

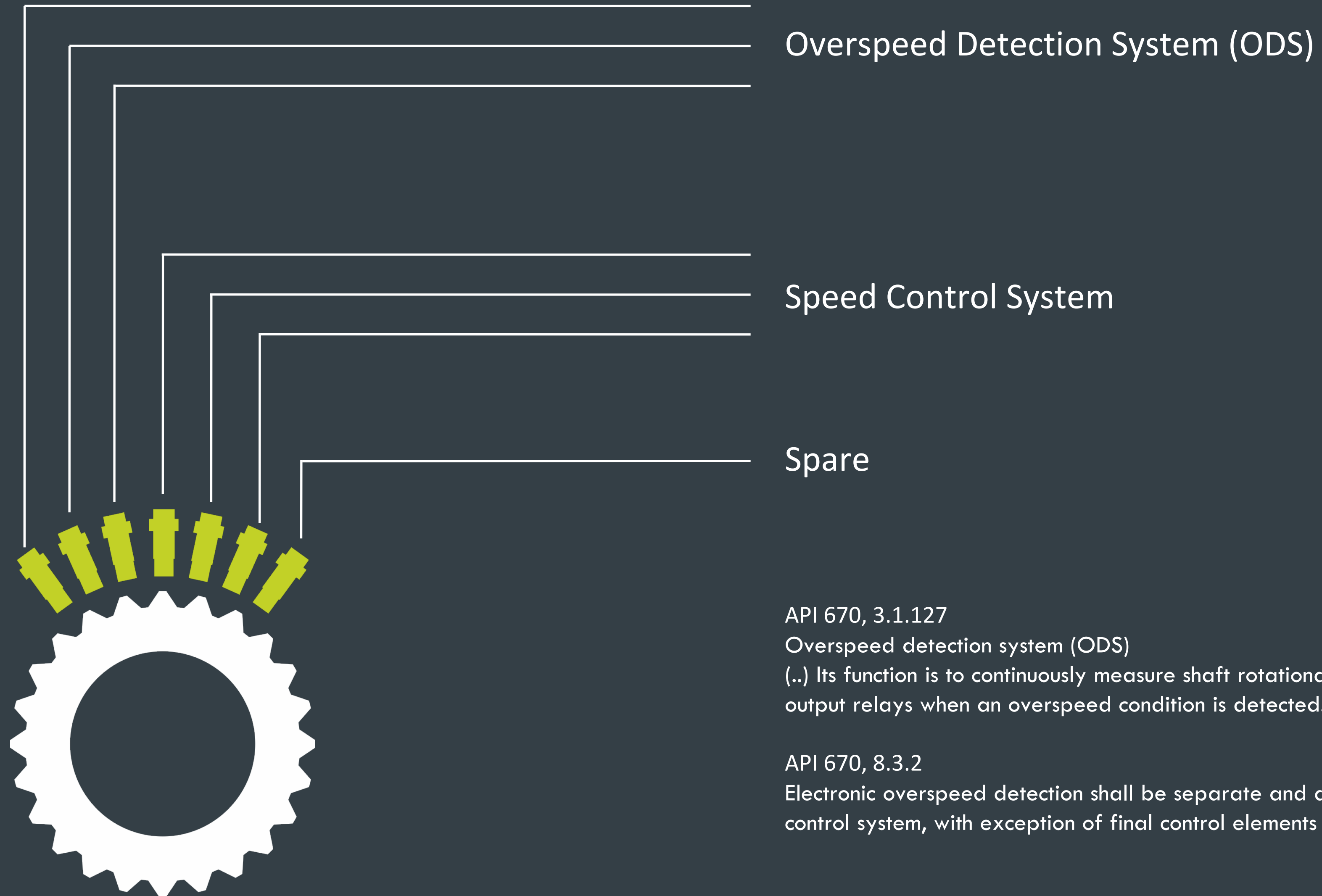
SPEED SYS300 ROADMAP AND SOLUTIONS

WOUTER VERSCHUREN - ISTE

Managing Director at Iste International B.V.

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ALL ROTATING EQUIPMENT AND TURBOMACHINERY
WITH A CERTAIN MASS AND ENERGY STORED IN ITS
MOVEMENT REQUIRES PROTECTION ON ITS
MECHANICAL BEHAVIOR



