

SMARTIO®

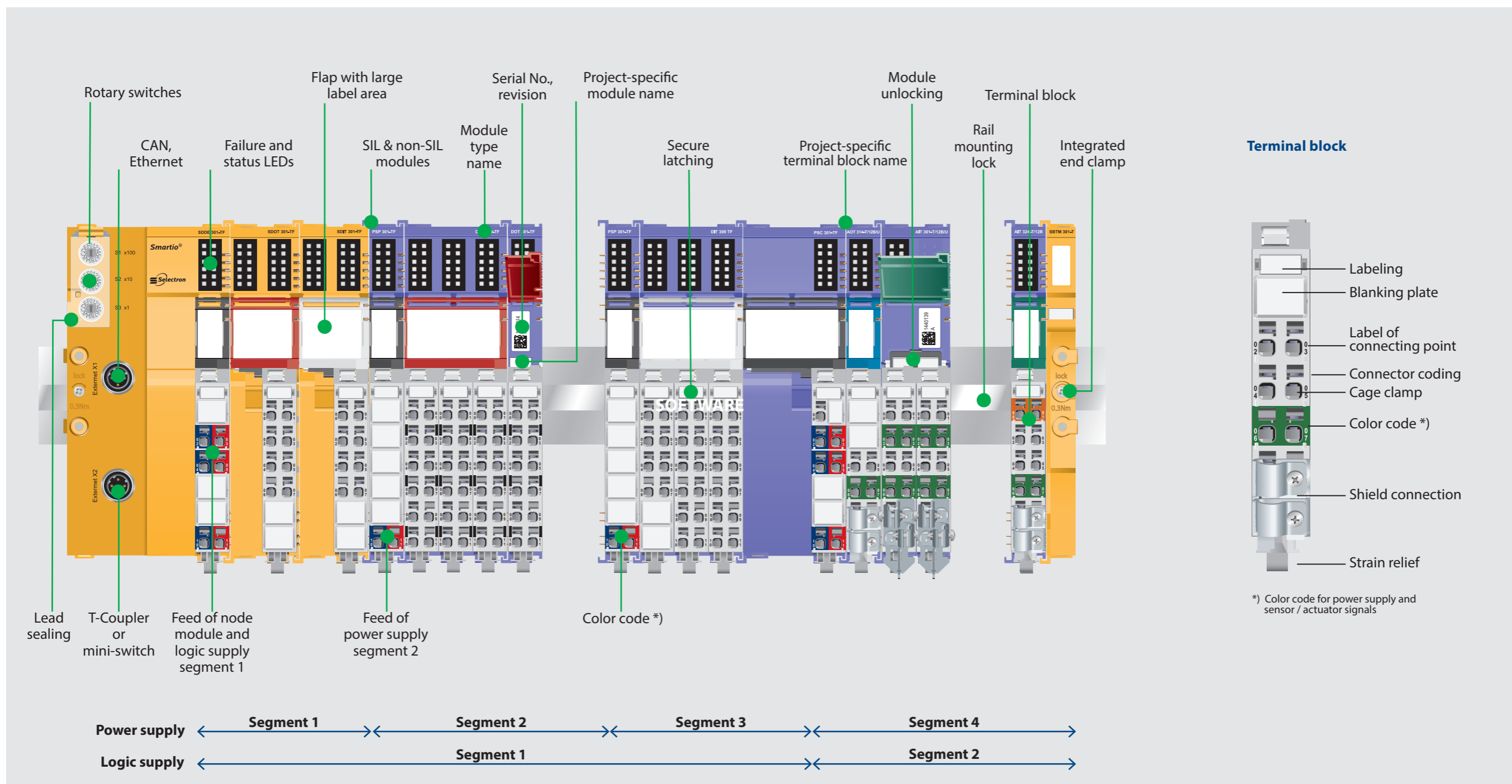
THE INNOVATIVE NEW REMOTE I/O SYSTEM
FOR RAILWAY APPLICATIONS



SELECTRON

Smartio®: The Smart Remote I/O System

Save on both wiring and space Streamline connectivity with flexibly-tailored I/Os



“Decentralized remote I/Os in SIL and non-SIL versions at any suitable mounting location”

Less terminal strips, modular design easy installation, wiring and diagnostics, with a clear and distinct structure ... are just some of the benefits

