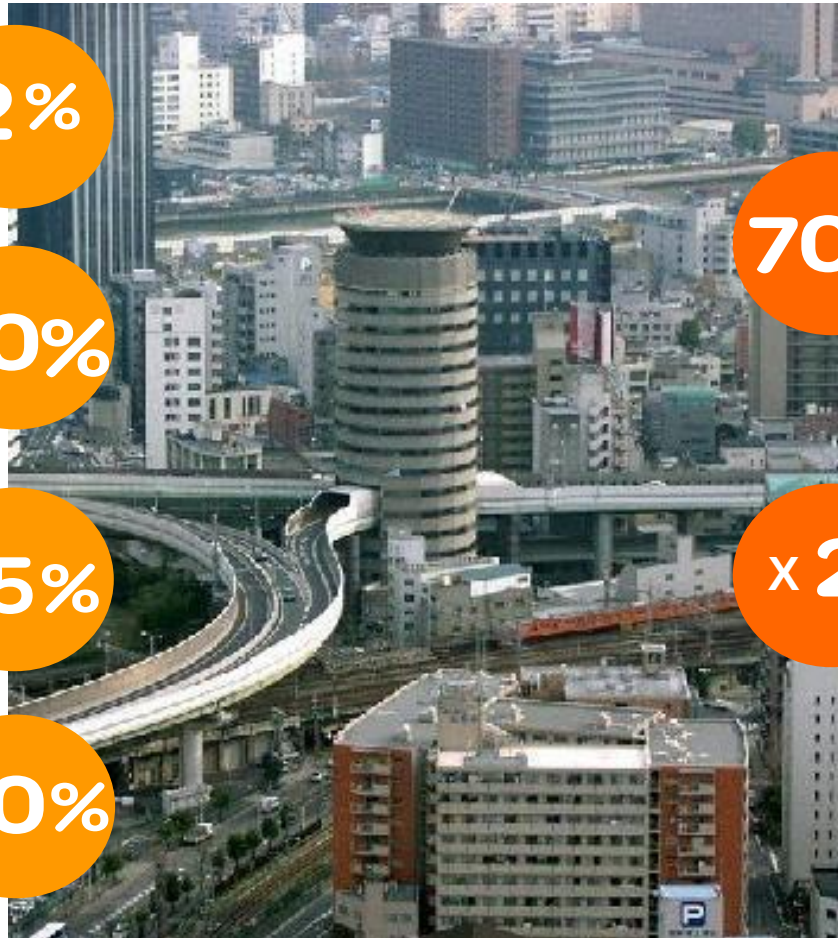
50%

Global energy
consumption

75%

Global CO₂
emissions

80%



...and by 2050

70%

World population

x 2

Per capita
commuting delay
to double over
100h/year

INVESTMENT

20 millions euros are invested from both the **private** and the **public** sector

The French government, the Rhône-Alpes Region and the **city of Lyon** are committed to TRANSPOLIS :

- 10 millions euros of fundings,
- members of the scientific committee,
- early adopters of the innovations.

MISSION

A **UNIQUE** european **HUB** to design, test and showcase new technologies with **INTERNATIONAL** partners:

- Vehicles,
- Energy,
- Infrastructure and building,
- Communication: IT, networks...
- E-commerce & delivery services

NEW USES AND MOBILITY NEEDS

Clean and Sustainable Mobility



Vehicle Architecture
(weight reduction,
aero, traction)

Alternative Energy,
Comfort
Management

Safe Mobility



ADAS

- . Infrastructure
- . Driver Assistance
- Autonomous Vehicle**

Connected Mobility



ITS, intermodality

- . Mobility Services
- . Networking Technologies
- . Internet of Things

- 1. ROAD EQUIPMENT : SIMULATION & TESTING**
- 2. HUMAN FACTORS & ERGONOMICS**
- 3. VEHICLE TESTING : PROVING GROUND**
- 4. SENSORS NEW**

APTS SENSORS

TRANSPOLIS produces and markets new tools of measurement, the APTS : Abdominal Pressure Twin Sensors.

The **APTS** have been developed by IFSTTAR for the series of « **Q-Dummies** » (Q1.5, Q3, Q6, Q10) **representing children** aged 1 to 10 years.



APTS SENSORS

Vertically implanted by pair in the abdomen, they are the indispensable tool for the evaluation of abdominal injuries caused during impact tests on child restraint systems.



As part of the new ECE R129 regulation (which will replace ECE R44 / 04), this new instrumentation is essential.

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Technical Form

APTS SENSOR - ABDOMINAL PRESSURE TWIN SENSOR



The **APTS sensors**, developed by IFSTTAR (French Institute of Science and Technology for Transport, Development and Networks) **for the "Q-Series" dummies**, are an essential new tool for the in-depth assessment of child restraint systems.

Each APTS is composed of a soft cylindrical polymer bladder (currently polyurethane) filled with a viscous fluid and closed by aluminum caps. The fluid pressure is measured by a pressure cell (*specifications below*) implanted in the cap. Two APTS sensors are mounted inside the Q dummy abdomen in two cylindrical holes parallel to the lumbar spine. They thus enable the provision of relevant information needed for the **assessment of abdominal injuries**.

The **APTS is currently available in two sizes:**

- ° a nominal diameter of **30mm** for the Q1.5 dummy,
- ° a nominal diameter of **50mm** for the Q3, Q6 and Q10 dummies

TECHNICAL SPECIFICATIONS

CAPTEUR TYPE / MODEL SENSOR XPR30-S102		Ref. XPR30-S102-10BS_Rev A
UTILISATION DESCRIPTION		Capteur de pression miniature Miniature pressure sensor
Schéma électrique capteur	ETENDUE DE MESURE RANGE	10 BS Bar scellé / sealed
	SURCHARGE ADMISSIBLE OVERANGE	2 x l'étendue de mesure 2 x full scale
	TENSION D'ALIMENTATION EXCITATION	10 Vcc 10 Vdc
	SIGNAL A L'ETENDUE DE MESURE SIGNAL OUTPUT AT FULL SCALE	100 mV 100 mV
	DESEQUILIBRE OFFSET	< ± 10 mV < ± 10 mV
	LINEARITE LINEARITY	< ± 0.35% de l'étendue de mesure < ± 0.35% full scale
	HYSTERESIS HYSTERESIS	< ± 0.25% de l'étendue de mesure < ± 0.25% full scale
	INDICE DE PROTECTION PROTECTION	IP50
	PLAGE D'UTILISATION EN TEMPERATURE (OTR) OPERATING TEMPERATURE RANGE (OTR)	-20°C à +80°C -20°C to +80°C
	PLAGE DE COMPENSATION EN TEMPERATURE (CTR) COMPENSATED TEMPERATURE RANGE (CTR)	0°C à +60°C 0°C to +60°C
	DERIVE DE ZERO DANS LA PLAGE COMPENSEE ZERO SHIFT WITHIN CTR	< 3.5% de l'étendue de mesure / 50°C < 3.5% full scale / 50°C
	DERIVE DE SENSIBILITE DANS LA PLAGE COMPENSEE SENSIVITY SHIFT WITHIN CTR	< 2.5% de la valeur lue / 50°C < 2.5% of reading / 50°C
	SORTIE ELECTRIQUE ELECTRICAL OUTPUT	3 conducteurs torsadés 3 twisted wires
	FICHE MOBILE MATING CONNECTOR	-
	TYPE ET LONGUEUR DE CABLE CABLE OUTPUT	Gaine silastène 3, longueur 4m Silastene jacket 3, 4m length