API 670, 3.1.127

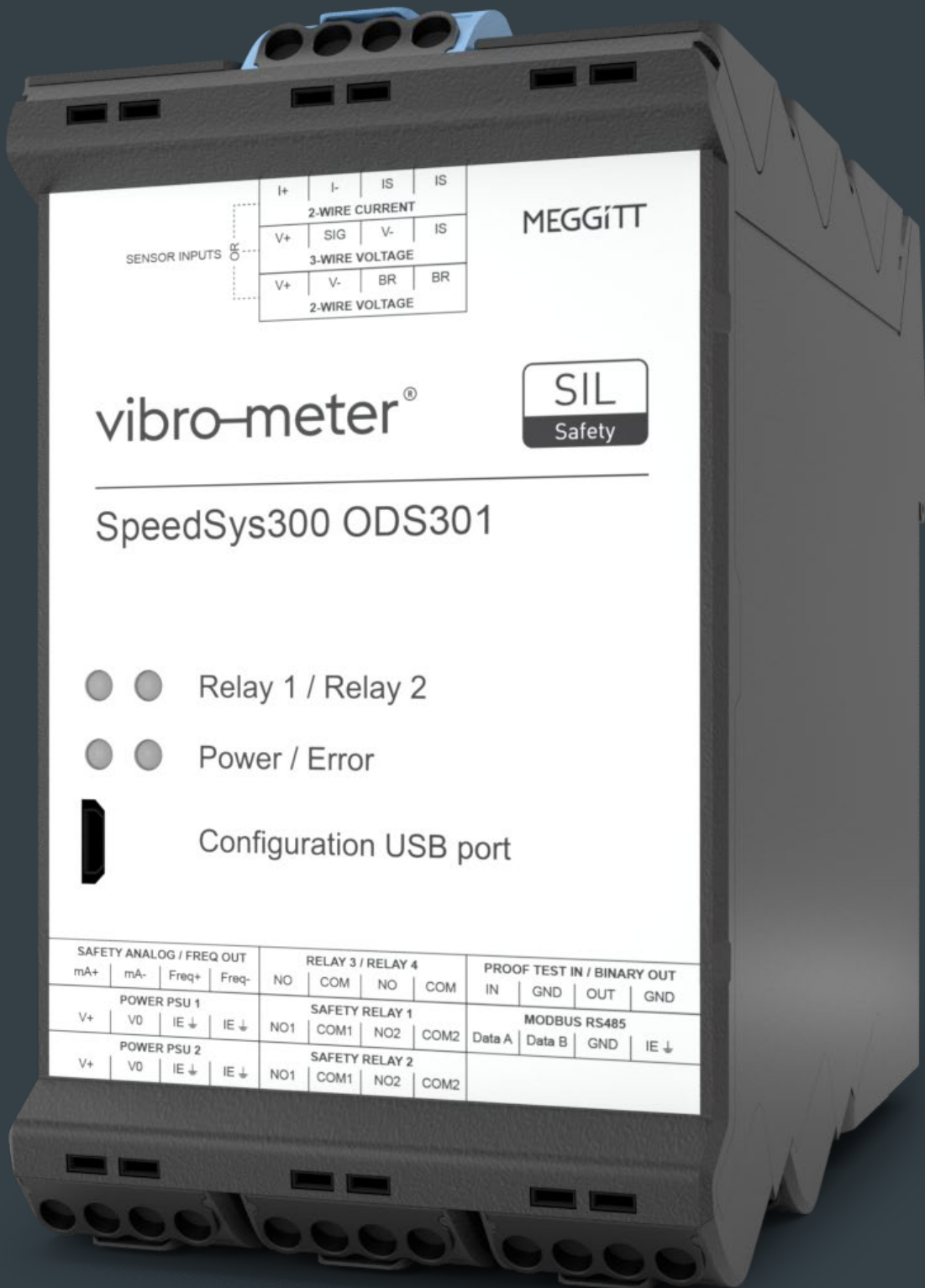
Overspeed detection system (ODS)

(..) Its function is to continuously measure shaft rotational speed and activate its output relays when an overspeed condition is detected.

API 670, 8.3.2

Electronic overspeed detection shall be separate and distinct from the speed control system, with exception of final control elements (..)

THE STORY OF SPEEDSYS 300



DEVELOPMENT MARKET REVIEW

DEVELOPMENT MARKET REVIEW

PLAYERS BEFORE US

REQUIREMENTS

CERTIFIED SAFETY

SIL INCREASING DEMAND FOR SIL EQUIPMENT WITH PROPER DESIGN CERTIFICATION

API 670 COMPLIANCE TO THE LATEST API 670 STANDARD

PROTECTION FLOW-DOWN

MORE MACHINES A WIDER ADAPTION OF FUNCTIONAL SAFETY (SIL) DRIVES THE DEMAND DOWN TO SMALLER AND DIFFERENT MACHINES

LEGACY FOOTPRINT

SHAPE AND SIZE ALL SUPPLIERS HAVE USED THEIR OWN SHAPES AND SIZES, WHICH NOW LIMITS THE SPACE IN RETROFIT PROJECTS

SENSOR INFRASTRUCTURE PASSIVE SPEED PICKUPS, HALL EFFECT OR EDDY CURRENT SENSOR TECHNOLOGY

OVERSPEED PROTECTION REDEFINED

OVERSPEED PROTECTION REDEFINED

TO INCREASE SAFETY, RELIABILITY AND COMPLIANCE TO
STANDARDS ON A GROWING RANGE OF MACHINES, BY
GOING BACK TO THE CORE OF FUNCTIONAL SAFETY AND
CREATING A SYSTEM THAT IS VERSATILE TO SCALE TO THE
APPLICATION.