- Easy integration of safety-oriented signals via I/O-modules' mixed mode (SIL/non-SIL)
- Thanks to the various granularities of I/O modules, flexible, tailor-made system extensions are possible – resulting in space-saving application islands
- The standalone mounting position enables installation under seats, door jambs, roof spaces, etc.
- Various signal conditioning, such as digital and analog inputs and outputs
- Terminals for connecting both sensors and actuators and processing electronics are contained within one housing – a reduction on conventional terminal strips
- Fewer terminal blocks mean simplification of circuit diagrams and less potential for errors
- Flexible, application-specific sensor/actuator wiring for 1-wire, 2-wire, and 3-wire technology
- Efficient monitoring and status indicators help commissioning and troubleshooting
- Connector-coding reduces mounting errors
- Large labeling areas, for the unique assignment of modules to a function, helps provide an overview
- Front-facing module labeling, with serial number and revision status, speeds up possible module replacement
- Vehicle bus nodes of varying types are easily integrated, such as Ethernet, CANopen
- Pre-assembled units

Standards

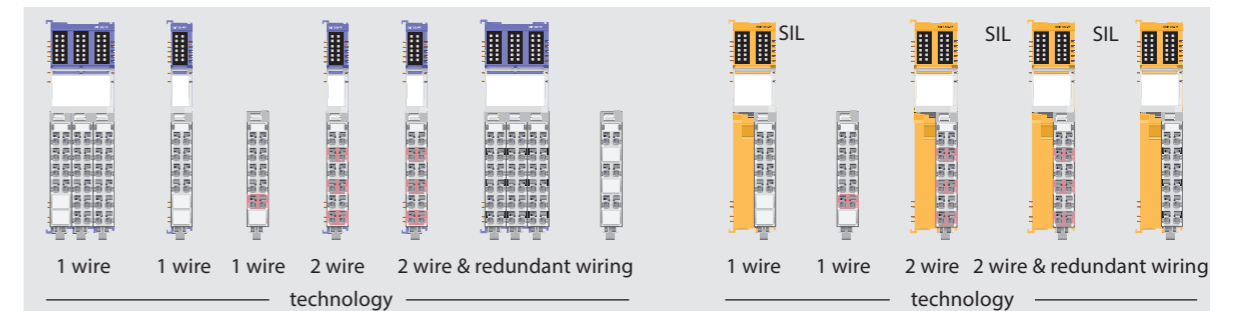
- EN 50155, UL, EN 50128, EN 50129

Technical data

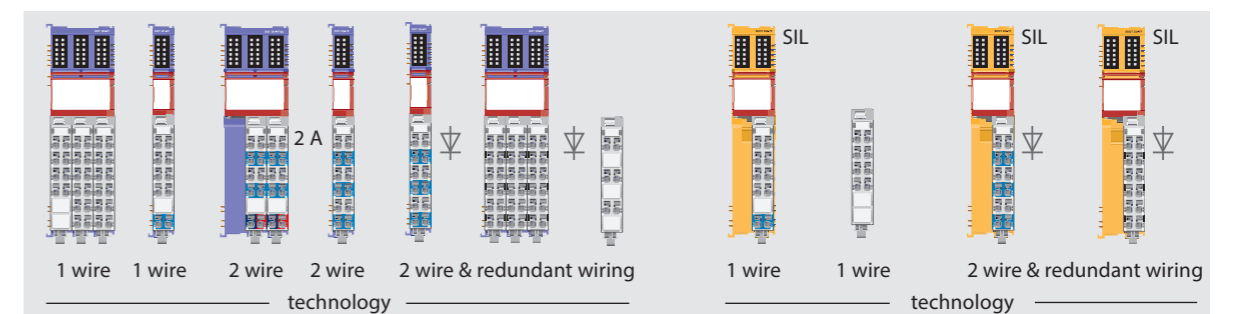
- Node module: Ethernet, CANopen
- Cage clamp connections
- 1-wire, 2-wire SIL/non-SIL, 3-wire connection
- Redundant wiring concept
- Power supply: 24 VDC
- Temperature range: Class Tx –40 °C ... 70 °C
- Max. total current per segment: 8 A
- Dimensions: H=142 mm, D=70/90 mm, W=14/28/42/67 mm



