



Marconi Broadcasting Studio Systems

Digital Standards Converter

B 3564

Features

All solid state

525/625 or 625/525
conversion selected by
switch

PAL/NTSC/SECAM

Compact (2 cabinets)

Low power consumption

High reliability

No back access required

No set up adjustments

Minimum warm-up time

No drift

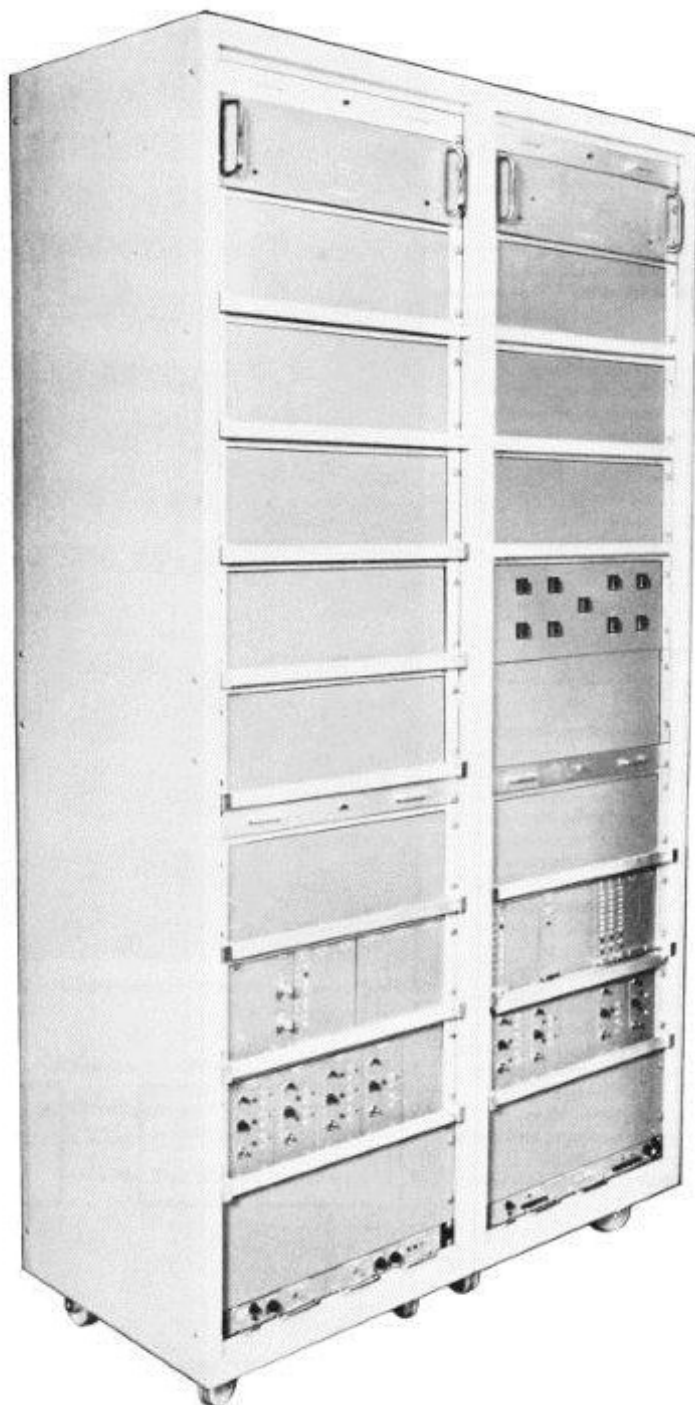
Description

The Marconi B3564 standards converter is an all solid-state equipment based on the IBA DICE equipment.

It is designed to convert 525-line 60-field NTSC signals to 625-line 50-field PAL signals, or vice versa. The changeover is achieved by a single changeover switch. Digital techniques are used throughout, and the performance is such that the K rating for a 2T pulse is better than 2%. A SECAM output can be provided as an alternative to PAL output if required, or if necessary both PAL and SECAM outputs can be provided simultaneously.

The machine is built in two 2.08m (81.75in) cabinets and has instantaneous warm-up. There are no pre-set controls in the digital conversion circuits. Inherently the spatial filters have perfect tracking and there are no adjustable controls. The converter does not suffer from drift problems as do some analogue converters.