MEET SPEEDSYS 300

THE CONCEPT

MEET SPEEDSYS 300

A SIL 3 RATED OVERSPEED DETECTION SYSTEM FOR ROTATING MACHINERY

MEET SPEEDSYS 300

TO DELIVER THE
CORE LAYER OF PROTECTION,
FUNDAMENTALLY SIMPLE AND ROBUST

MEET SPEEDSYS 300

COMPLIANT TO THE
LATEST SAFETY
STANDARDS

MEET SPEEDSYS 300

A SMALL TECHNICAL FOOTPRINT
ENABLES
LOW-IMPACT RETROFITTING

MEET SPEEDSYS 300

EXTENDING THE RANGE OF
MACHINERY WHICH CAN BE
PROTECTED

KEY DIFFERENTIATORS

KEY DIFFERENTIATORS

SAFETY BY DESIGN

VS
ADAPTED TO COMPLY

THE SIMPLE AND ROBUST DESIGN OF THE SPEEDSYS 300 MEETS THE LATEST SAFETY STANDARDS, AND FEATURES EASY MAINTENANCE AND LONG PROOF-TEST INTERVALS.

ANY CONFIGURATION

VS
PROPRIETARY INFRASTRUCTURES

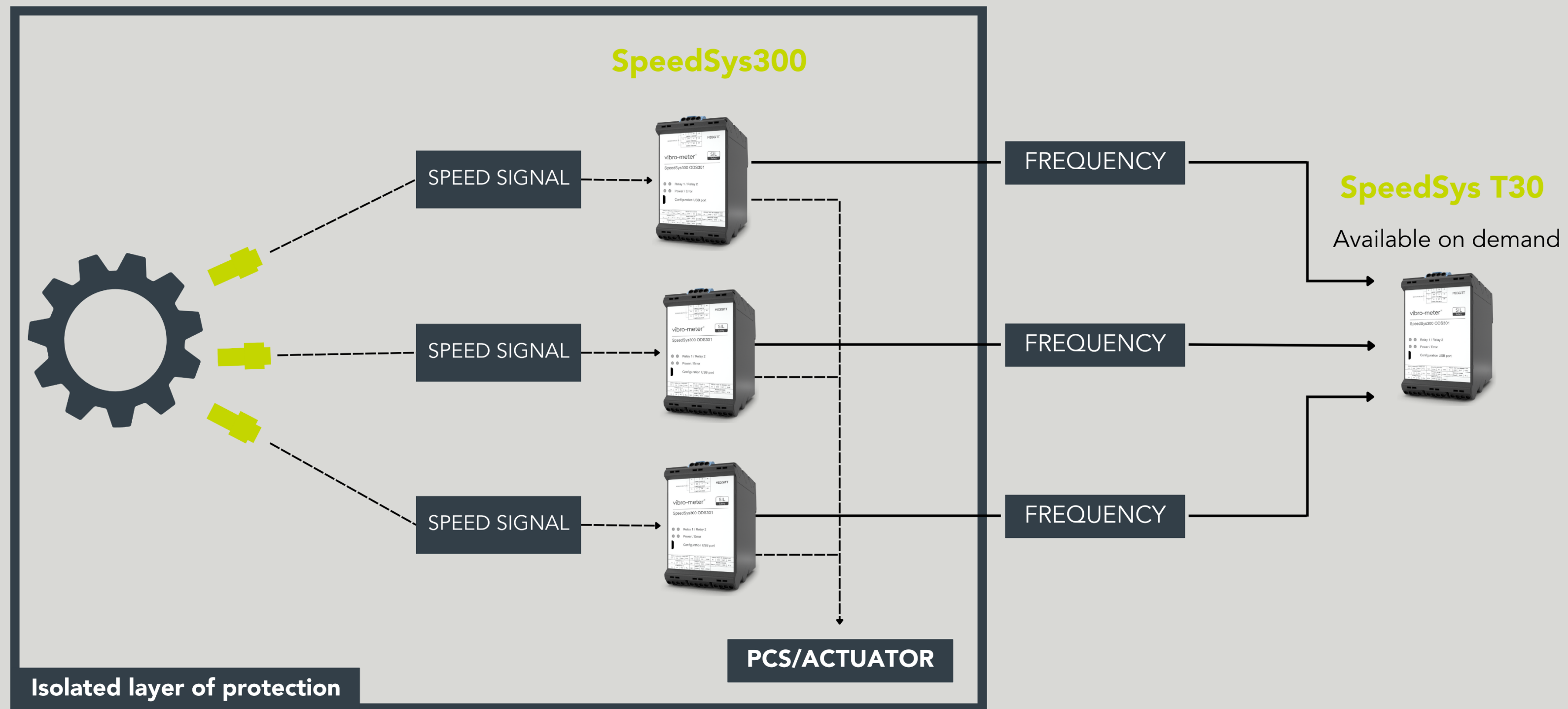
THE OVERSPEED PROTECTION SYSTEM IS COMPATIBLE WITH ALL SENSOR TYPES AND APPLICABLE IN ANY ENVIRONMENT, MAKING IT EASY TO INSTALL AND RETROFIT.