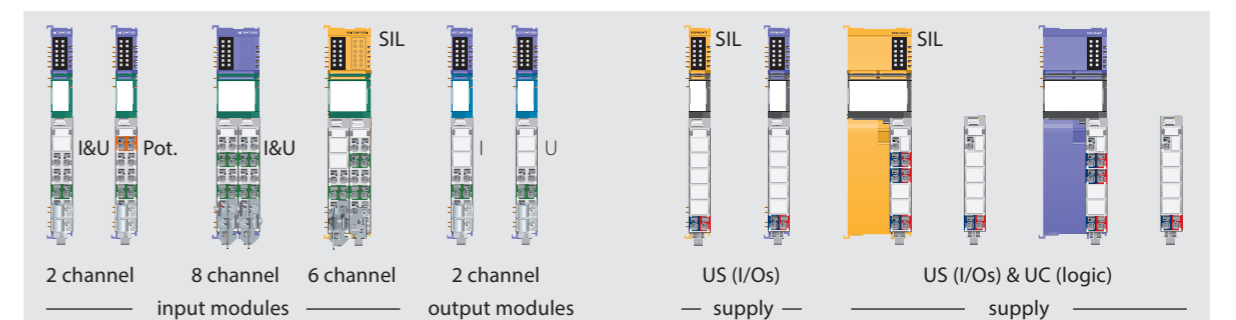
Digital input modules



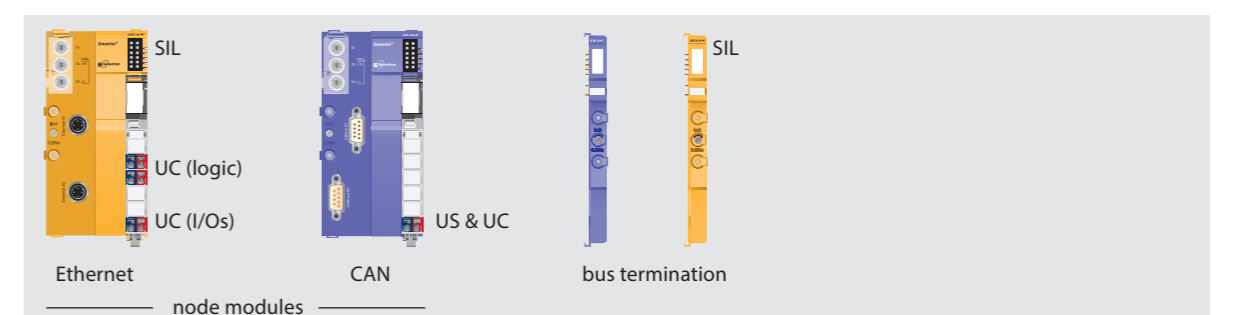
Digital output modules



Analog modules



Node modules and bus termination modules



Connection and Wiring Technology

1-Wire Technology

The Classic Way of Wiring in Control Cabinets

Inputs (8):

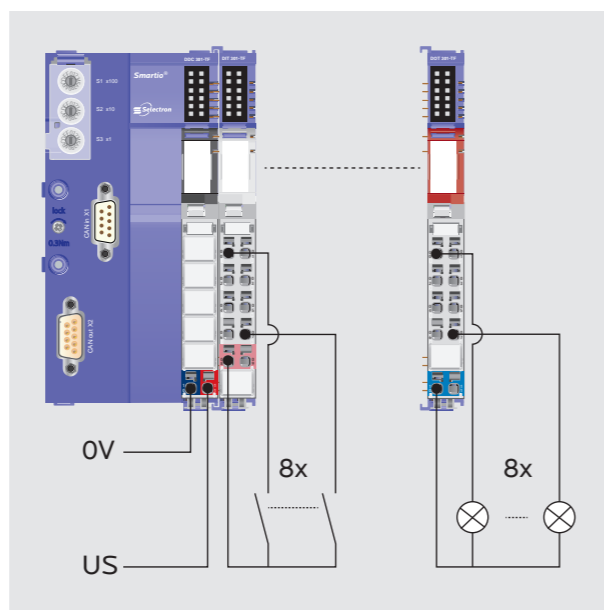
- Common pickup of +24 V DC from terminal block
- Connection of the switch contact on terminal block of the module

Outputs (8):

- Connection of the module outputs to indicator lights, relays, etc.
- Common pickup of 0V from terminal block

Advantages/Benefits:

- Space-saving design
- High granularity



2-Wire Technology

Direct Connection of 2-Wire Cables

Inputs (6):

