

*ESD446A**Lightweight IFF/SSR
Transponder*

■ *Lightweight*

■ *Small size*

■ *Extremely reliable*

■ *Comprehensive B.I.T.E.*

■ *Extensive use of silicon integrated circuits*

The ESD446A microminiaturised transponder provides a means of aircraft identification in response to ground radar interrogation. Both military and civil modes are covered by the equipment.

The design techniques employed put great emphasis on reliability combined with low weight and small size. To achieve this reduction extensive use has been made of specially designed micro-electronic circuits. A digital shift register replaces the conventional delay lines in the encoder and decoder circuits thus providing time delays independent of temperature. Integrated circuits are used for the logic circuits, the logarithmic response i.f. amplifier and video processing circuits. The extensive use of these methods has resulted in a reduction of overall weight and size by a factor of six when compared with existing equipment.

Decoder, encoder and associated switches are located in the control unit thus reducing the number of interconnecting wires to five and giving a substantial reduction in installation weight. In operation the preset reply codes are either set up on the edge switches of the control unit on modes 1 and 3/A and B or external to the control unit for mode C or mode 2. The operational capability of the equipment is determined by the control unit in use ranging from a three mode facility given by the control unit ESD447 to a full mode capability given by the control unit ESD1447. Three-pulse side lobe suppression is used.

Transponder ESD 446A

Equipment power output

Nominal power output:	24.7dBW
Typical output power after 1,000 hours:	24dBW
Typical output power after 2,000 hours:	22dBW

Pulse rate

Nominally 1,200 replies per second each containing up to 15 reply pulses but adjustable between 500 and 2,000 replies per second.

Triggering sensitivity (min)

-72 to -80 dBm

Environmental characteristics

Altitude: 15,000m (50,000ft)
Vibration: BS2G100 part 2. Grade B
Temperature range (continuous rating):
-35°C to +70°C.
Storage - 55°C to +90°C

Dimensions and weight Transponder

Height:	127mm (5in)
Width:	57mm (2.25in)
Depth:	279mm (11in)
Weight:	1.67kg (3.7lb)

Power requirement

Power supply DC conforming to BS2G100 part 3
Cat B Jan 1968
Power consumption 50W (max)
from 28V DC supply

Control units

ESD447 control unit

There are six versions of this control unit (ESD447 to ESD447E) which have been designed to give the following system capability:

Mode 1 or 3A/B and mode C or off	- PV447
Mode 1 or 2 and mode C or off	- PV447A
Mode 2 or 3A/B and mode C or off	- PV447B
Mode 1 or 3A and mode 2 or off	- PV447C
Mode A or B and mode C or off	- PV447D
Mode A/B or off mode C or off	- PV447E

Environmental characteristics

Altitude: 15,000m (50,000ft)
Vibration: BS2G100 part 2, Grade B
Temperature range (continuous rating):
-35°C to +55°C

Dimensions and weight

Height:	57mm (2.25in)
Width:	146mm (5.75in)
Depth:	102mm (4in)
Weight:	0.48kg (1.1lb)

ESD1447 control unit

Provides full STANAG 5017 facilities with simultaneous operation on modes 1,2,3/A and C. Manual code entry effected using a keypad. Provision made for automatic code changing (ACC) on modes 1 and 3/A. Full military emergency and SPI formats may be selected.

Dimensions and weight

Height:	95mm (3.75in)
Width:	146mm (5.75in)
Depth:	165mm (6.5in)
Weight:	1.6kg (3.5lb)

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ESD Publication No. ESD/067.08.96

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