REVERSED SCALABILITY

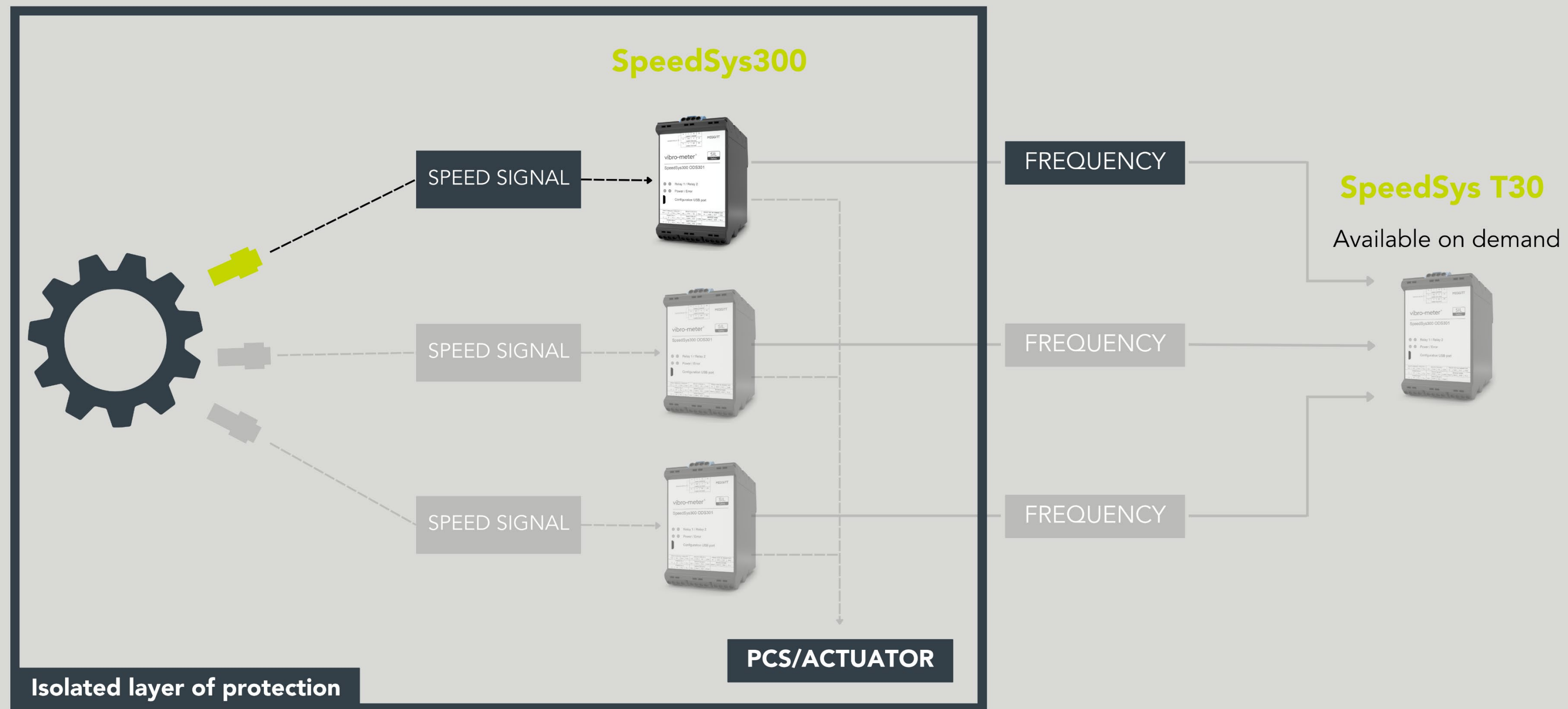
VS
FIXED, HEAVY FOOTPRINT

SPEEDSYS 300 IS DESIGNED FOR SIL3 APPLICATIONS, BUT CAN BE SCALED BACK TO ANY TYPE OF APPLICATION, FROM MULTI-MODULE VOTING STRUCTURES TO STAND-ALONE CONFIGURATIONS.

LAYOUT



LAYOUT



DESIGN CONSIDERATIONS

DESIGN CONSIDERATIONS

DYNAMIC MONITORING

MULTICHANNEL SENSOR INPUT COMPARISON

FEATURE IS USED BY TRADITIONAL 3-CHANNEL SYSTEMS TO VALIDATE SENSOR INPUTS. MIN 3 CHANNELS.

