इरिसेट
गाड़ी डिटेक्शन प्रयोगशाला
प्रयोग सं : टी डी एल - 32

IRISET
TRAIN DETECTION LABORATORY
EXPERIMENT NO: TDL – 32

नाम
Name : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

अनुक्रमांक
Roll No : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

प्राप्तांक
Marks Awarded :

पाठ्यक्रम
Course : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

दिनांक
Date : _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

अनुदेशक के आद्यक्षर
Instructor Initial :

Train Protection & Warning System (SIEMENS Make)
(RDSO/SPN/183/2012 version 2.3)

Purpose

1. It assures high level of safety during train operation.
2. It allows safe movement of trains under its supervision.
3. It enables automatic train protection and prevents collision, like situation.
4. It facilitates to run the train within maximum permitted speed of train.
5. The Entire system provides assistance to the Driver

EQUIPMENTS

TPWS basically consists of:

1. CAB equipment
2. Trackside equipment

CAB EQUIPMENT: (ON BOARD EQUIPMENT)

It consists of the following

1. Train control computer(TCC)
2. Diagnostic control computer(DCC)
3. Connection box
4. MCB,Coupling relay,Wago terminal
5. Driver Machine Interface (DMI)
6. Acknowledgement Switch
7. Isolation Switches
8. Isolation and Emergency Brake Counte

TRACKSIDE EQUIPMENT:

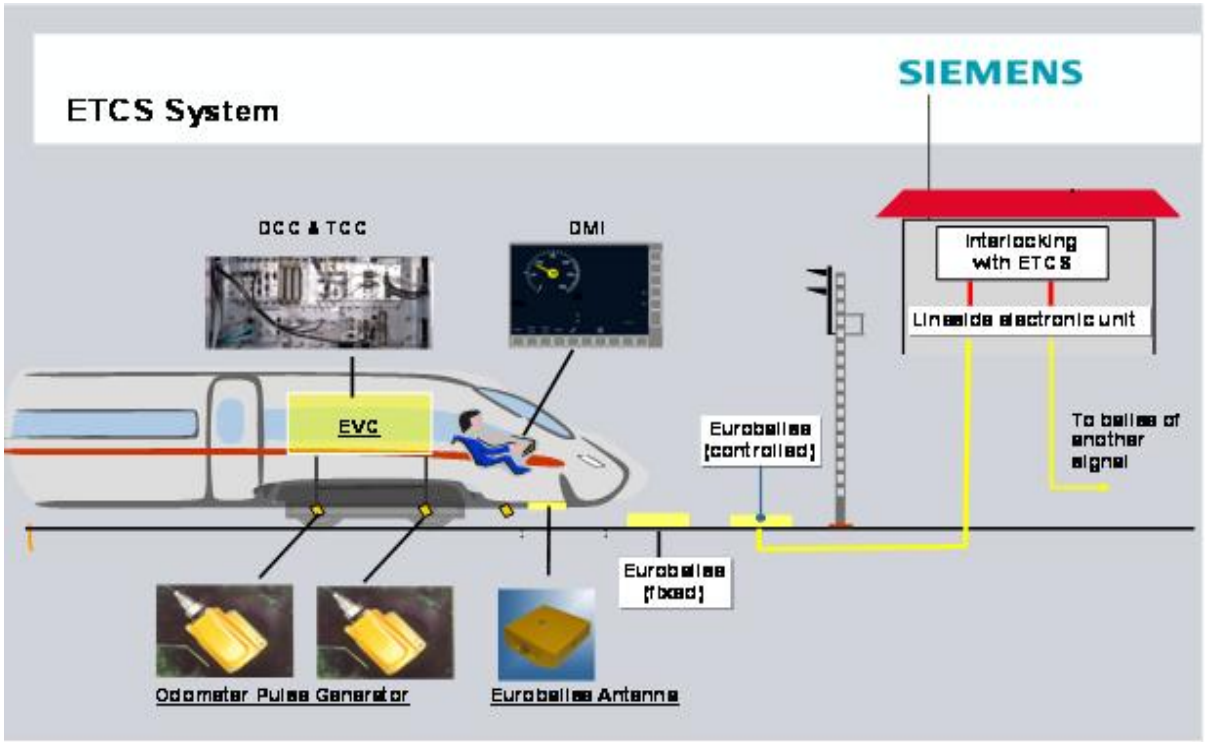
It consists of the following:

1. Line Side Electronic unit (LEU)
2. Euro Balise consists of
   a) Fixed Balise
   b) Controlled Balise
   c) ODO Balise (Hardware wise same as fixed balise).