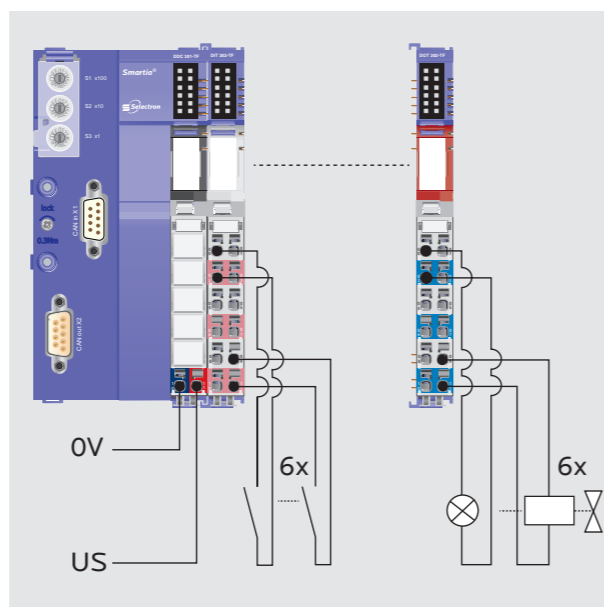
- Direct connection of cables from mechanical limit switches, etc.
- Strain relief integrated on the terminal block

Outputs (6):

- Direct connection of cables from fitted indicator lights, valves, etc.
- Strain relief integrated on the terminal block

Advantages/Benefits:

- Saving of the terminal strip between sensors/actuators and PLC
- Reduction of the wiring costs
- Tailored to fit the number of inputs and outputs
- Color-coding of signals
- Color-coding of signals



Safety Technology

Direct Connectivity of Safety-oriented Sensors and Actuators

Inputs (8/6*):

- Single-wire or direct connection of cables from mechanical limit switches, etc.
- Strain relief handled by the terminal block

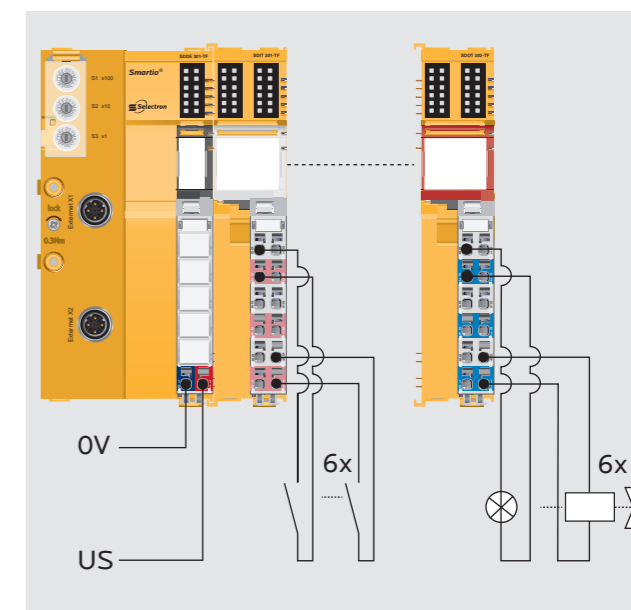
Outputs (8/6*):

- Single-wire or direct connection of cables from indicator lights, valves, etc.
- Strain relief integrated on the terminal block

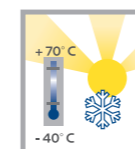
Advantages/Benefits:

- Direct wiring of safety-related sensors and actuators
- Short circuit and broken wire detection
- Special modules for cross-circuit detection
- Saving of the terminal strip between sensors/actuators and PLC
- Reduction of the wiring costs
- Tailored to fit the number of inputs and outputs
- Color-coding of signals

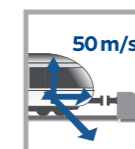
* 8 for single-wire and 6 for two-wire technology



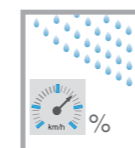
Standards: All Modules according to EN 50155



Ambient temperature
Class Tx: -40 °C ... +70 °C



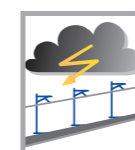
Vibration and shock
Installation in racks and housings, inside the vehicle or undercarriage, values 0.3 kg ... 30 kg



Relative humidity
Annual average ≤ 75%
On 30 days per year 95%



Long-term availability
Available for 20 years from market release, then repairable or replaceable for a further 10 years



EMC
EMC measures according to EN 50121-3-2



Fire protection
EN 45545

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