

# ITEM OPPORTUNITY SYNOPSIS

**Name of the item to be scouted:** Turnout System including Derailer

**State item to be used in:** Nevada

## **Describe the Item:**

**Please describe the item application/the end use of item.** Turnout System including Derailer as an integral part of the Signaling System. For further description please see attachment. Please note that the equipment will be installed and shall be delivered to California and Nevada.

## **Supplier Information:**

**Type of Supplier being sought (select from list below)**

**Manufacturer**

Contract Manufacturer

Distributor

Other (please specify)

**Reason for scouting submission (select from list below)**

2<sup>nd</sup> Supplier

Price

Re-Shore

Past supplier no longer available

New Product Startup

**BABA**

Other (please specify)

## **Summary of Technical Specifications and Performance Requirements:**

**Describe the manufacturing processes (elaborate to provide as much detail as possible).** Please see attachment.

**Provide dimensions / size / tolerances / performance specifications of the item.** Please see attachment.

List required materials needed to make the product, including materials of product components, if applicable. Please see attachment.

Are there applicable certification requirements?

Yes

No

Please Explain: Please see attachment.

Are there any applicable regulations that apply to the production of this item?

Yes

No

Please Explain: Please see attachment.

Are there any other standards, requirements?

Yes

No

Please Explain: Please see attachment.

**Additional Comments:**

Additional technical comments: Please see attachment.

**Volume and Pricing:**

Estimated Potential Business Volume (i.e. #Units per day, month, year): Please see attachment.

Estimated Target Price / Unit Cost Information: Target Price to be determined upon further analysis and review with possible manufacturer.

**Delivery Requirements:**

When is it needed by? (Immediate, 30 days, 6 months, etc) Please see attachment.

Describe packaging requirements (i.e., individually/ group packaging). Please see attachment.

Where will this item be shipped? Nevada and California site

**Information for the National Institute of Standards and Technology – Manufacturing Extension Partnership (NIST-MEP) scouting**

Wayside equipment for Signaling Applications  
with operational speed up to 220 mph

# 1 Euroloop

The Euroloop will be used in the Siemens signaling system for the transmission of ETCS data from track to train, supporting the operational top speed of up to 220mph.

The transmitted signal lies within a frequency range of 11.1 to 16 MHz and conforms to the relevant CEPT Recommendation and to the essential requirements of the RED Directive 2014/53/EU. 1

The output signal is compliant to FFFIS for Euroloop Subset 044 [FFFIS\_EL].

The Euroloop system consists of the Euroloop leaky Cable and accessories.

## 1.1 Euroloop leaky cable



### Key-points

- Transmission in frequency bands: up to 16 MHz
- Radiating characteristic practically insensitive to environmental conditions
- Very strong construction
- Conform to standard:
  - IEC 60754-1 (without halogen)
  - IEC 60754-2 (no corrosive gas emission)

Further specifications can be found in the UNISIG Specification Subset-044.

### Characteristics

- Outer cable diameter 15.4 mm
- Coefficient of thermal expansion
  - Theoretical estimation  $38 \cdot 10^{-6} \text{ } ^\circ\text{C}^{-1}$
- Lifetime > 20 years
- Weather-resistance
- Protection against rodents

## 1.2 Accessories

Accessories for the Euroloop system consist of components like cable terminations, plugs, jumper cables, bypass cables, connectors, housings, interconnection cables, ferrites, cable guides, clamps, pipes, tubes, fittings etc. as required for the installation and adaptation to the specific application cases.

## 1.3 Scope and delivery dates

The scope includes Euroloop cables of approx. 60 km. The delivery date, ex-works is scheduled for August 2025.

## 2 Eurobalise

The Eurobalise is used in the Eurobalise transmission system as lineside transponders for transmitting data from track to the train in line with the European Eurobalise Specification /SUBSET-036/.



The balise uses the magnetic transponder technology. Power is supplied and data is transmitted via a vertical magnetic field at different frequencies.

The Eurobalise implements the following options from /SUBSET-036/:

- balise type: reduced size balise
- debris: Class B
- programming: via the air gap
- balise generates blocking signal on interface C to the LEU (can be switched off)
- cable lengths of up to 5000 m are permissible for interface C
- installation on metal sleepers permitted

The Eurobalise shall be a SIL 4 component in accordance with EN 50129. In balise groups, they comply with the ETCS safety requirements for the hazards “deletion” and “crosstalk” in line with /SUBSET-091/ and /SUBSET-036/, if the application rules in Section 5.1 are observed.

The Eurobalises fulfill the requirements of a non-trusted channel in line with EN 50129.

IP rating of housing: IP 67, in line with EN 60529

### Special requirements

Due to the required sensitivity under various environmental conditions, special manufacturing processes (e.g. special foaming technologies), machines and tools are required.

The balises consist of several components, electronics in a housing. The balise is mounted on the track and is therefore subject to strong mechanical forces, which must not leave any damage to the detection units for decades under any climatic conditions.

The electronic transmitter and receiver units are subject to extremely tight tolerances and must be manufactured with highest precision.

The components are also subject to as tight tolerances. The manufacturing process requires corresponding precisely manufactured injection molds, and the housings must be carefully post-processed so that the form required to fix the transmitter and receiver units reliably connects with the housing parts.

The form compound itself must be introduced into the balise housing in a complex process using a special, high-precision injection molding machine in such a way that all components are reliably fixed, and the dimensions of the housings do not change.

Further specifications can be found in the UNISIG Specification, e.g. but not limited to:

- the Fixed-Data Balise corresponds to the "Fixed Balise" in line with /SUBSET-036/
- the Transparent-Data Balise corresponds to the "Controlled Balise" in line with /SUBSET-036/

## **2.1 Accessories**

Accessories for the Eurobalise consist of components like cable terminations, fastenings, plugs, and other equipment as required in the specific application.

## **2.2 Scope and delivery dates**

The scope includes

- fixed Eurobalise: ~580
- transparent Balise: ~220

The delivery dates, ex-works is scheduled for August 2025.