ACTOM HVITC TRACK CIRCUIT

The High Voltage Impulse Track Circuit (HVITC), manufactured by ACTOM Signalling, is a comprehensive range of jointed track circuit products which can be adapted to any kind of track configuration. The main function of a track circuit is to detect the presence or absence of traffic on a given section of railway track.

Applications

HVITC track circuits are adaptable to these applications:

- Single rail arrangement for a length between 18m and 750m provided the ballast resistance is within specified limits.
- The length can be extended to 1 000m, provided one transmitter per track circuit is used.
- Unelectrified lines.
- DC electrified lines at 750V, 1 500V and 3 000V.
- AC electrified lines at 25kV, 50Hz or 60Hz, 15kV, 16 2/3 Hz.

Basic principles

An HVITC includes:

- A transmitter, which generates impulses with a given shape, amplitude and recurrence frequency, injected into the tracks by means of a matching isolating transformer.
- A receiver, at the other end of the track section which detects the specific signal and operates the fail-safe relay, if the specific signal corresponds to the correct waveform.
- The power supply converts 110VAC input to 450V which is fed to the transmitter input.
- Impulse repeat rate: 3 Pulses/Second
- Positive Pulse Impulse Width: 1.5ms.
- Negative Pulse Impulse Width: 8ms
- Positive Peak Track Voltage: 100V.
- Negative Peak Track Voltage: 20V
- Drop shunt from 0,15 - 1 ohm.

Installation conditions

- Minimum ballast resistance from 0,6 - 2 ohm/km.
- Maximum cable distance from transmitter unit to the trackside box is 1000m.
- Supply voltage must be between 90 and 130VAC.

HVITC consists of the following basic elements:

Power supply

- 110VAC 50Hz

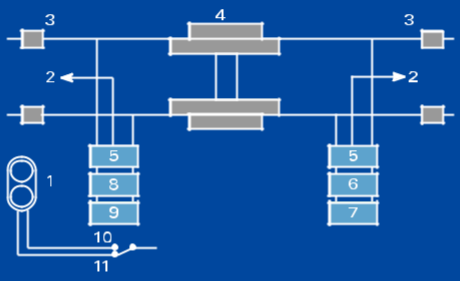
Transmitter

- Positive transmitter voltage is between 470 and 520V, which is dependent on the supply voltage.

Receiver

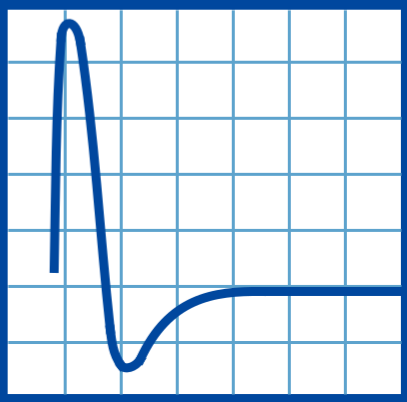
The receiver NCO RVT 600 consists of two integrating circuits:

- One circuit receives energy from the negative part of the impulse.
- The other circuit receives energy from the positive part of the waveform.



Track relay

- The NCO CVTH 24.4.0.4
- The track relay receives the waveform from the receiver.
- The track relay will not pick up in the event of the waveform being compromised, hence the track relay is fail-safe.



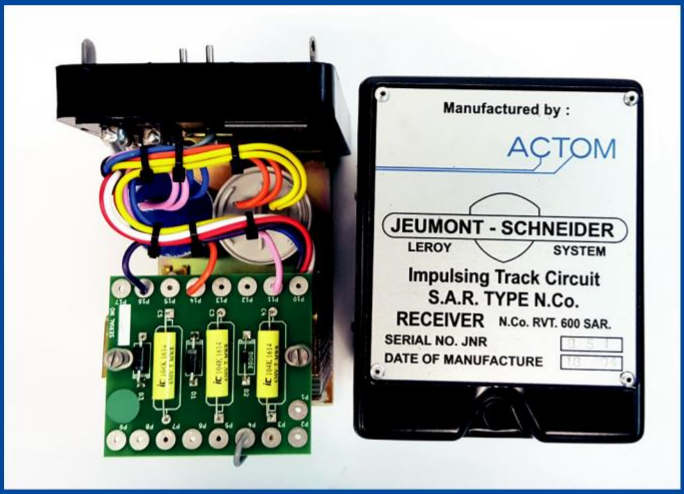
Key

1. Signal
2. Possible return to traction energy
3. Insulated joint
4. Traffic short-circuit
5. Track transformer
6. Pulse transmitter
7. Power supply
8. Pulse receiver
9. Track relay
10. Free track
11. Occupied track

