

ON-
BOARD
ELECTRONICS

HASLERRail
PIXY

HASLERRAIL

General Presentation

Sécheron Hasler GROUP

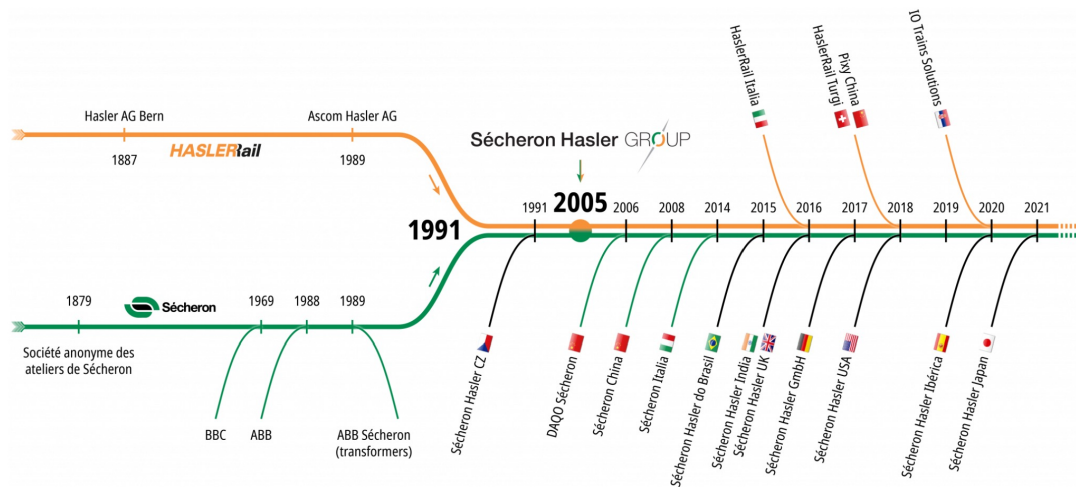


HASLERRAIL – GENERAL PRESENTATION

Introduction

HISTORY & KEY FIGURES

More than
140 years
of history



2022

1353
FULL TIME
EMPLOYEES

SALES

254 M CHF

= 235 M € *
= 282 M US\$ *

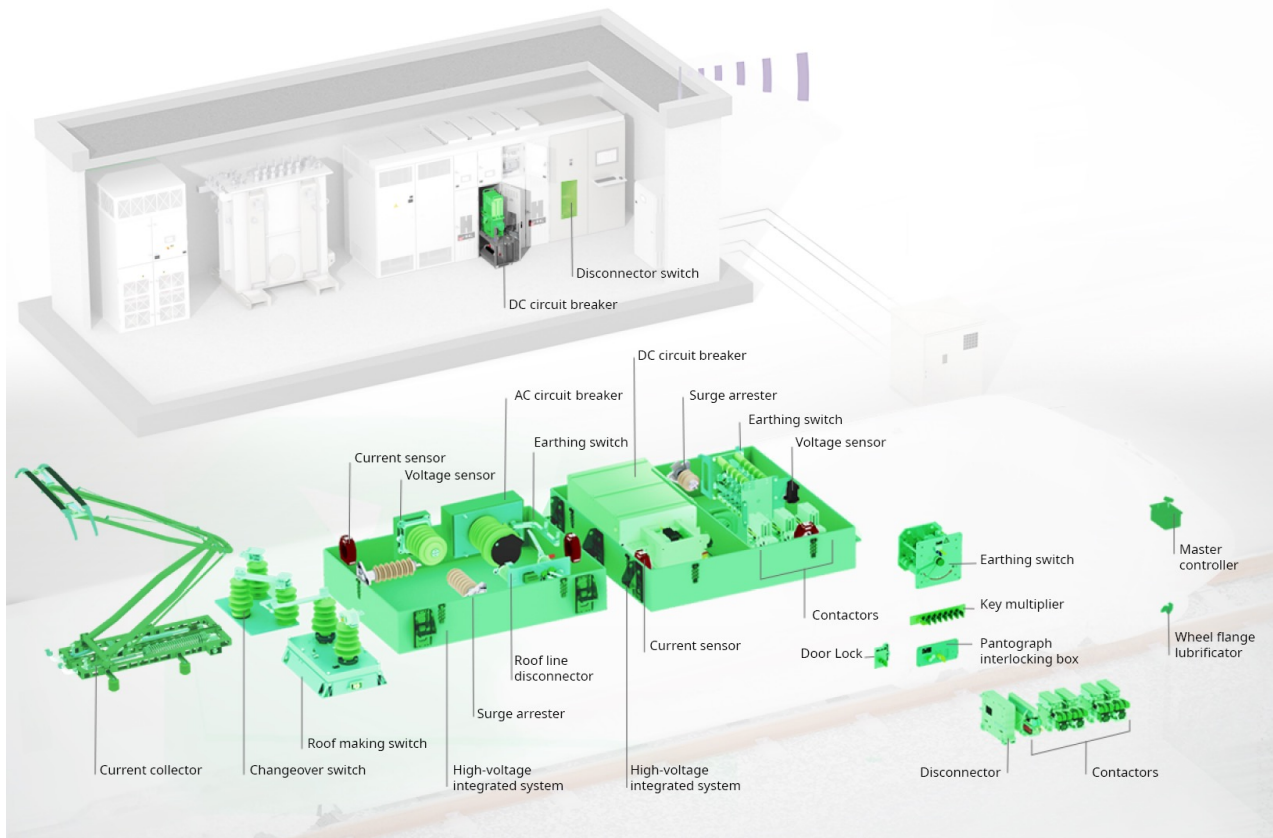
* Exchange rates

1 € = 0.9833 CHF

1 US\$ = 0.999 CHF

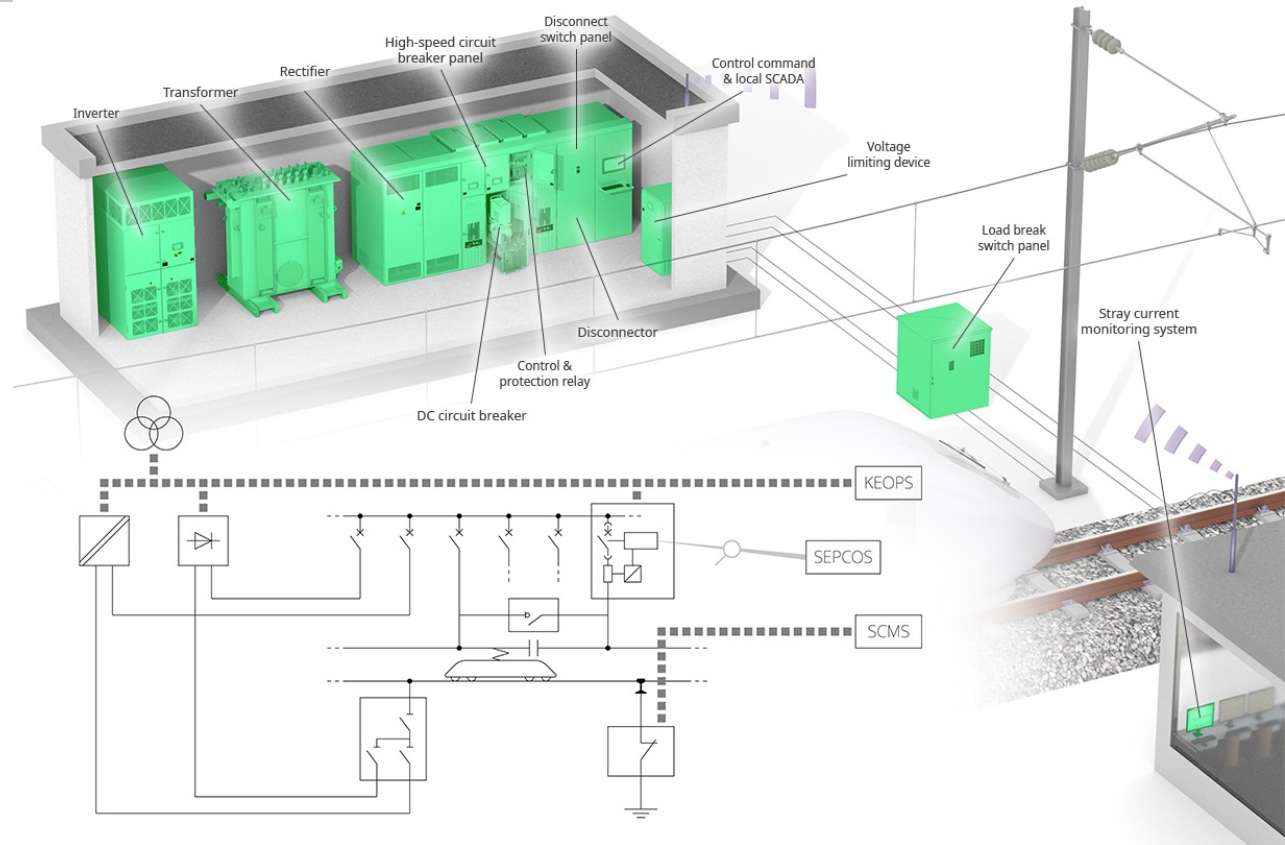
ELECTRICAL SAFETY SOLUTIONS

for Rail Vehicles &
DC Traction Power
Substations



TRACTION POWER SYSTEMS

for Rail
Transportation –
Electrification



ON-BOARD ELECTRONICS

- ✓ Data recording
- ✓ Safety functions
- ✓ Rail data management solutions
- ✓ Odometry
- ✓ Cold Movement Detection
- ✓ Energy metering
- ✓ Mobile Gateway - GOCU
- ✓ HMI/DMI mobile visualization solutions
- ✓ Speed indicators
- ✓ Badge reader
- ✓ Video recording
- ✓ Vehicle Control Units (VCU)
- ✓ Remote I/O units
- ✓ Gateways
- ✓ Protection
- ✓ Sensors



MAIN LOCATIONS



HEADQUARTERS