A picture freeze switch is provided as a maintenance facility which inhibits writing into the store and gives a fixed picture without degradation.



Movement Interpolation

When the converter is working 625-525 there are five input fields for every six output fields. This means there will be 1.2 times as much movement between fields on the input compared to the output.

To overcome the subjective effect of jumps rather than smooth movement a process known as 'movement interpolation' is also employed. In this process pairs of incoming fields are combined in proportions determined according to their timing relative to each required output field.

Similarly, movement interpolation is employed in the direction 525-625. In this case a set of five interpolation coefficients is required to produce five output fields from six input fields.

Line Interpolation

After movement interpolation the signal in the 525-625 direction is now on 525 lines but at the 50-field rate. The purpose of line interpolation is to generate from these 525 lines, 625 lines each with information appropriate to its position in the picture. To do this DICE employs five-line interpolation, that is the information content on any one line is obtained from proportions of information contained on five adjacent lines.

Control

The operating controls of the converter consist of a panel with ten push-button switches. These switches may be remotely if necessary. Their functions are as follows:

1. Standards Changeover
2. Colour/Monochrome
3. Freeze frame
4. Programme/Colour Bars
5. PAL/SECAM changeover if required
6. Chroma phase fixed or variable
7. Gain, fixed or adjustable
8. Chroma level (two settings)
9. Crispener on/off
10. Black level (two settings).

Test Facilities

Several items of specialized test equipment are provided with the converter. One particular unit can be connected to various points in the signal path and includes a digital to analogue converter enabling the signal to be displayed as a picture on a standard monitor. Generally speaking, because DICE dissects the picture into component parts, any fault will be readily identified to a particular board or group of boards by its position in the picture.

Performance

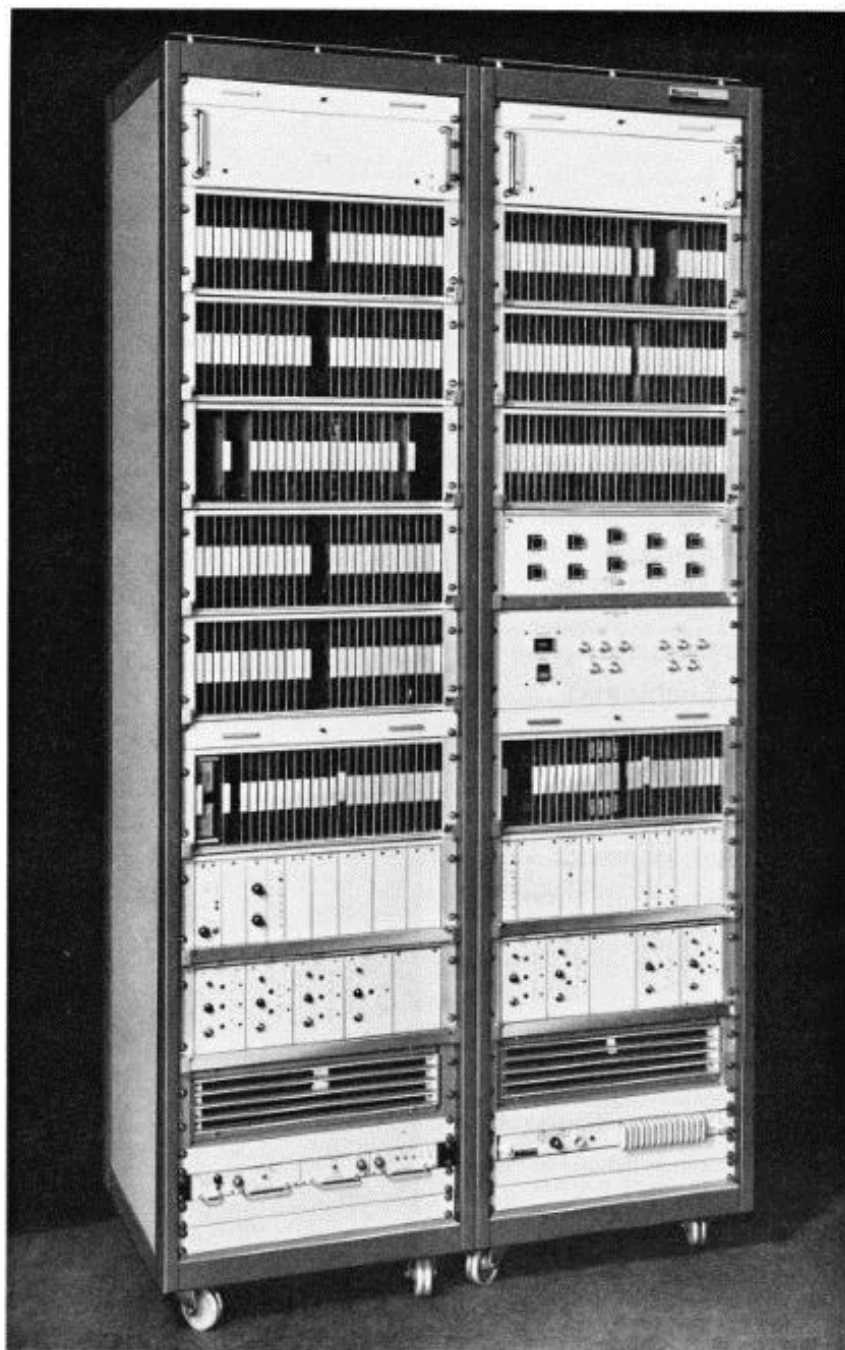
In describing the overall performance, the most important aspect is the subjective quality of the output picture. This is so because the conversion process introduces factors for which no established objective quality standard exists. Results obtained from subjective assessment are excellent, and many observers have indicated they see no difference between input and output pictures.