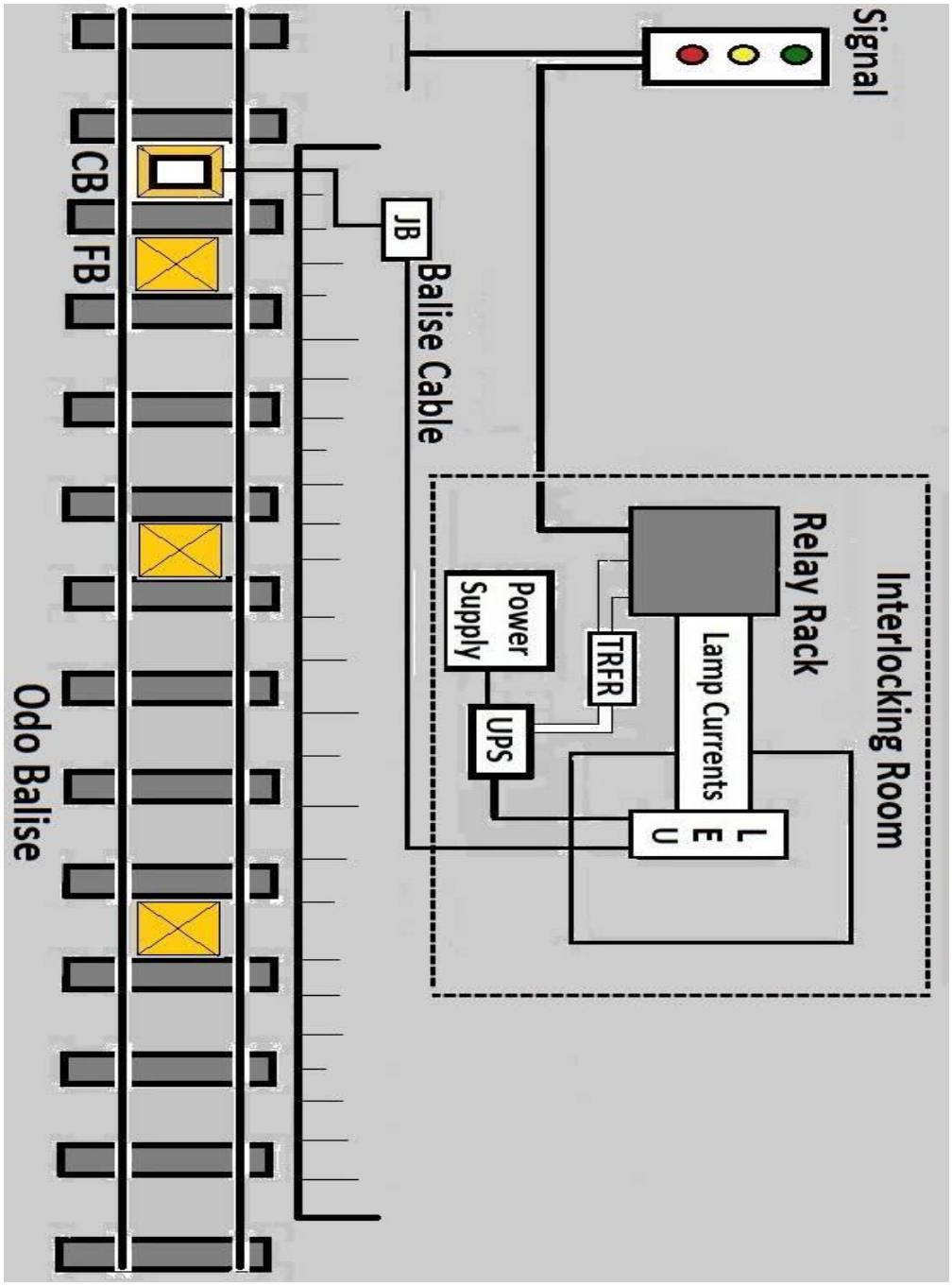
SEQUENCE OF OPERATION

1. LEU picks up the Signal Aspect.
2. Aspect information passed on to the Balise.
3. BTM Antenna picks up the Information from Balise.
4. BTM decodes the data and sends to OBC.
5. OBC processes this information and generates the required commands (such as Braking or Warning). These actions take place depending up on the current signal information aspect and actual speed of the train available at that time.