// Sécheron SA



Geneva,
Switzerland

// HaslerRail AG



Bern,
Switzerland

EUROPE

- // **HaslerRail AG – Branch office**
Turgi, Switzerland
- // **HaslerRail Italia**
Verona, Italy
- // **Sécheron Hasler CZ**
Prague, Czech Republic
- // **Sécheron Hasler GmbH**
Wetzlar, Germany
- // **Sécheron Hasler Ibérica**
Madrid, Spain
- // **Sécheron Hasler UK**
Manchester, UK

ASIA

- // **Sécheron Office Japan**
Tokyo, Japan
- // **Sécheron Hasler India**
Gurgaon, India
- // **Pixy China**
Shanghai, China
- // **Sécheron Hasler China**
Shanghai, China

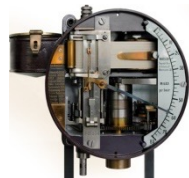
AMERICAS

- // **Sécheron Hasler do Brasil**
São Paulo, Brazil
- // **Sécheron Hasler USA**
Pittsburgh, USA

WORLDWIDE PRESENCE

Close to you
in more than
40 countries
worldwide





over 135 years

1887 → 2024



SAIRA
ELECTRONICS

acquired in 2016

PIXY
MOBILE VISUALIZATION

acquired in 2018

HASLERrail Italia
from 2019

HASLERrail
from 2020

HASLERrail
PIXY

International Railway Industry Standard
A Quality Standard for the Railway Industry



