CSIN TECH

ATS / ATC
On Board Signal System

SMART
TRAIN

SMART
CSIN Tech

- **Mode**
  - Intermittent controlling & receiving multi frequency, on board sequence speed code survey mode(ATS)
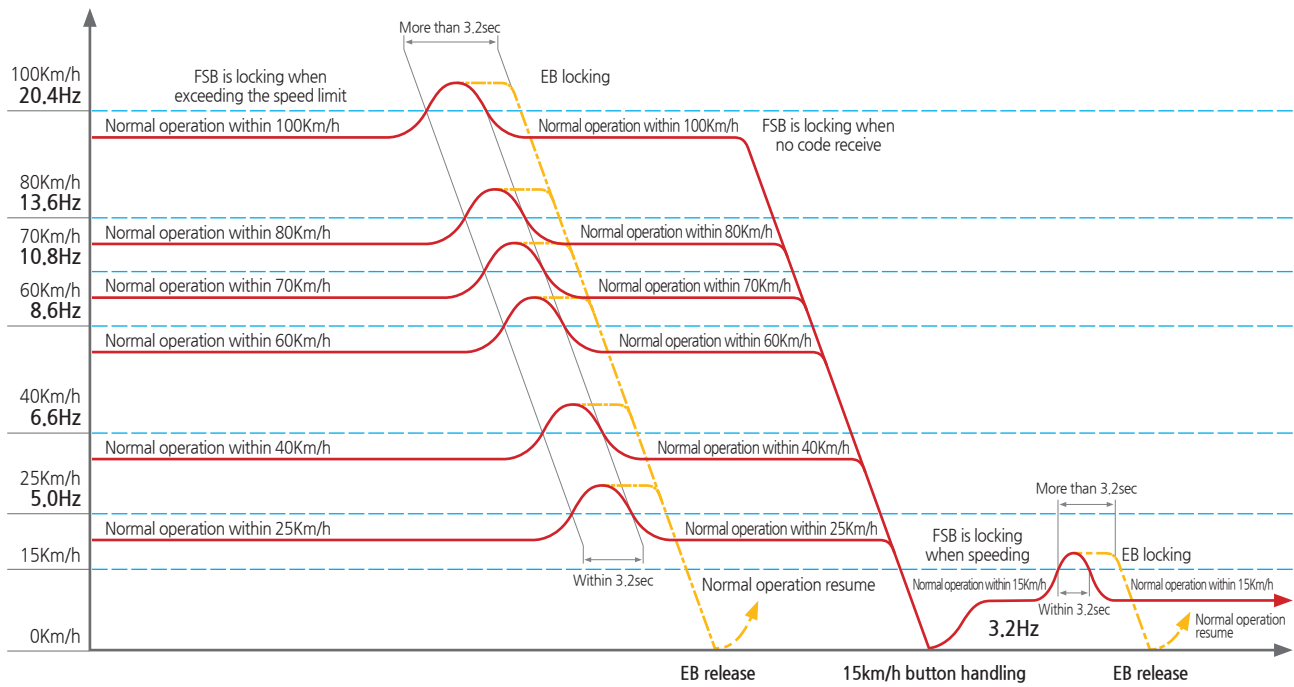 - Wayside sequence speed code survey mode(ATC)

- **Feature**
  - Unification system of ATS and ATC
  - Automatic and manual change-over function

