

Key Token Instrument

Manufacturing Ref TY30



General

The No.12 Key Token Instrument is a multi-purpose unit, the basic design being common to all applications. As the requirements for each application varies i.e. length and impedance of electrical line, type of operating function, accessories required etc., a separate design is produced to suit the individual application.

History

Token apparatus was pioneered from 1870 onwards by Tyer and Company Ltd., the early tokens taking the form of discs or tablets. Key token apparatus was first introduced in 1912 and with the greatly increased flexibility together with economy the system was widely adopted on single line railways all over the world.

Development of the instrument since the earliest days has been continuous and the latest instruments have many novel features and yet retain the component reliability which has been a feature of this design since its inception. Full use is made of die cast light alloys, thermo-plastic mouldings and rust-resisting alloy steels. Complete interchangeability of component parts is ensured by extensive tooling and quality control

Paints and plating finishes are of the highest quality with the object of ensuring long life with the minimum of maintenance in the severest of environments

Application

It has long been accepted that the Key Token system provides the simplest and safest means of operating trains over a single line from one blockpost to another. The acceptance and retention of the token for that block section provides the driver with authority to occupy the line and only simple forms of signalling are necessary to ensure compliance with Operating Regulations. The token may also be used for such supplementary functions as the release of points for the occupation of an intermediate siding.

The first requirement of a token system is that extraction of a token from either end of a block section shall require the co-operation of both signalmen for that section and that it shall be impossible for a second token to be obtained (except where permissive working is in operation) until the token, already extracted, has been replaced in one or other of the section instruments.

Operation

The apparatus consists essentially of :-

A plunger for transmitting bell signals to the distant station or for sending a current to release a Key token.

A pointer for indicating to the distant station when a Key token has been withdrawn, and for indicating to each Signalman the state of the block section at any time.

A number of Key Tokens.

A magazine with four slots for receiving Key Tokens.

An indicator for indicating all outgoing and incoming signals sent on the plunger from either end.

Each instrument is provided with a bell fixed inside the instrument.

To work a single line between stations "A" and "B", on this system requires an instrument at "A" and another at "B" and the single line between the two stations is called a "Key Token Section".

The two instruments for the section are furnished with a number of Key Tokens. Only one of these Key Tokens can be out of the instruments at any time.

Advantages

The instrument is extremely simple to operate, and easy to maintain. It is absolutely foolproof, and no tampering can take place.

The instrument is neat and compact. It has only one moving part, viz., an electrically controlled rotary commutator directly operated by the key tokens.

A key token can be restored to the instrument from which it was withdrawn in the event of a train being cancelled, or after having been used for shunting purposes only a small amount of battery power is required.

No permanent currents are necessary. A minimum of working parts and in consequence, a minimum amount of maintenance.

Additional Functions

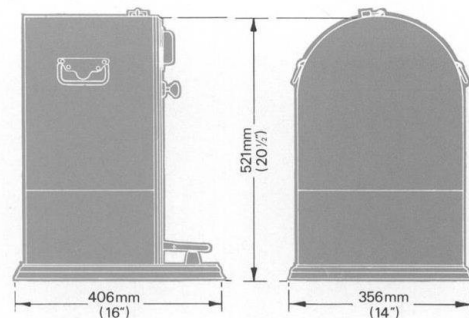
As has already been stated the primary purpose of the Key Token System is to provide co-operative control for the occupation of a single line by one train. There are however a number of Additional Functions which can be provided.

- 1) To provide for the occupation of the block by more than one train travelling in the same direction "Per-missive" block working. This is catered for by the addition of a supplementary permissive unit.
- 2) To provide for the crossing of trains at an unattended crossing place by means of a supplementary crossing attachment.
- 3) To control the entry and exit of trains to and from sidings in the block section. This can be done a number of ways but all systems utilise the key as the releasing "agent". Locks can be supplied, worked by the correct key which can fit directly onto the point operating slide or onto a ground frame.
- 4) To make the release of a starting signal dependent upon the prior extraction of a token. The relays required to provide for this function can also be supplied.
- 5) To prevent the release of a second token for a following train until the last stop signal has been replaced to normal in addition to the replacement of the first token.
- 6) To provide full no-signalman operation of a block section, or alternatively automatic operation at one end with signalman control at the other e.g. a works siding.
- 7) To control the starting of a train remote from the signal box and over a triangular section by the use of auxiliary instruments.
- 8) To provide switching out facilities for combining two, three or more short sections for long section working.
- 9) To provide for banking engines or pilot movements by means of an add on supplementary unit.

Optional Accessories

Further accessories which are available include:-

- a) The Key Token Balancer - a detachable unit which permits for the safe and efficient transfer of key tokens between instruments when out of balance working occurs. This situation occurs particularly when auxiliary instruments are employed.
- b) The Key Token Stand - a ventilated metal cupboard onto which the instrument is placed which also provides space for the storage of the batteries which can be supplied as necessary.
- c) Hand Generators
- d) Telephones



Weight:- 27 kg

When enquiring for systems please advise.

- a. Type of operating functions required.
- b. Length and impedance of electrical line to be used.
- c. Number and configuration of keys required.
- d. If colour coding of keys is required.
- e. Accessories required.

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