ISO 9001:2015
Quality Management System



ISO 14001:2015
Environmental Management System



ISO 45001:2018
Occupational Health and Safety Management System



THE SYSTEM

DATA ACQUISITION & RECORDING

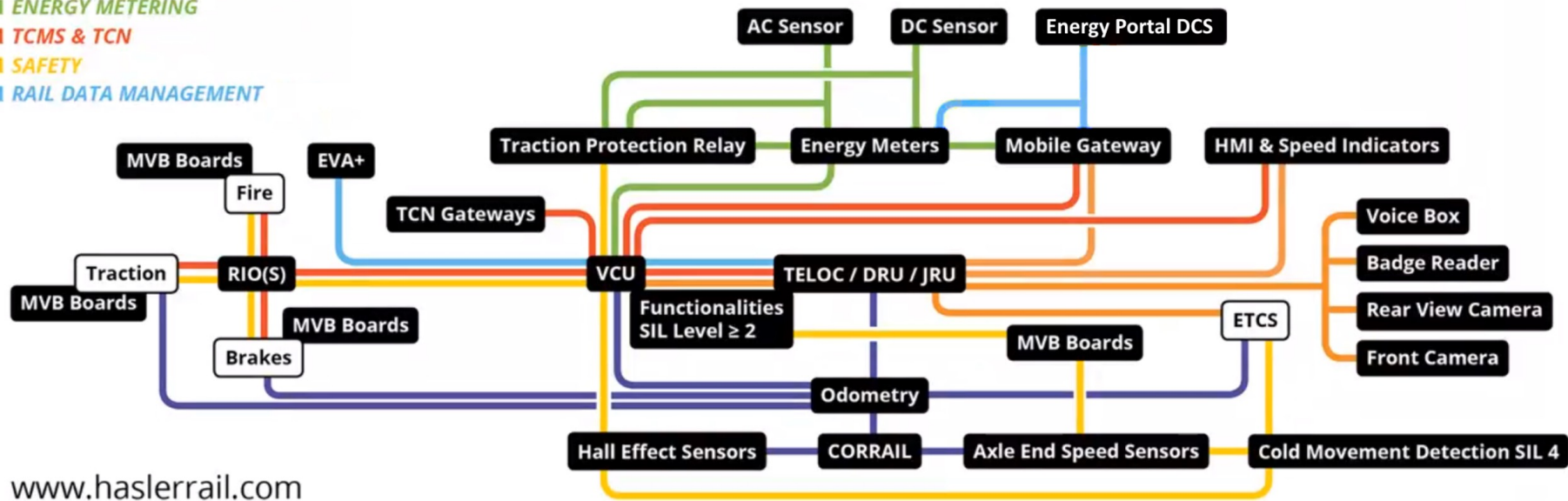
SPEED SENSING & ODOMETRY

ENERGY METERING

TCMS & TCN

SAFETY

RAIL DATA MANAGEMENT



www.haslerrail.com

REFERENCES – GLOBAL INTEGRATORS

THALES



ELECTRO MOTIVE



LORAM



BOMBARDIER



vossloh



SIEMENS



ALSTOM



CAF



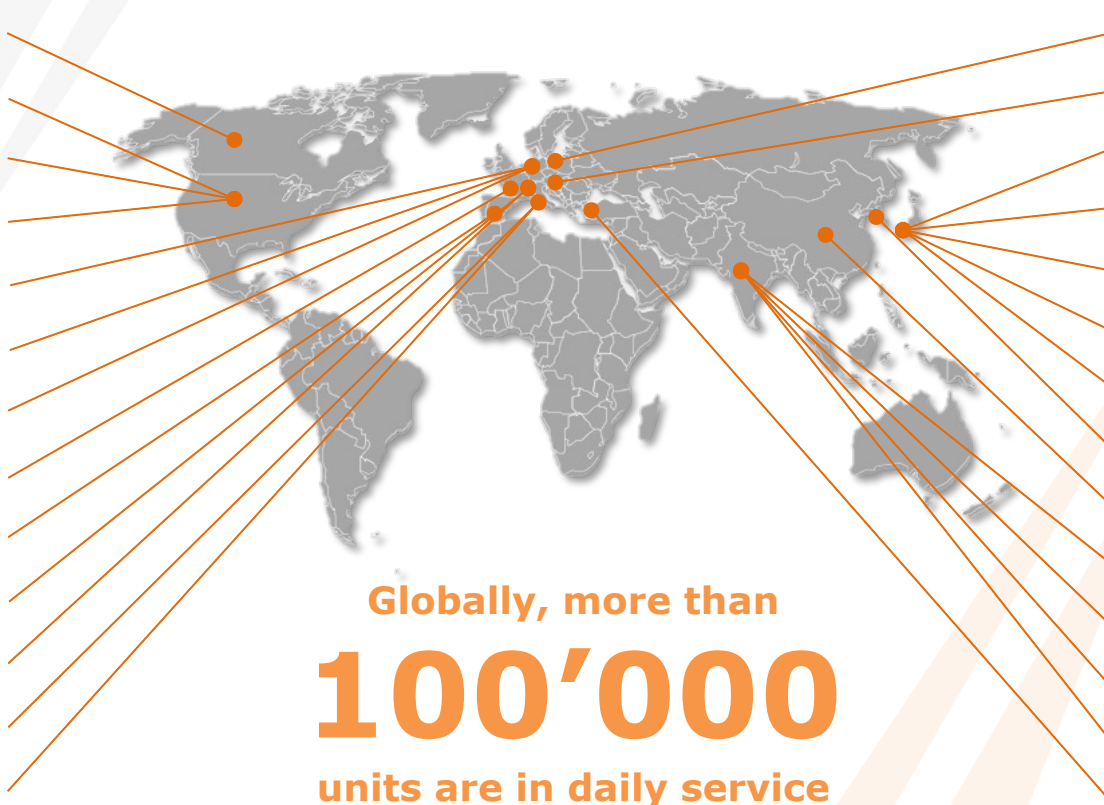
STADLER



mermec group



AnsaldoSTS
A Finmeccanica Company



Globally, more than
100'000
units are in daily service



pesa
Pojazdy Szynowe
PEBA Bydgoszcz SA



Plasser & Thuermer



Kawasaki



NIPPON SIGNAL



MITSUBISHI ELECTRIC



HITACHI
Inspire the Next



TOSHIBA



HYUNDAI
Rotem



中国中车
CRRC



CG Power Solutions



beml



tulomsaş
Türkiye Lokomotif ve Motor Sanayi A.Ş.