- **Application** : Republic of Korea

ATS / ATC on Board Signal System

ATS / ATC

It interprets ATS 98KHz constant frequency and 8 wayside continuous codes from ATC simultaneously. It is a consolidated fail-safe on board signaling system.
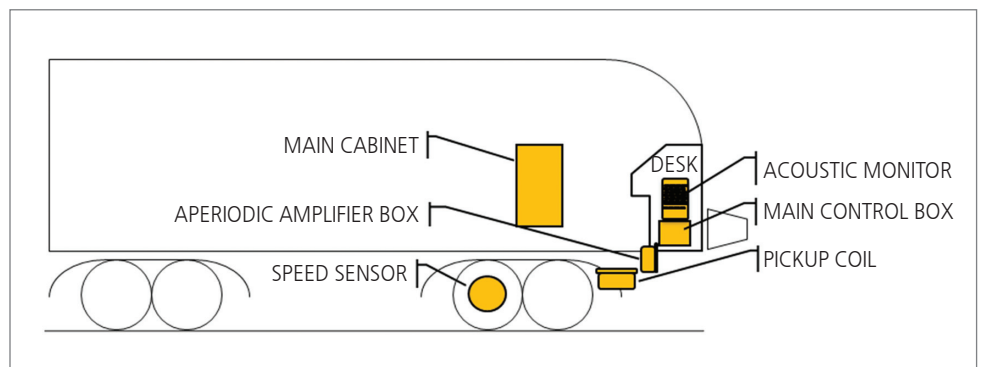

Operating Sequence of Continuous Speed Code-based for ATC Controlling System

Technical Information

Specifications	
Input Voltage	DC 70V ~ 110V
Power Consumption	Below 150W
ATC Max Train Responsive Speed	130Km/h
ATC Max Train Limit Speed	100Km/h
Neutral Section Detection	68KHz (±3KHz)
Wheel Diameter Adjustment	780mm ~ 860mm / 17 Step
Interface	RS-485
Temperature	-35℃ ~ +70℃
Application Standard	IEC 60571, IEC 61373 Satisfaction

ATC
On Board Signal System

SMART
TRAIN

SMART
CSIN Tech

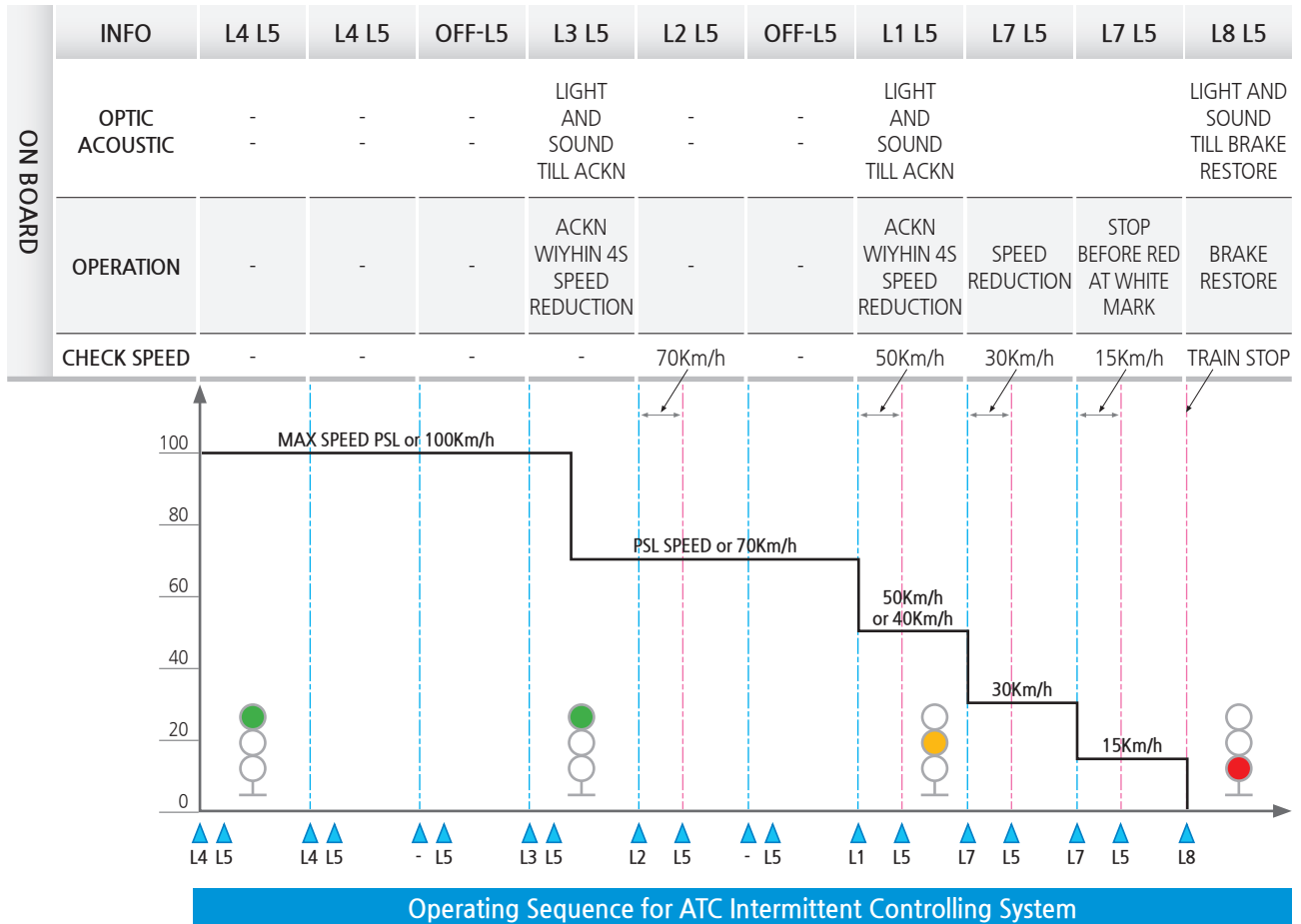| MAIN CABINET | | DESK | ACOUSTIC MONITOR |
| APERIODIC AMPLIFIER BOX | | | MAIN CONTROL BOX |
| SPEED SENSOR | | | PICKUP COIL |