SPEEDSYS HAS DIFFERENT (CERTIFIED) SENSOR MONITORING TECHNOLOGY

INTERNAL VOTING

INTERNAL (SOFTWARE) VOTING OR VOTING MODULE

OVERSPEED VOTING NEEDS TO BE RELIABLE AND FAST IN VARIOUS CONFIGURATIONS.

SPEEDSYS HARD WIRED VOTING IS THE FASTEST AND MOST RELIABLE STRATEGY, THAT IS ALSO EASY TO MAINTAIN IN THE FIELD.

DISPLAYS

LOCAL VISUALIZATION

SPEEDSYS IS DESIGNED TO BE A SIMPLE, RELIABLE AND ROBUST PROTECTION SYSTEM.

THE ANALOG OUTPUT, FREQUENCY OUTPUT OR MODBUS INTERFACE ARE EASILY USED TO CONNECT EXTERNAL DISPLAYS FOR LOCAL READ-OUT

DESIGN CONSIDERATIONS

ONBOARD PROOF TEST TOOLS

VALIDATE YOUR SYSTEM AND TAILING EQUIPMENT

OTHER SYSTEMS MAY HAVE ONBOARD FREQUENCY GENERATORS OR EXTENSIVE PROOF TEST PROGRAMS TO VALIDATE FUNCTION AND PREVENT SIL DEGRADATION.

SPEEDSYS WAS DESIGNED FOR SIL AND DOESN'T NEED ANY TOOLS TO REACH ITS 10 YEARS+ PROOF TEST INTERVAL. THE DIGITAL INTERFACE CAN BE USED TO TEST TAILING EQUIPMENT

ADAPTIVE TRIGGERING

AUTO-TRIGGERING TO PASSIVE SENSORS

ADAPTIVE TRIGGERING CREATES AN UNKNOWN FACTOR IN THE PROGRAMMING AND MAY RESULT IN UNPREDICTABLE BEHAVIOUR OF THE PRODUCT

THE FIXED TRIGGER IS EASY TO SET AND AVOIDS THE CREATION OF UNKNOWN FACTORS IN THE PROGRAMMING

SPEED MONITORING FUNCTIONS

STANDSTILL, CREEP, REVERSE ROTATION

SPEEDSYS IS DESIGNED AS THE ULTIMATE LAYER OF PROTECTION. ROBUST, RELIABLE, SIMPLE.

MONITORING AND CONTROL FUNCTIONS LIKE STANDSTILL, CREEP OR REVERSE ROTATING CAN BE ADDED THROUGH A SEPARATE MONITORING MODULE OR PROGRAMMED IN THE CONTROL SYSTEM



MEGGITT

Enabling the Extraordinary
To Fly To Power To Live

DESIGN CONSIDERATIONS

DYNAMIC
MONITORING

INTERNAL
VOTING

DISPLAYS

ONBOARD
PROOF TEST
TOOLS

ADAPTIVE
TRIGGERING

SPEED
MONITORING
FUNCTIONS

THE MARKET OPPORTUNITY

THE MARKET OPPORTUNITY

HIGH SEGMENT

Steam turbine, large gas turbine

3-CHANNEL SYSTEMS

Competition: Advanced, rack based systems
Offer: 3x SpeedSys
(optional) + rack + monitor + display