REFERENCES – EUROPEAN OPERATORS MAINLAND



A world map is centered in the background, with numerous orange lines radiating from a cluster of dots in Europe to various rail operators listed on both sides. The operators are arranged in two columns, each preceded by a small circular icon of their respective country's flag.

Operator	Operator
LIJN	VR GROUP
Logo	VY
DSB	SL
VBK <i>Bevegt alle.</i>	SJ
SSB	PKP
DB BAHN	TCDD
SBB CFF FFS	ČD České dráhy
renfe	MÁV
TRENITALIA	OBB

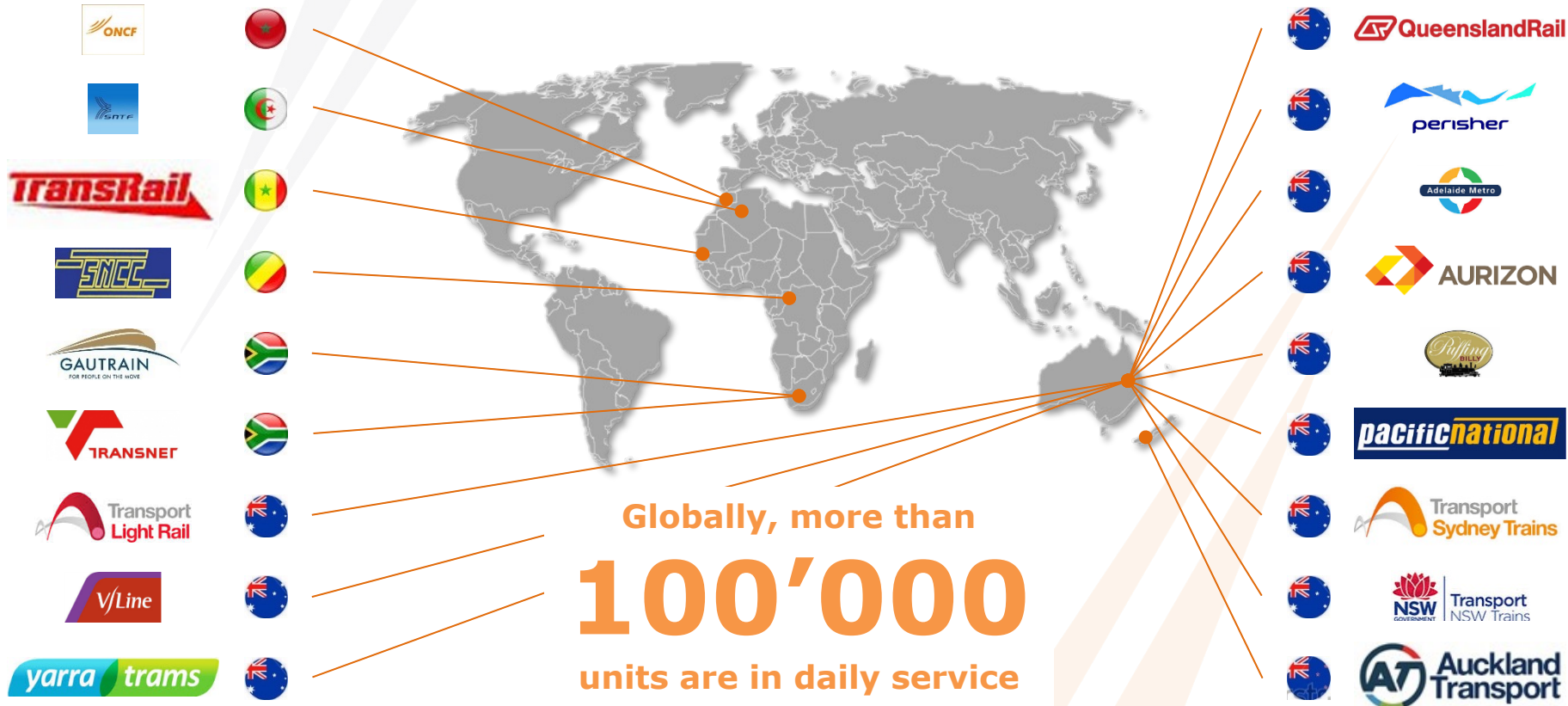
Globally, more than
100'000
units are in daily service

REFERENCES – OPERATORS IN UK & IRELAND



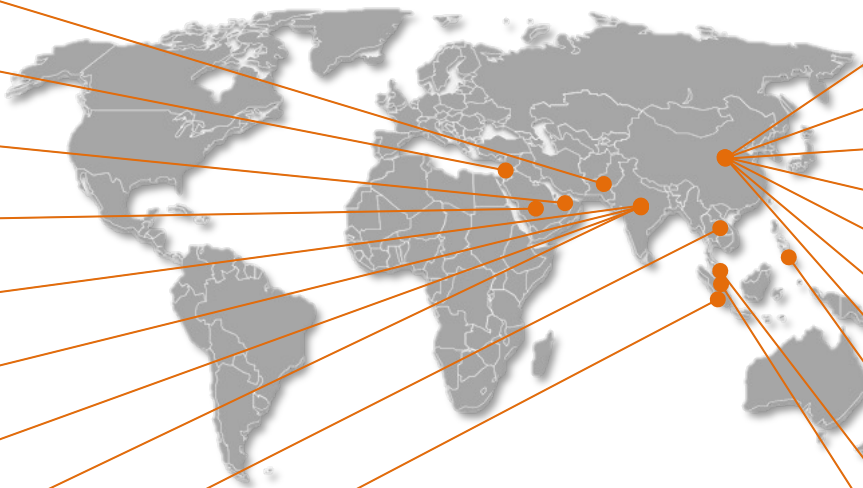
Globally, more than
100'000
units are in daily service

