



ZRTI Phase-1 Operation Project

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Interlocking

- ❖ Contrived arrangement of points ,signals and other devices
- ❖ Interconnected in proper sequence for safe operation
- ❖ To avoid conflicting movement of trains
- ❖ Mechanical/electrical locking
- ❖ FAIL SAFE
- ❖ At small station interlocking is done keys ,at other stations interlocking by means of tappets inside a box of lever frame.

Basic Principles of Interlocking

- ❖ No taking off conflicting signals at same time.
- ❖ Possible to take off signals for a running line only when
 - ✓ All points are correctly set and facing points locked
 - ✓ Level crossing gates are closed and locked
- ❖ It must be impossible to take “off” warning signal until relevant stop signal in advance has been taken “off”

Types of interlocking

1. Mechanical interlocking
2. Relay interlocking
3. Route relay interlocking
4. Solid state interlocking

Mechanical interlocking

- ❖ Functions operated by ,mechanical levers and links
- ❖ Signal can be taken OFF only when point ,level crossing etc is correctly set(normal/reverse)

Limitation

- ❖ Only for small station and low traffic
- ❖ Occupies space and requires intensive maintenance

Panel interlocking

- Based on electromechanical relays rather than mechanical levers
- Faster operation
- Reduced size for housing
- More safe and suitable for complex rail network and traffic

Route Relay interlocking

- ❖ Same as panel interlocking except can be employed for bigger yards.
- ❖ Interlocking between one route and another route.
- ❖ Station master has to press only two buttons either signal or Route button.
- ❖ There is no need to operate points individually.
- ❖ Very safe and fast.

Solid state interlocking

- ❖ Computer based, uses thousands of electromechanical relays.
- ❖ Microprocessors based interlocking based on pre determined logic circuit.

Advantages

1. Increased section capacity
2. Faster operation
3. User friendly
4. Fail safe technique

Direct and indirect interlocking

Direct interlocking

- ❖ All signal levers, points, locks are concentrated in one lever frame and work therefrom.
- ❖ Interlocking by means of rigid connection (No use of Keys)

Indirect interlocking

- ❖ Points and signals are operated from another place and lever frame.
- ❖ Interlocking is effected by means of key

Thank You