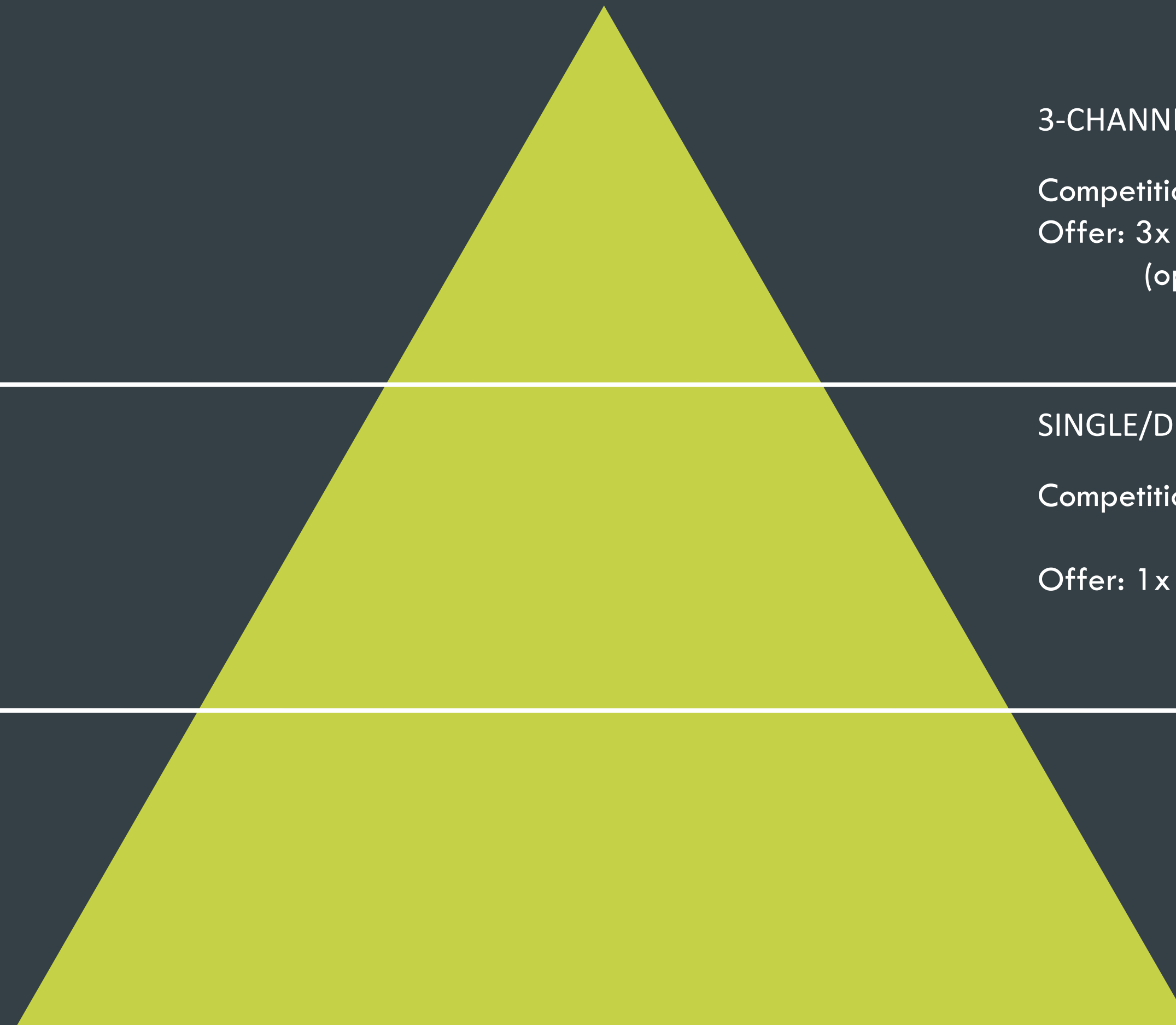
MID SEGMENT

Aeroderivative, microturbine,
hydro turbine, compressor,
general purpose turbine

SINGLE/DUAL CHANNEL SYSTEMS

Competition: Tachometers, switches,
mechanical systems
Offer: 1 x or 2x SpeedSys on DIN-rail

LOW SEGMENT





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THE MARKET OPPORTUNITY

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LOW SEGMENT

**SPEEDSYS
SWEET SPOT**

PARALLELS

VIBRATION

VM600^{MK2}

Advanced, rack based solution

VibroSmart VSV301

Versatile, distributed solution

LOW SEGMENT

SPEED

3-CHANNEL SPEEDSYS 300

Parallel: High end protection system
Offer: 3x SpeedSys
(optional) + rack + monitor + display

SINGLE/DUAL CHANNEL SPEEDSYS 300

Parallel: Versatile, scalable protection
Offer: 1x or 2x SpeedSys on DIN-rail

**SPEEDSYS
SWEET SPOT**

WHO IS BUYING?

WHO IS BUYING?

TURBINE MANUFACTURERS

RECENT PRODUCT, CERTIFIED TO THE LATEST STANDARDS ; SMALL FOOTPRINT, EASY TO INTEGRATE ; EASY RETROFIT, PERFECT FOR LEGACY SUPPORT

TURBINE MAINTENANCE / RETROFIT SERVICE SUPPLIERS

EASY RETROFIT ; SUITABLE FOR SINGLE OR DUAL CHANNEL ; 1 PRODUCT FITS ALL

END USERS

EASY RETROFIT ; WORKS WITH EXISTING SENSOR INFRASTRUCTURE ; FITS IN EVERY CABINET ; 1 PRODUCT, 1 SOFTWARE, 1 PROCEDURE FOR ENTIRE PLANT

MARKET CONDITION

MARKET CONDITION

SEVERAL KEY PLAYERS HAVE
REACHED OBSOLESCENCE WITHOUT
SUCCESSOR

SPEEDSYS WAS RELEASED IN 2021 AND IS IN
AN ACTIVE LIFE PHASE

INCREASING DEMAND FOR
COMPLIANT (SIL, API) PRODUCTS

SPEEDSYS MEETS THE LATEST STANDARDS

GENERAL LACK OF INNOVATION IN
THIS NICHE

SPEEDSYS MIGHT BE PIONEERING WITH ITS
CONCEPT, BUT WE ADDRESS THE SHIFTING
MARKET REQUIREMENTS

5 REASONS WHY

5 REASONS WHY

1

SAME CUSTOMERS

2

COMPLETE PROTECTION
ON MECHANICAL
BEHAVIOUR

3

CLEAR PRODUCT

4

FRESH
PROPOSITION

5

THE MARKET IS
OPEN

RACK BASED SYSTEM

RACK BASED SYSTEM



COVER NEEDS BEYOND PROTECTION

- HIGHLY CUSTOMIZABLE
- 19 INCH RACK TO BE MOUNTED IN SAME CABINET THAT VIBRATION PROTECTION AND MONITORING
- BRINGS MONITORING FEATURES LIKE REVERSE ROTATION, STANDSTILL, CREEP
- HIGHLY CONFIGURABLE VOTING LOGIC
- OPTIONAL DISPLAY, REDUNDANT POWER SUPPLIES