REFERENCES – OPERATORS IN AFRICA, AUSTRALIA, N. ZEALAND



Globally, more than
100'000
units are in daily service

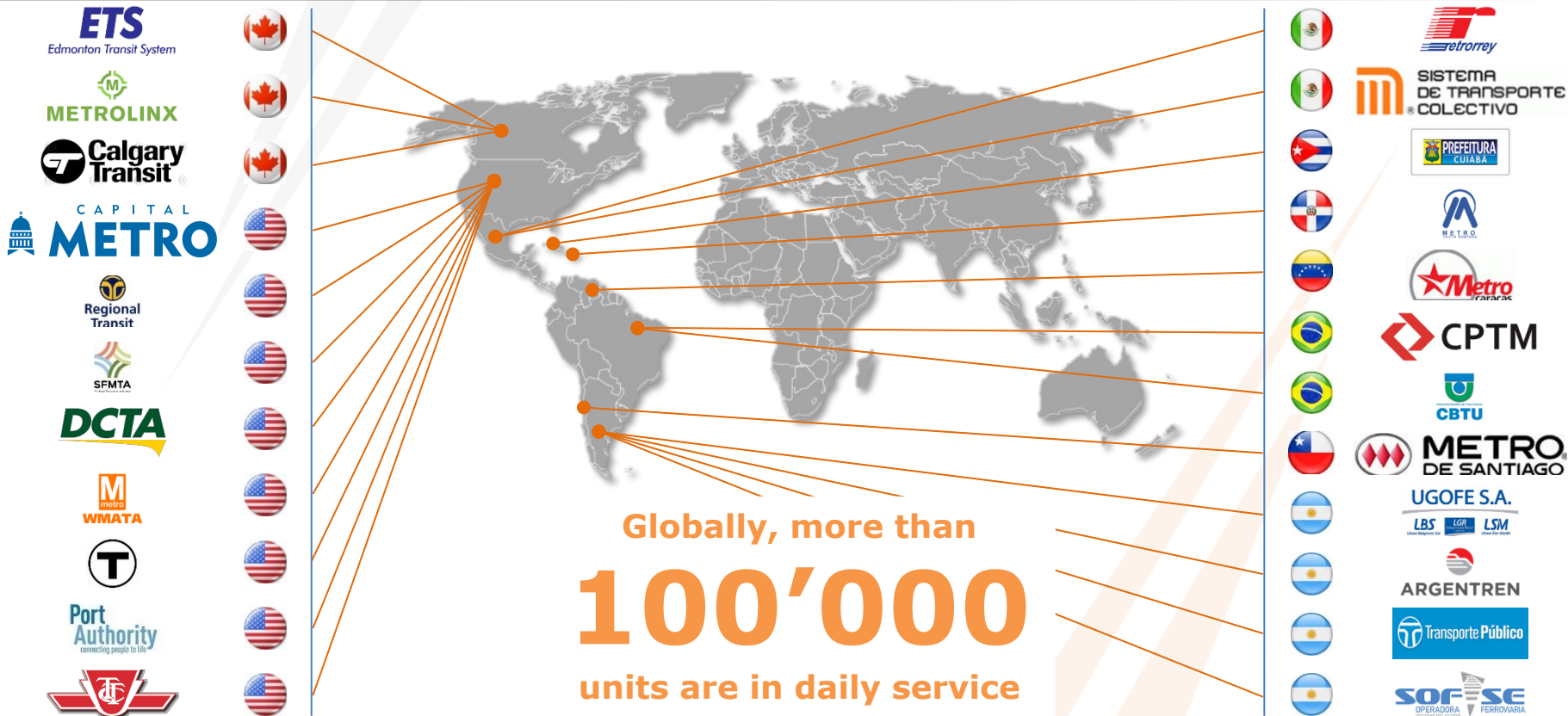
REFERENCES – OPERATORS IN ASIA



Globally, more than
100'000
 units are in daily service



REFERENCES – OPERATORS IN NORTH & SOUTH AMERICA



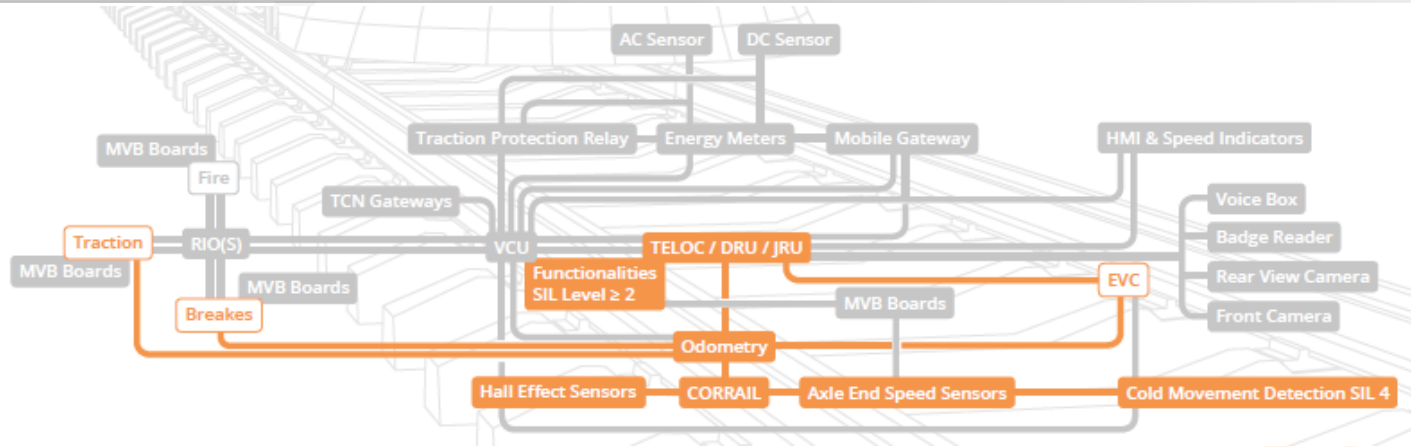
Globally, more than
100'000
 units are in daily service



