ST450
TRANSMITTER
OPERATING INSTRUCTIONS

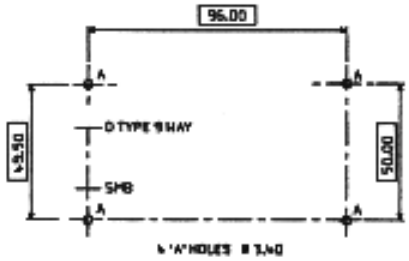
These operating instructions are intended to provide the user with sufficient information to install and operate the unit correctly. A full technical manual is available if required from Wood and Douglas (Sales Office:+44(0)119 981 1444).

The Wood and Douglas ST450 transmitter is intended to fulfil the numerous OEM applications by virtue of its highly flexible design approach, miniature size and cost-effective performance. The unit complies with MPT1329 and as such does not require an operating licence in the UK. It is also approved to various EC specifications.

VARIANTS

FREQUENCY RANGE (MHZ)	CHANNEL SPACING		
	12.5kHz	20kHz	25kHz
430 - 470	31	32	33

The ST450 is available in various frequency bands and channel spacings as detailed in the table. The code designations form part of the product variant type. This is shown on the label fixed to the top screening cover of the module.



CONNECTION

The radio antenna connects by means of a SMB miniature coaxial connector. All other connections to the ST450 transmitter are made using a standard 9-way D type connector (PL2) or a 10 way header (PL6) as detailed in the table below.

D-TYPE PL2	10-WAY PL6	NAME	FUNCTION	REMARKS
1	1	0V	0 volts	common ground
2	3	CS0	channel select (LSB)	HIGH >4V (or floating), internal pull-up. LOW <0.8V,
3	5	STBY	standby enable	HIGH >4V (or floating) unit powered down. LOW <1V standby OR enabled (controlled by TXE)
4	7	CS1	channel select (MSB)	HIGH >4V (or floating), internal pull-up. LOW <0.8V, also RS232 level serial input
5	9	+ Vin	positive supply	+10 to +15V DC
6	2	MOD I/P	modulation input	To transmitter
7	4	RF OK	RF present flag, indicates correct operation of transmitter	HIGH (+5V) = RF present open collector, internal 10kΩ pull-up to 5V, LOW = RF not present
8	6	HI/$\overline{LO}$	RF power select	HIGH >2.5V = high power, LOW <0.8V = low power
9	8	TXE	transmit enable	HIGH >2.5V = standby mode, LOW <0.8V = transmitter enabled
-	10	-	not connected	-

In parallel mode the channel is selected via the inputs applied to PL2 pin 2 and PL2 pin 4 . The channel select inputs are a binary representation of the channel number as shown in the table.

CHANNEL SELECTION		
PIN 2	PIN 4	CHANNEL
HIGH	HIGH	1
LOW	HIGH	2
HIGH	LOW	3
LOW	LOW	4

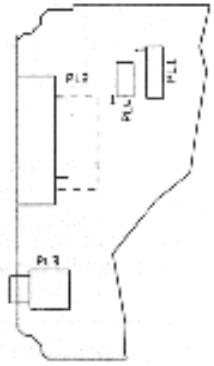
SERIAL MODE

In serial mode the required channel is programmed using a serial input word (0 to 99 inclusive) at 9600 baud RS232 level applied via PL2 pin 4.

Mode selection is achieved through the serial port. Transmission of 160 (decimal) selects parallel mode/reset and transmission of 161 (decimal) characters three times, (to avoid accidental selection), selects serial mode/reset.

Channel number/frequency assignment are programmed via PL5 and the 1684 programmer. For further details refer to the ST450 Technical Manual (part number 1891 1129).

	PL4		PL1		
	pin 1	pin 2	pin 1	pin 2	pin 3
Analogue flat	LINK				
Analogue pre-emphasis	LINK			LINK	
Digital			LINK		



Number of RF channels	:	4 maximum using two bit parallel input 100 channels programmed using asynchronous serial input
Modulation type	:	F1D/F2D/F3D
RF output power		
High power	:	500mW
Low power	:	5mW nominal (can be adjusted between 1mW and full power)
TX switching time	:	<2ms, (<50ms from $\overline{\text{STBY}}$)
Frequency stability	:	±3ppm over temperature range
Modulation input		
Analogue	:	200mV to 5V p.p. AC coupled
Digital	:	TTL/CMOS compatible (5V to 10V) DC coupled
Modulation bandwidth	:	9Hz to 3kHz at -3dB
Supply voltage	:	+12 volts DC nominal (+9 to 15 volts possible)
Supply current		
High power	:	250mA typical at 500mW
Low power	:	80mA typical at 5mW
Standby	:	<50mA $\overline{\text{STBY}}$ LOW/$\overline{\text{TXE}}$ HIGH, <5mA $\overline{\text{STBY}}$ HIGH
Spurious emissions	:	Complies with ETS/CEPT specification
Size	:	113 x 57 x 22mm (l x w x h)
Weight	:	110g
Temperature (operating)	:	-10 to +55 °C standard
Temperature (storage)	:	-30 to +70 °C