SIGNALLING
A division of ACTOM (Pty) Ltd

ACTOM

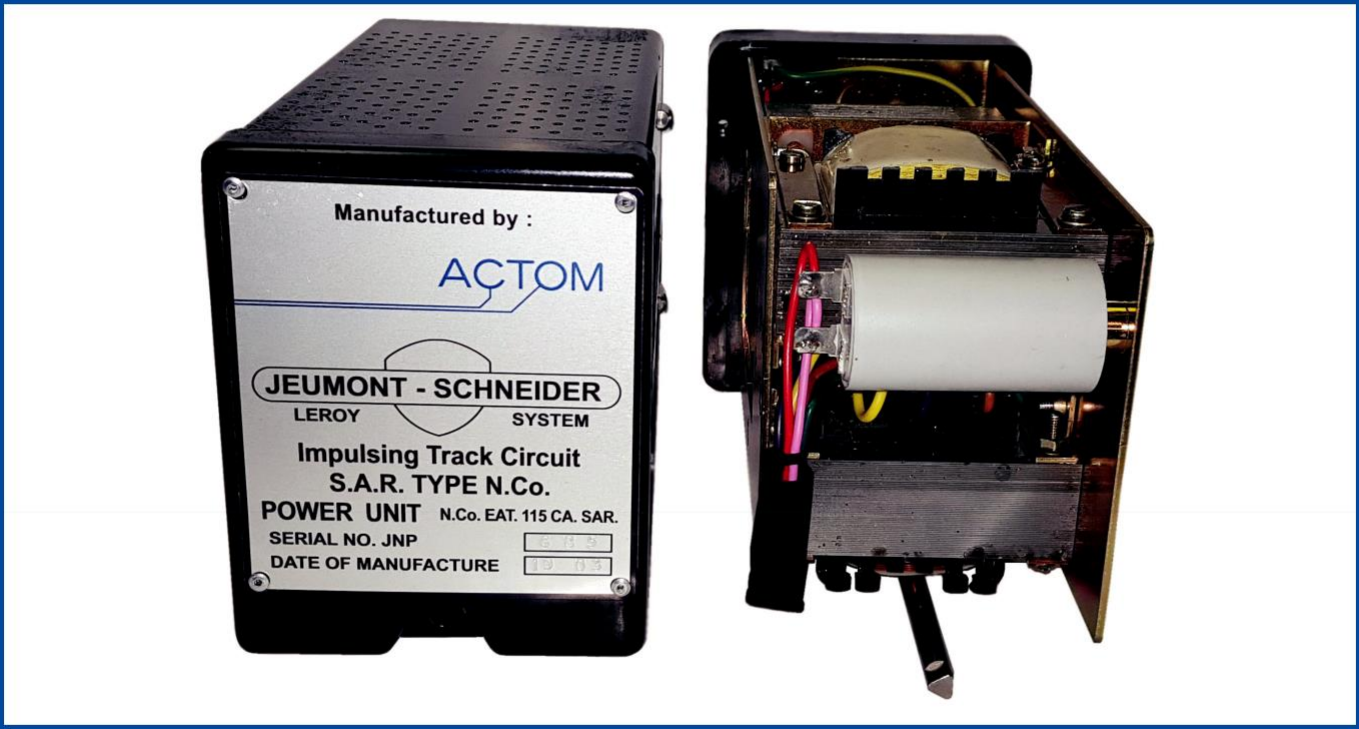
ACTOM Signalling | Corner Branch and Alpha Roads | Driehoek | Germiston | South Africa.
Tel: +27 (0) 11 871 6600 | leonard.de-villiers@actom.co.za | www.actom.co.za



HVITC Receiver

HVITC Transmitter

HVITC Trackside Box



HVITC Power Supply