HASLERRAIL – GENERAL PRESENTATION

Speed measurement and ETCS

SPEED MEASUREMENT AND ETCS



Main products:

Data acquisition by different sensors (optical, hall-effect and CORRAIL)

Cold Movement Detection

Juridical Recording Unit

Signal transmission and data evaluation

Main activities:

Engineering services linked to Specific Transmission Modules (**STM**)

Safety related components with **SIL certifications up to level 4**

Characteristics:

Slip and slide free measurement method

Measurement range 0.2 - 600 km/h

Distance measurement **precision >99.9%**

No Filterbox requires

No re-adjustment of the sensor required,
even if the wheels are re-centered

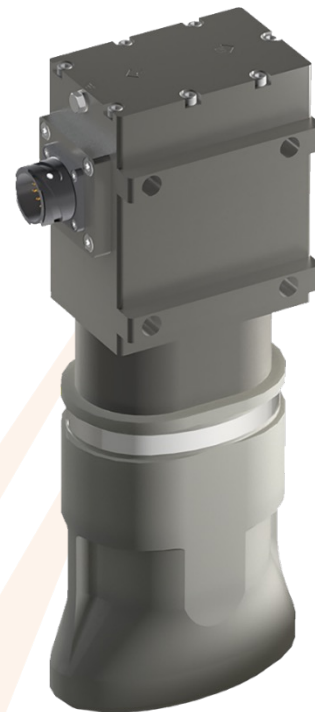
Smart sensor with self diagnostics

Rugged algorithm with a
innovation time less then 20ms

Optical signal pre-processing with high quality

25x less drop-outs compared to a radar system

Total field experience to date
> 3 Million km of track



Characteristics:

Slip and slide free measurement method

Measurement range 0.2 – 600 km/h

Distance measurement **precision >99.9%**

No re-adjustment of the sensor required,
even if the wheels are re-centered

Smart sensor with self diagnostics

Rugged algorithm with
innovation time less then 20ms

State of the art MMIC technology

Reliable measurements even on smooth surface (concrete, tarmack, slap track, level crossing etc.)



HASLER®OPG (OPTICAL PULSE GENERATOR)

Characteristics:

Configurable mechanical interfaces

Wide choice of mechanical coupling and adaptor parts, cable lengths, connectors, etc.

Customer specific variants for new projects.

Configurable signal outputs

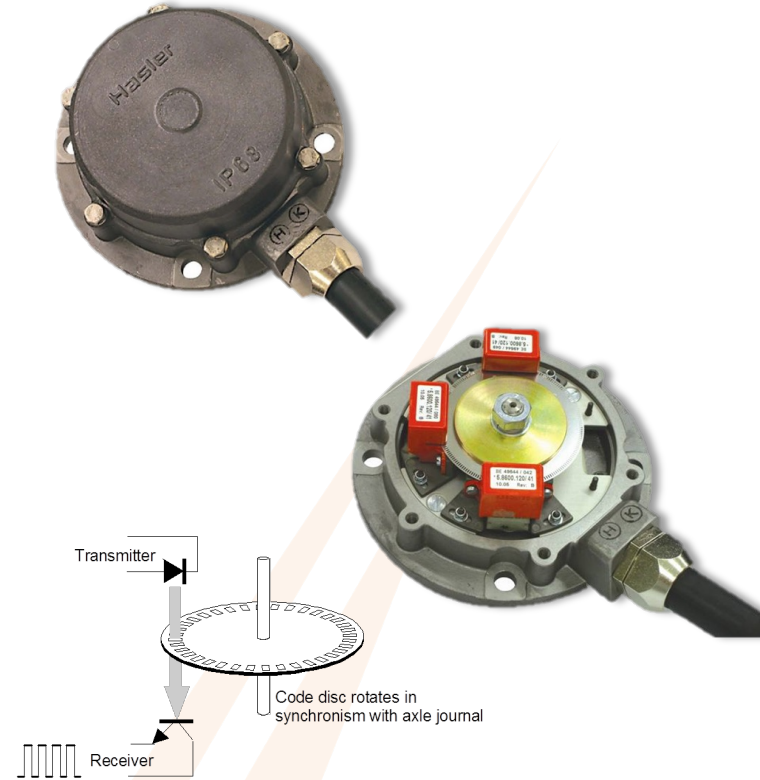
Wide choice of signal output characteristics, e.g. 12...24V voltage signal, 7-14mA current output, push-pull, 90°...120° phase shifts, etc.

Up to 6 galvanically isolated channels.

Reliable and worldwide proven in use since 1980

High resolution optical sensors with up to 400 pulses per revolution.

Robust mechanical design, tested beyond the EN 50155 standards.



ETCS JURIDICAL RECORDING UNITS (JRU)

ALSTOM

CAF

MERMEC
AN ANGEL COMPANY



BOMBARDIER

Hitachi Rail STS

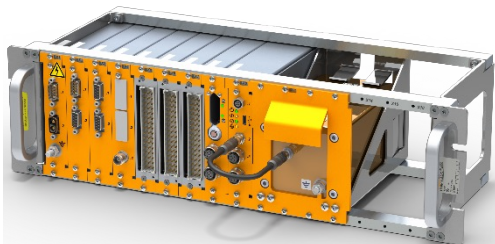
THALES

SIEMENS

HaslerRail works with all UNISIG members

Multi use unit approach for ETCS

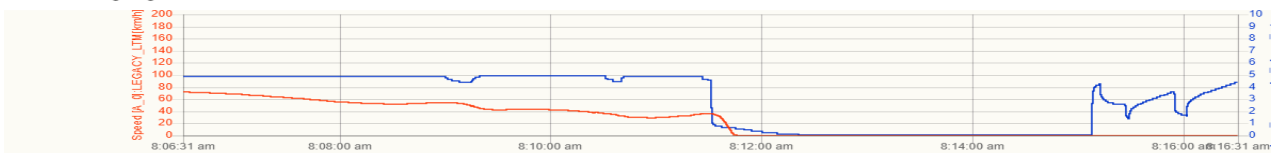
ETCS data JRU



National data
Maintenance data
Vehicle, train recordings

TELOC® – MULTI USE UNIT

Analog Signals



ETCS Signals

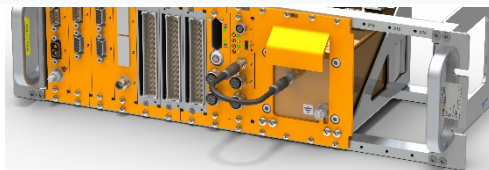
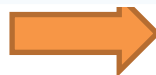