Monitoring

For satellite stations where no television facilities exist, a separate rack can be provided to house sync generators, colour monitors and associated test equipment.

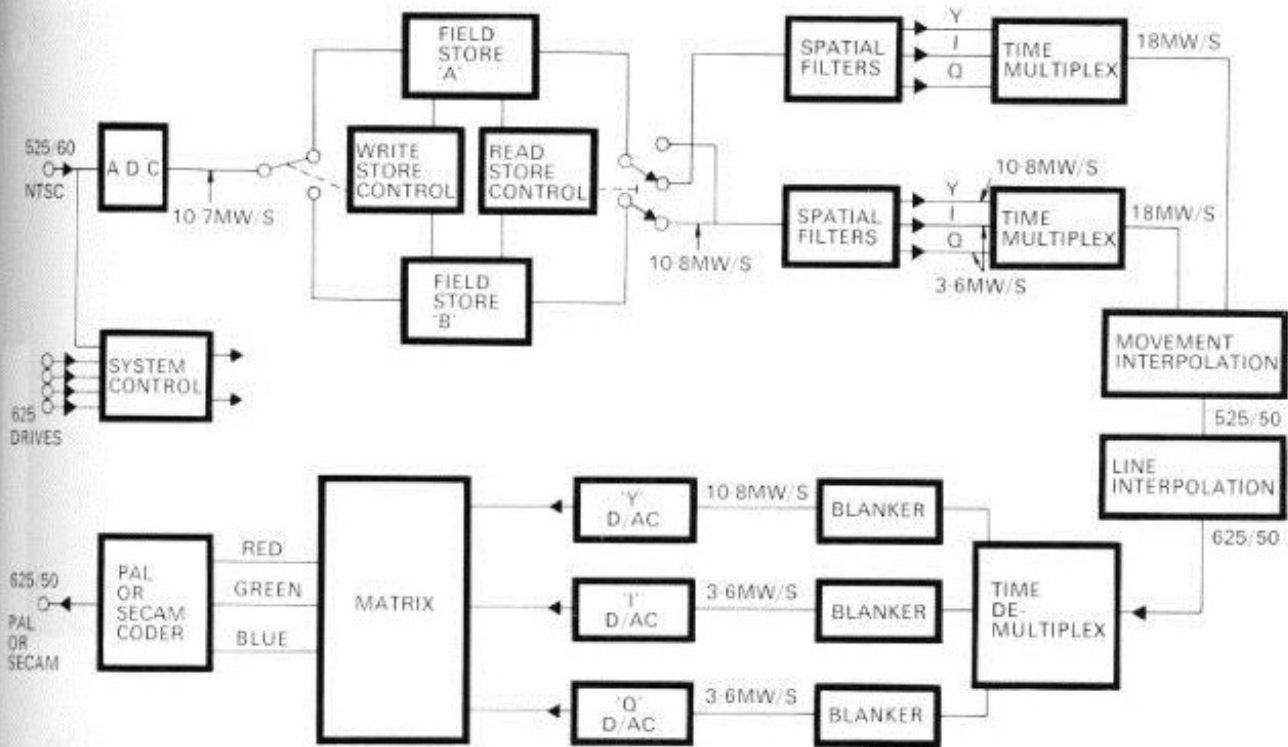
Bibliography

It is impossible to describe fully the principles of operation of DICE in a brief technical description. For further information the reader is referred to the following documents, copies of which can be obtained from Marconi Communication Systems.

