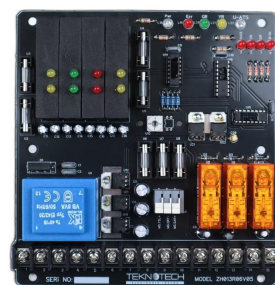




VERSION 0.4



VERSION 0.5

INTERFACE CONTROL CARD

ATS Magnet Interface Control Board

The Automatic Train Stop (ATS) system is an automatic train speed control system developed to ensure safe train operations on the railway. The system warns the driver in accordance with railway signaling aspects and, when necessary, controls the train's speed to initiate braking. In this way, as an integral and complementary component of the railway signaling system, it makes a significant contribution to the safety of traffic flow along the line.

The system aims to minimize potential errors that may arise from human factors. The operating principle of the developed ATS magnet interface control board is to receive the necessary information directly from the signal lamps and transmit it to the trackside ATS magnets, without requiring any additional command from the interlocking system. The system operates on a fail-safe principle and is designed to stop the train even in the simplest fault condition.

The ATS magnet interface control board is connected in series with each signal lamp, sensing the current drawn by the lamp to obtain information about the signal aspect. This system enhances the reliability and effectiveness of the signaling system while also simplifying maintenance and installation processes.



Technical Specifications

- The ATS magnet interface control boards do not in any way interfere with the operating functions of the signal lamp while receiving data from it. As a result, they operate in full compatibility with the existing system without causing any interruptions or performance degradation in signaling processes.
- The ATS magnet interface control board requires a 230V AC supply voltage for operation. This value can be modified if desired.
- Compatible with systems using signal lamps operating between 12 V and 230 V.
- The board's inputs and outputs are protected against overcurrent.
- In the event of a signal lamp failing to light due to a malfunction, the ATS magnet interface control board will interpret the signal aspect as red and stop the train accordingly.
- A single program supports operation for entrance, exit, block, and dwarf signals across all available options.
- These options can be selected via the onboard switch, and an LED indication is provided to show which option the board is operating in.
- The ATS magnet interface control board is designed to be easily connected to both types of trackside magnets (standard and integrated).

Product Codes

CODE	VERSION
INF-26-04	0.4
INF-26-05	0.5
INF-26-10	1.0 (TÜBİTAK — under development)

EMC Tests Performed

The tests below apply to Version 0.4 and Version 0.5. Tests were performed at an accredited laboratory with the board supplied at 230V AC mains voltage, within the scope of TS EN 61000-6-2 and TS EN 61000-6-3.

TEST	STANDARD
Electrostatic Discharge Immunity Test	EN 61000-4-2
Surge Immunity Test	EN 61000-4-5
Conducted Disturbance Immunity Test	EN 61000-4-6
Radiated RF Electromagnetic Field Immunity Test	EN 61000-4-3
Electrical Fast Transient / Burst Immunity Test	EN 61000-4-4
Conducted Emission (at Mains Terminals)	EN 61000-6-3
Radiated Emission	EN 61000-6-3
Voltage Fluctuations and Flicker	EN 61000-3-3
Harmonics	EN 61000-3-2
Voltage Dips and Short Interruptions	EN 61000-4-11
Power Frequency Magnetic Field Immunity	EN 61000-4-8

LVD and IP Tests Performed

The tests below apply to **Version 0.4** and **Version 0.5**. Tests were performed at an accredited laboratory for climatic environmental endurance under the LVD (Low Voltage Directive) framework and for dust and water ingress protection under the IP (Ingress Protection) rating.

TEST	SEVERITY	STANDARD
Cold Test (LVD)	-40°C, 8 hours	TS EN 60068-2-1
Dry Heat Test (LVD)	+70°C, 8 hours	TS EN 60068-2-2
Dust Protection Test (IP6X)	Dust chamber, 2 hours	EN 60529
Water Protection Test (IPX5)	12.5 l/min water jet, min. 3 min	EN 60529

The IP tests were performed with the board installed inside the magnet housing.

Version 1.0 — Under Development

TÜBİTAK 1507



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The project titled “Development of a Safety-Enhancing Modular Interface Board and Embedded Software for ATS in Railway Transportation” has been granted support under the TÜBİTAK 1507 SME R&D Start-up Support Programme. Version 1.0, currently under development, will include the following capabilities in addition to the features of previous versions:

- Real-time measurement and recording of the trackside ATS magnet's resonance frequency
- Real-time measurement and recording of the trackside ATS magnet's quality (Q) factor
- Activation of a warning mechanism if these values fall outside their defined ranges

* All our products undergo functional testing before shipment and carry a 2-year warranty from the invoice date. The warranty covers manufacturing defects; damage caused by improper or negligent use, impacts or other external factors is excluded.

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Version 0.4 →

Version 0.5 →

Contact Us