Digital Signals



ETCS Structure		
Property	Value	Val
EM_3	3	EMERG ORDER [
HEADER		10 fields
NID_MESSAGE	3	EMERG ORDER [
L_MESSAGE	70.0	70
DATE		3 fields
TIME		4 fields
TRAIN_POSITION		7 fields
Q_SCALE	1.0	1 [1]
NID_LRBG		2 fields
D_LRBG	17212.0	17212
Q_DIRLRBG	0	Reverse
Q_DLRBG	1	Nomina
L_DOUBTOVER	4313.0	4313
L_DOUBTUNDEI	4313.0	4313
V_TRAIN	35.0	35 [7]
NID_DRIVER	00000000000000000000	0000000
NID_ENGINE	101	101
M_LEVEL	1	Level ST by NID_L
M_MODE	13	STM Na
DATA	3	3
M_BRAKE_ORDER	1	Applicat

ETCS data JRU



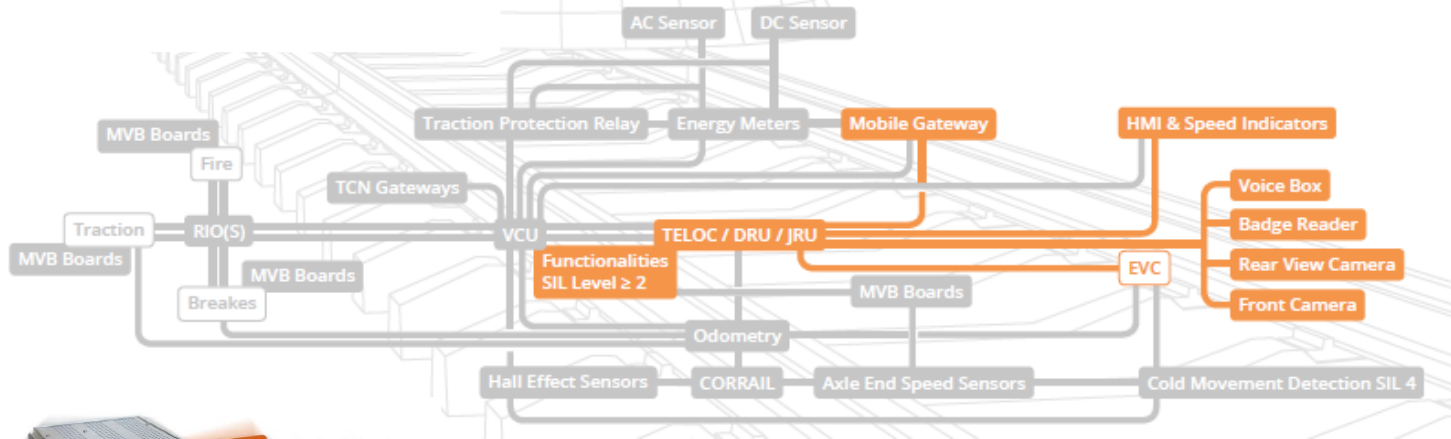
Maintenance data
Vehicle, train recordings



HASLERRAIL – GENERAL PRESENTATION

Data recording and safety

DATA RECORDING AND SAFETY



- ✓ **Founded in 1887**
- ✓ HaslerRail has always produced speed indication and data recording systems
- ✓ Data Recording is no longer only used for post incident/accident data analysis
- ✓ Now supports safety management during daily operations
- ✓ Now supports drivers and fleet management

TELOC®4000 – GENERAL OVERVIEW



Teloc 4000 targets is to increase performance and flexibility of the previous generation and enable the definition of customer oriented configuration in order to reduce the NCR.



Customer oriented configuration set doesn't only improve the price of the device but allows the reduction of risk of delivery delay by enabling a specific sourcing that in this moment is highly critical.



TELOC 4000 is the main output of a set of product that would be based on the "TELOC PLATFORM", future energy, TCMS and security product from HR will be all based on the design of this platform.



Mechanical flexibility of the TELOC 4000 helps the replacement of existing generation of TELOC that are about to be obsolete.



TELOC®4000 - 4 PRODUCT HIGHLIGHTS



NO BACKPLANE: The Teloc 4000 doesn't implement a backplane, internal communication and power-supply are supported with the ETHERCAT technology which enables major flexibility and reduce the risk of overheating that a backplane based product normally have.



EXTENDEBILITY: The Hardware structure of the TELOC 4000 allow to extend existing configuration by simply adding a box to an existing rack.



SECURE BY DESIGN: The T4000 is designed following the described by the IEC62443-4-1 and include a set of security feature that makes it the best in class EVR from the security perspective.



DATA AVAILIBLITY: The T4000 integrates a WiFi/LTE interface that allows automatic data transfer on the ground or on the cloud without the need of an external MCG.