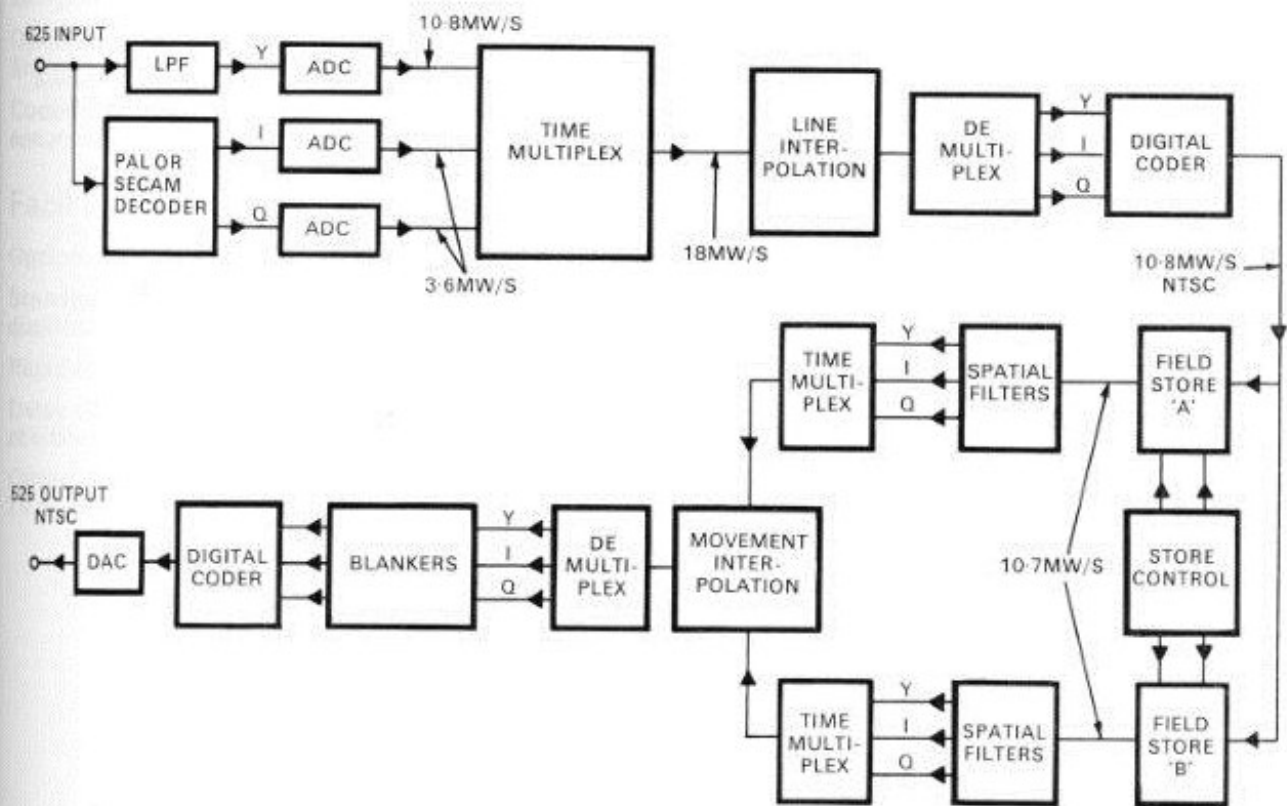


View of converter showing internal construction

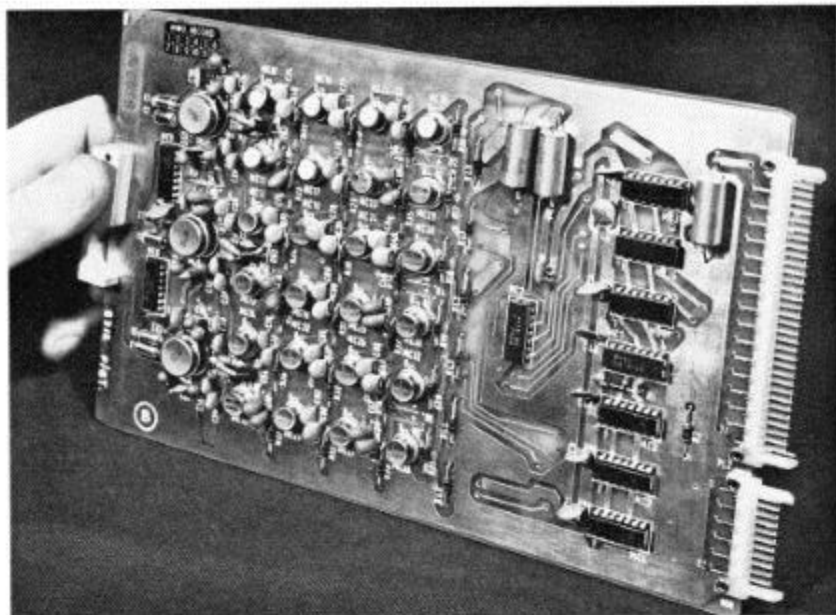
1. SL 0813 Technical folder for standards conversion and transcoding.
2. 'Digital Television Techniques and DICE'. A paper by A. N. Heightman C. Eng F.I.E.R.E.
3. IBA Technical Review No 8.



Simplified block diagram of converter in 525-625 direction



Simplified block diagram of converter in 625-525 direction



DICE main store card with storage for 25,000 bits

Data Summary

INPUTS

A.C. : 220-250V \pm 6%. 48-60Hz 2kVA.
For 110-125V inputs an auto transformer can be provided.

Video : 1V p-p composite video, 75 Ω input impedance, BNC connector, 525/60 or 625/50.

Pulses : At the output standard, syncs and blanking 1V to 4V p-p, 75 Ω bridging input, BNC connector. Burst gating pulse same as for syncs.

Subcarrier : 0.5-3.5V p-p, 75 Ω bridging input, BNC connector.

OUTPUT

1V p-p, composite video, 75 Ω impedance, three outputs, BNC connectors.

PERFORMANCE

Frequency response:

From 525/60 to 625/50 \pm 0.2dB 0-3.9MHz.

From 625/50 to 525/60 \pm 0.2dB 0-3.5MHz.

Bandwidth:

From 525/60 to 625/50 at -3dB 4.2MHz.

From 625/50 to 525/60 at -3dB 3.8MHz.

LF Tilt : On 50Hz square wave, less than 1%.

K Rating : To 2T pulse and bar less than 2%.

Line time non-linearity : less than 1%.

Differential Gain : Less than 3%.

Differential Phase : Less than 3°.

Gain Unity : \pm 3dB adjustment.

Dimensions:

Height 2.08m (81.75in)

Width 1.444m (45in)

Depth 610mm (24in)

Ordering Information

In order to ensure that you are supplied with equipment exactly to your requirements please make sure that the ordering information is clear. When ordering please state:

1. Television standard of inputs, and television standard of output required.
2. A.C voltage employed.
3. If spares are required.
4. If additional copies of the handbook are required.
5. Whether local syncs are available.
6. Whether monitoring is required.
7. Whether training is required.
8. What additional test equipment is required.

This document gives only a general description of the product(s) and shall not form part of any contract. From time to time changes may be made in the products or in the conditions of supply.

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