BUSINESS CASE UNRAVELED

BUSINESS CASE UNRAVELED

PROJECT INFO

CUSTOMER

Thyssengas GmbH (Germany)

INDUSTRY

Gas transmission station

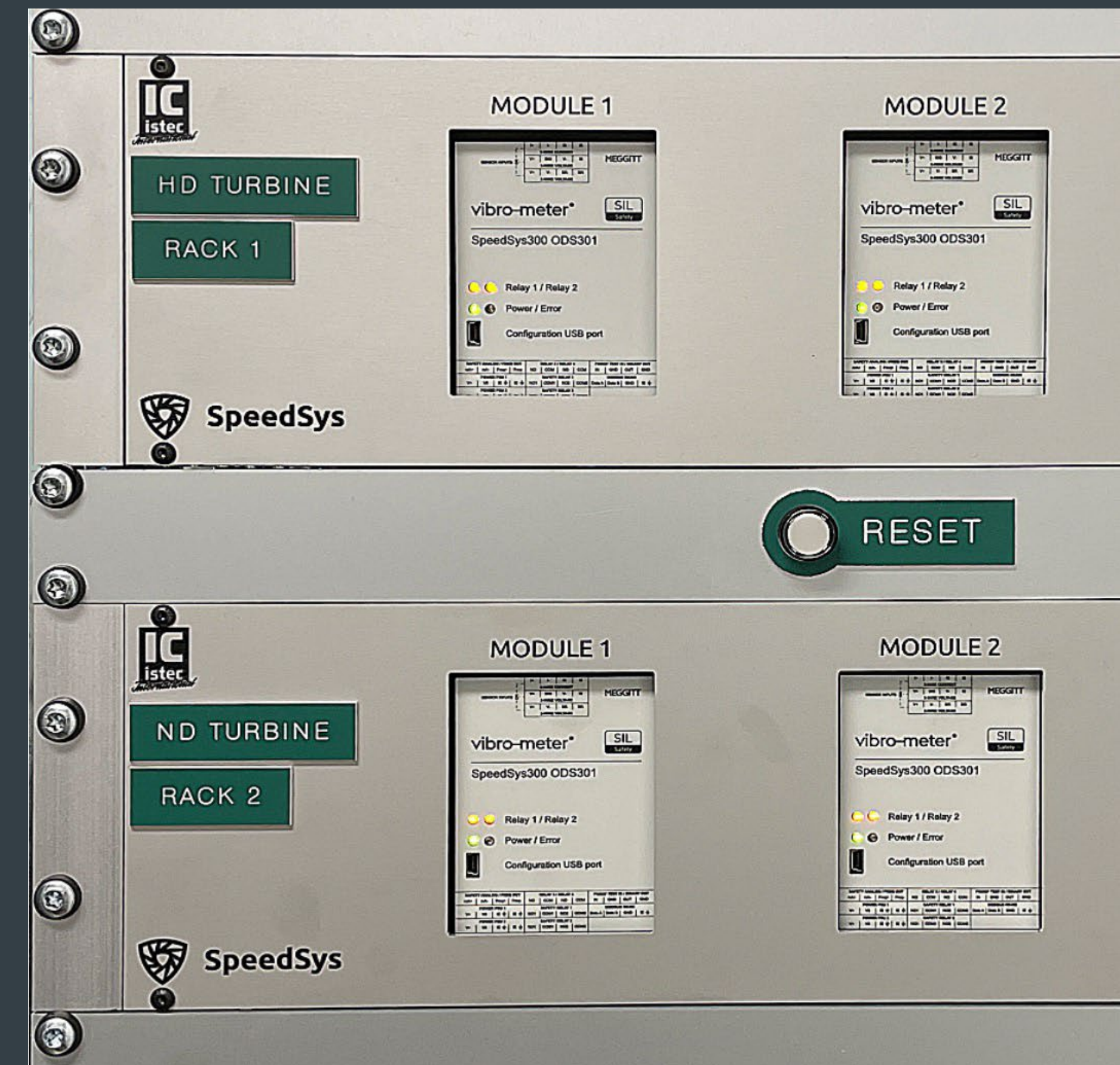
APPLICATION

Gascompressor

SCOPE

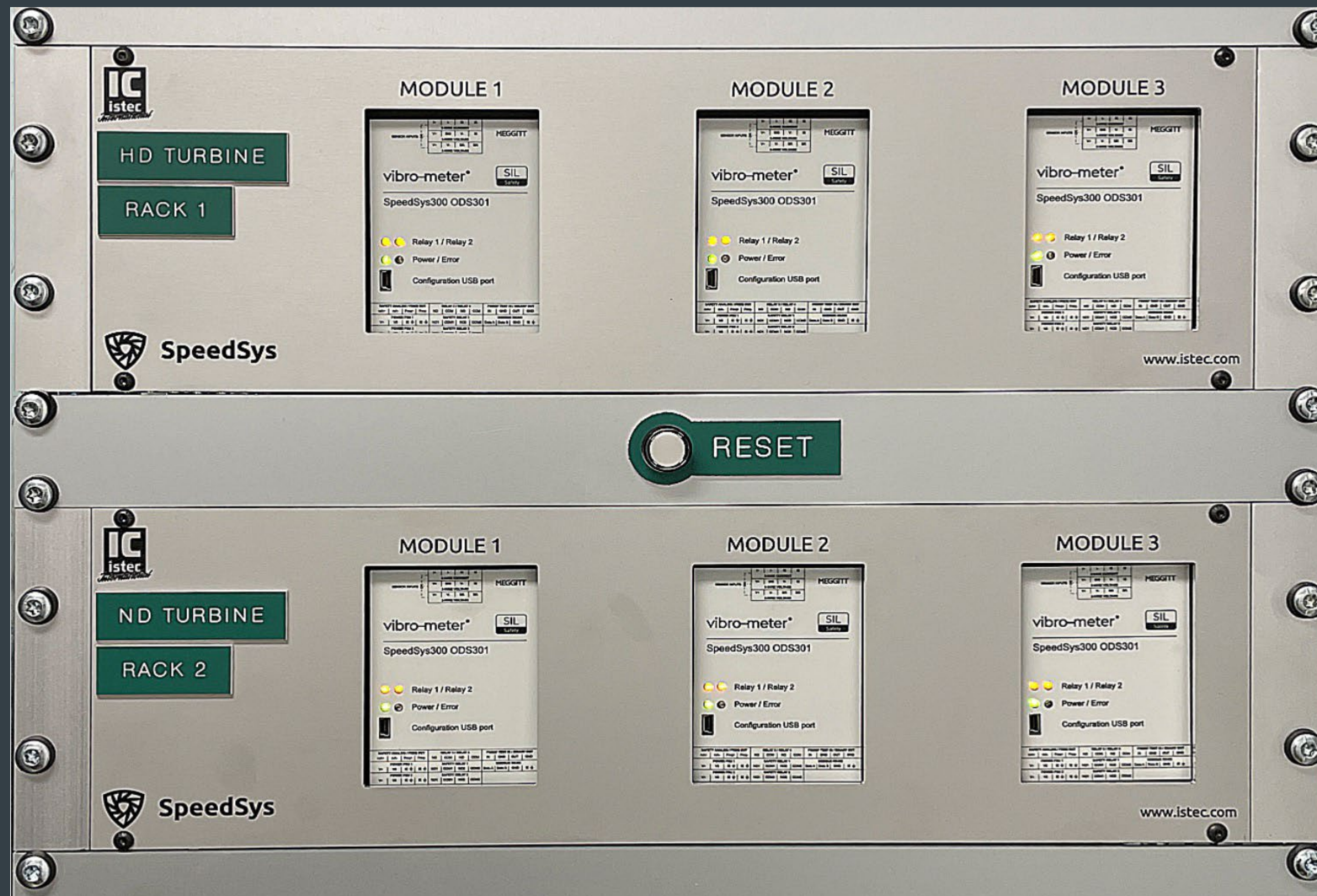
- Retrofit of 2x FT3000 overspeed protection system
- New system must fit with the existing infrastructures
- Turn key delivery

SPEEDSYS RACK FROM ISTECH



BUSINESS CASE UNRAVELED

SPEEDSYS RACK FROM ISTECH



SCOPE OF SUPPLY

HARDWARE

- 7x SpeedSys 300 (6+1 spare)
- 2x 19" rack frame with power supply

SERVICE

- 1x Desk engineering
- 2x Commissioning service, day + travel
- 1x Commissioning & proof test report

NOT IN SCOPE

- Sensors, field wiring, displays

BUSINESS CASE UNRAVELED

SCOPE OF SUPPLY

HARDWARE

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NOT IN SCOPE

Sensors, field wiring, displays

CALCULATION

ITEM COST

- 3 690
- 3 400

- 2 200
- 1785
- 450

TOTAL

- 25 830
- 6 800

- 2 200
- 3570
- 450

38 850

< 20 K / system
turn key

ADDED VALUE

- 1 day retrofit with 2 engineers
- 19” identical form / fit; no rework on cabinet
- Use of existing sensor infrastructure
- No longer need for intermittent proof testing
- Only 1 spare part

NEW GENERATION

OVERSPEED PROTECTION