TELOC PLATFORM: BL FUNCTIONAL EVOLUTION

B
L
1

- Railway power supply range
- Quad core CPU
- GW feature (MVB-CAN)
- Fieldbus communication (MVB, ETH, CAN, IBIS, RS485)
- Mobile communication (LTE, UMTS, GSM, WIFI)
- Geo localization (GPS, GLONASS, Galileo, Beidou)
- Vehicle configuration
- Maintenance/service interface
- Digital I/O
- Analog I/O
- Mixed Digital/Analog I/O
- Odometry function
- Programmable logic control
- Data extraction
- Threat detection (on EVA+)
- TPM
- SecLog
- Driver safety device
- Safe speed transmission

B
L
2

- Remote I/O control
- Customer development framework
- MCG feature set
- PLC integration for customer usage
- RADIUS compatibility
- Secure boot
- Roll protection
- Speed Threshold
- Speed comparison for speed indicator
- Zero speed detection
- Platform clearance zone

Regular feature
Security feature
Safety feature

TELOC®4000 – COMPARED TO TELOC®3000

Characteristics:

Higher modularity

TELOC®4000 has more flexibility with regards to Functions and Interfaces

Easier maintenance – e.g. battery replacement

Less weight

Non IEEE version – 10% less

IEEE 1482.1:2013 – 30% less

Smaller size – **depth 30mm less**

More mechanical freedom

Size grows with functions

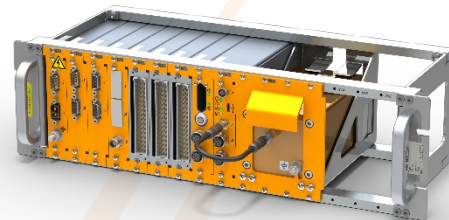
Enables customized housing

Additional options for mechanical integration

NEW TELOC® GENERATION

Ensures longer product availability

European (Non IEEE) version



IEEE 1482.1:2013 fully compliant version



CPM (CRASH PROTECTED MEMORY)



Two CPMs
to meet worldwide
requirements



CPM T3I 5.2621.032, ca.3.5 kg

Internal mounting

Complies with:

IEC 62625-1, 4.3.1.7 Table 1 A and B

GO/OTS 203, Part C

GM/RT 2472 Issue 1 and 2

IEEE Std. 1482.1 Part 4.5 – 1999

CPM T3E 5.2621.033, ca. 9 kg

External mounting

Complies with:

IEEE Std. 1482.1 Part 4.5 – 2013

FRA 49CFR229

Safety functions:

Dead man control – **up to SIL4**

Driver safety device (DSD), SIFA

Roll back protection – **up to SIL4**

Used for Mountain Railways, Metros

Speed level control – **up to SIL4**

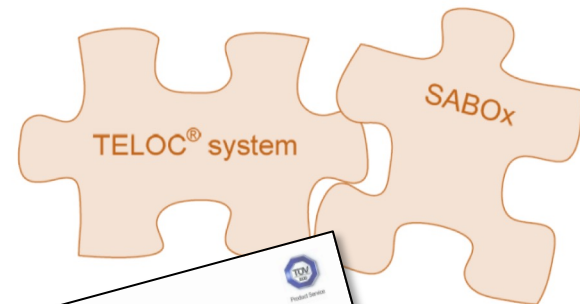
Overspeed detection

Zero speed detection – **up to SIL2**

Used for Metros (Door open)

Safe speed transmission – **up to SIL2**

Used for safe communication with other systems and others...





HASLERRAIL – GENERAL PRESENTATION

Conclusion

Marketing & Sales

Our **local sales team** are close to our customers to identify their needs and propose the **most valuable solutions** contributing to the success of their projects. Will an off-the-shelf solution not meet your requirements, we can come up with a **tailor-made** response.



Local Productions

In order to meet **specific market requirements**, and wherever possible, our local organization provides solutions and equipment with **local content integration**.



Engineering & Support

Our engineers and technicians provide our customers with a **strong support** and **dedicated services** throughout all equipment purchase and installation phases. It also includes **local engineering** for customized solutions.

Maintenance & After-Sales

Our qualified **local service point** supports our customers through the delivery of **original spare parts**, as well as the execution of **preventive maintenance and repair** of our equipment during its entire life time.

QUALITY APPROACH

- Customers needs are anticipated and addressed
- Quality management & strict application of working procedures
- Each single product is tested before leaving our Group factories
- Continuous increase of the added value of our products & solution through innovation
- Initiatives and sense of responsibility of our collaborators are encouraged
- Employees expertise level is constantly maintained and raised through continuous training
- Sécheron, HaslerRail and Pixy certified according to ISO/TS 22163, ISO 9001:2015 standards**

ENVIRONMENT, HEALTH & SAFETY

- Efficient system to manage Environment, Health & Safety (EHS) issues, based on **ISO14001:2015 & ISO 45001:2018**
- Limit the impact of our business on the environment
- Protect people against professional accidents and diseases
- Applicable to all employees and partners involved in our business
- Applicable to all activities including R&D, supply chain, production, after-sales service, etc.
- HaslerRail has received EcoVadis silver medal rating**

HUMAN RESOURCES

- Highly qualified and motivated employees are our greatest asset
- Stimulating and creative work environment
- Flat hierarchy, strong direct communication channels leading to quick decision process
- Strong sense of responsibility and entrepreneurial spirit of our employees contributing to the continuous raising of the company performances
- Ambitious growth targets and rewarding work environment to support employees personal development

OUR VALUES

- Hands-on, entrepreneurial and results-oriented**
- Commitment to excellence and quality**
- Empowerment of the individual for personal growth**
- High integrity, responsibility and respect for the individual**
- Sustainable development**

CUSTOMER CARE

Strong customer focus

Large worldwide sales & service network

Qualified and trained technical staff on site to assist quickly and efficiently our customers

Strong customer support during all projects phases and equipment service life

Long field experience and profound technical expertise to propose the most valuable technical solutions

Standard portfolio or customized solutions

OUR STRATEGIC PRIORITIES

Technological leadership of our solutions

Largest product ranges

Standard and customized solutions

Build long term relationships with our customers

Local market presence to support our customers

Highest quality and efficiency in the supply chain

In-house key capabilities to address our business



THANK YOU FOR YOUR ATTENTION

HASLERRail

 **PIXY**

Sécheron Hasler GROUP

Smart. Safe. Swiss.