FUNCTIONAL DIAGRAM OF ON BOARD EQUIPMENTS

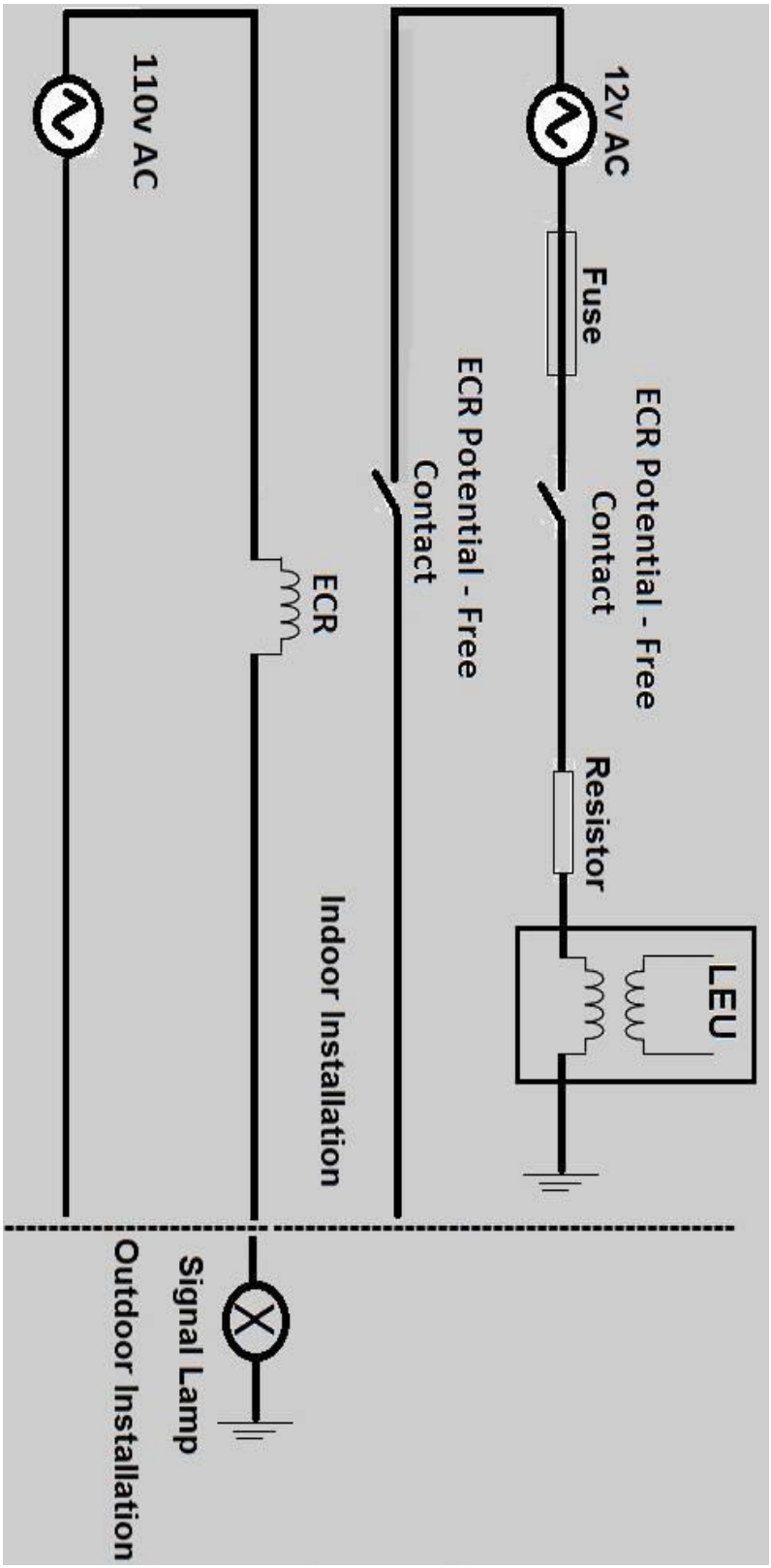


FUNCTIONAL DIAGRAM OF TRACK EQUIPMENTS:

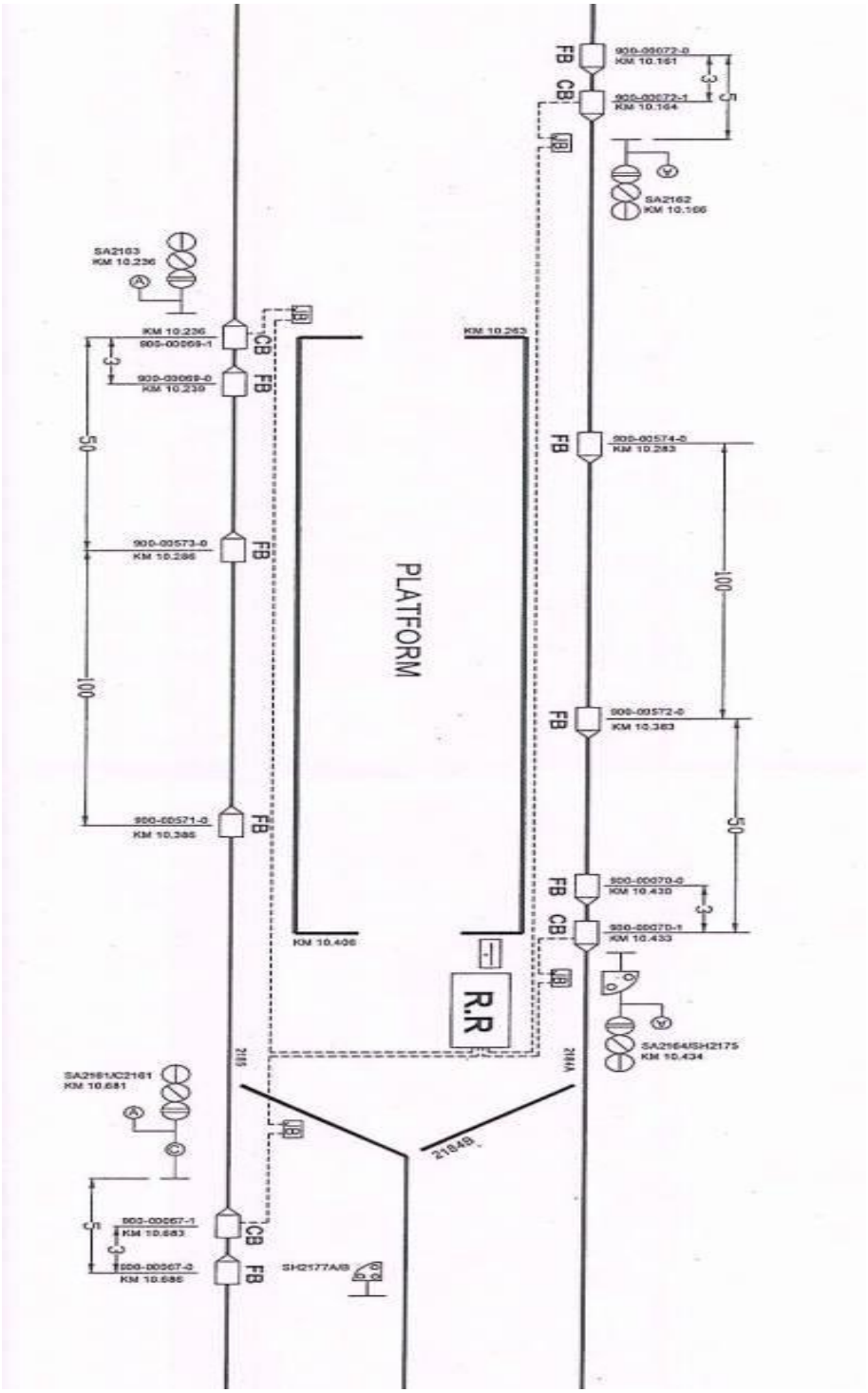


JB:	**JUNCTION BOX**
CB:	**CONTROL BALILSE**
FB:	**FIXED BALISE**
TRFR:	**TRANSFORMER**
UPS:	**UNITERUPTED POWER SUPPLY**
LEU:	**LINE SIDE ELECTRONIC UNIT**

INTERFACE OF TRACKSIDE LEU WITH SIGNALLING SYSTEM:



PHYSICAL DIAGRAM:



EXERCISE:

1. Draw the block diagram of track side system architecture of Siemens TPWS ?

2. What is balise and what are the different types of balises ?

3. Draw the block diagram of On board configuration ?

4. Write down the indications available in the LEU ?

Date: **Signature of the Trainee**