ATC on board System Diagram

- **Description** : Intermittent & inductive controlling system
- **Feature** : Digital signal filtering, real-time speed calculation
- **Application** : Egypt Cairo Metro Signaling System

ATC on Board Signal System

ATC

It detects 111Hz,110Hz, constant oscillating frequency and other 8 wayside frequency bands, and displays them to driver so that he can control train speed based on the displayed information.

	INFO	L4 L5	L4 L5	OFF-L5	L3 L5	L2 L5	OFF-L5	L1 L5	L7 L5	L7 L5	L8 L5
ON BOARD	OPTIC ACOUSTIC	- -	- -	- -	LIGHT AND SOUND TILL ACKN	- -	- -	LIGHT AND SOUND TILL ACKN			LIGHT AND SOUND TILL BRAKE RESTORE
	OPERATION	-	-	-	ACKN WIYHIN 4S SPEED REDUCTION	-	-	ACKN WIYHIN 4S SPEED REDUCTION	SPEED REDUCTION	STOP BEFORE RED AT WHITE MARK	BRAKE RESTORE
	CHECK SPEED	-	-	-	-	70Km/h	-	50Km/h	30Km/h	15Km/h	TRAIN STOP

Operating Sequence for ATC Intermittent Controlling System

Technical Information

Specifications	
Input Voltage	DC 70V ~ 110V
Power Consumption	Below 150W
Temperature	-40℃ ~ +85℃
Speed Limit	0km/h, 25km/h, 40km/h, 55km/h, 60km/h, 75km/h
Max Train Responsive Speed	0km/h ~ 120km/h
Wheel Diameter Adjustment	780mm ~ 860mm / 17 Step
Interface	RS-485, MVB
Application Standard	IEC 60571, IEC 61373 Satisfaction

MMI
(Man Machine Interface)

SMART TRAIN
SMART CSIN Tech

- 10.4" TFT-LCD, Touch screen display equipment
- Auto bright adjust, self diagnose
- USB Firmware upgrade port
- Application for ATP, VOBC and ATS / ATC system
- MVB, RS485, RS422 Interface port
- **Applications** : Electronic & High-speed Railway Vehicles, Electric Locomotives

MMI(Man Machine Interface)

Main Products

It displays train speed and status indications, and generates sounds to confirm driver's actions and emergency alerts to maintain safety of train operation.

Technical Information

Specifications	
Input Voltage	DC 70V ~ 110V
Power Consumption	Below 50W
Temperature	-35℃ ~ +80℃
Operating System	Windows Embedded CE 6.0
Log Memory	2GB
Sound	AC97, Built-in Speaker
Interface	RS-485, MVB
Application Standard	IEC 60571, IEC 61373 Satisfaction