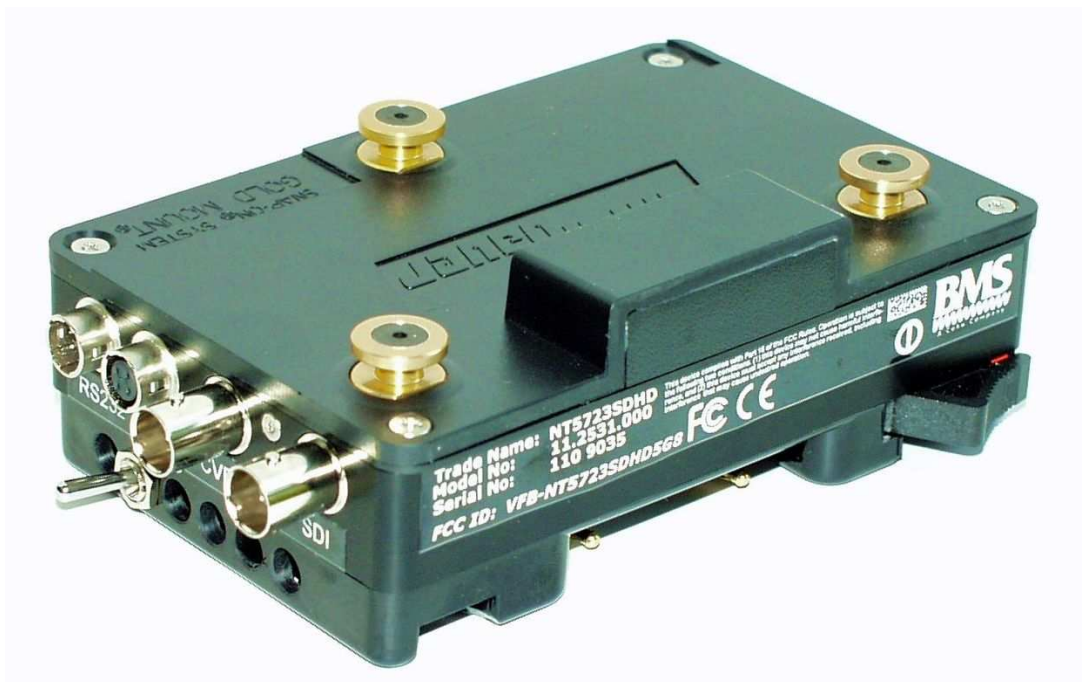




Broadcast Microwave Services, Inc.

# NT5723SDHD CAMERA-BACK TRANSMITTER

## Operation Manual



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## Document Revision History

Initial release	March 2011	Rev. -
Pin assignement for data interface added	August 2011	Rev. 2.0

## Conventions Used in This Manual



**NOTE:** Notes provide supplementary information. They are highlighted for emphasis, as in this example, and are placed immediately after the relevant text.



**CAUTION:** Cautions give information which, if strictly followed, will prevent damage to equipment or other goods. They are boxed for emphasis, as in this example, and are placed immediately preceding the point at which the reader requires them.



**WARNING:** Warnings give information which, if strictly observed, will prevent personal injury or death, or damage to personal property or the environment. They are boxed and shaded for emphasis, as in this example, and are placed immediately preceding the point at which the reader requires them.

## ATTENTION!



**DO NOT** use right-angle connectors or adapters on the RF Power Out cable assemblies. Right-angle connectors may have significant RF power loss at the operating frequencies of this system.



**FOR ALL BMS TRANSMITTERS** – Operation of a BMS transmitter product generally requires a license. It is the responsibility of the user to obtain all required operating licenses.



**ONLY FOR PRODUCTS AWAITING FCC CERTIFICATION** – This device has not been authorized as required by the rules of the US Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased, in the US until authorization is obtained.



**Acceptance Test Procedure (ATP)** test data results by product serial number are typically shipped with all units and indicate the equipment to be operating within advertised specifications. Contact BMS to request this data.



**Read and Follow Instructions!** All safety and operating instructions should be read before this product is operated. All operating and use instructions should be followed. This manual should be retained for future reference.



**EMC Compliance** – This equipment is certified to the EMC requirements detailed in the technical specifications. To maintain this certification, only use the cables supplied or if in doubt contact BMS Customer Service.



**Compliance** – This device complies with several standards. Please refer to the chapter 1.5 *Specifications*, in this manual for a complete list of standards.



This device is designed to be used in mobile configurations only. It must be used only when the distance between antenna and body/head is at least 20 cm (see picture 1).



Picture 1

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## About This Manual

This product manual provides instructions and information on the installation and operation of the indicated BMS product.

The manual should be stored in a safe place and remain readily available during the operational lifetime of the unit. It is not intended for this manual to be revised by issuing and replacing individual pages. Any revision will be done by a complete reissue. Additional copies of this manual can be ordered from BMS. The equipment should only be passed on to a third party together with the relevant documentation. For further information please visit our website at [www.bms-inc.com](http://www.bms-inc.com).

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# 1 INTRODUCTION



The NT5723SDHD is BMS' COFDM camera-back transmitter for a wide range of sporting events and news broadcast applications. It features low power consumption, one frame latency and 200 mW output power.

## 1.1 Display and Control buttons

The transmitter uses a side-mounted control panel, shown below. The control buttons are capacitive type buttons and a light pressure is needed to operate them.

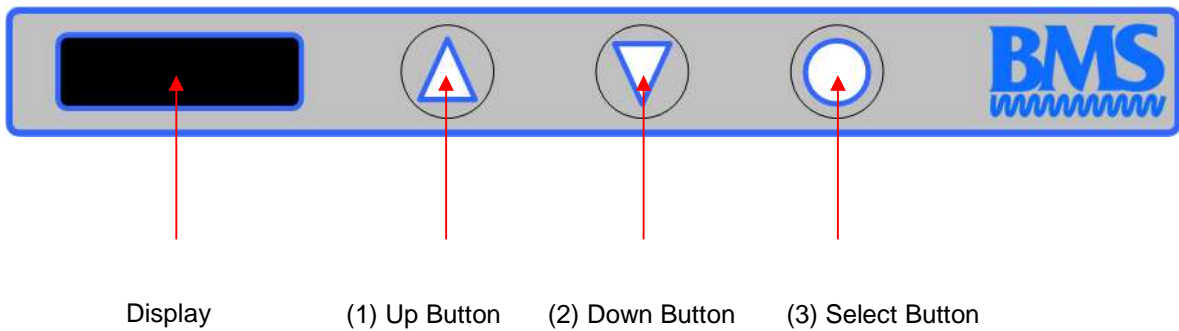
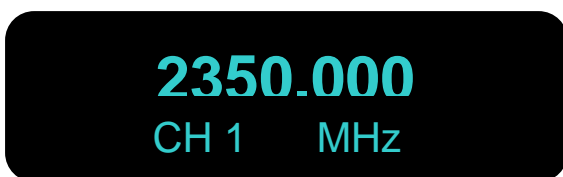
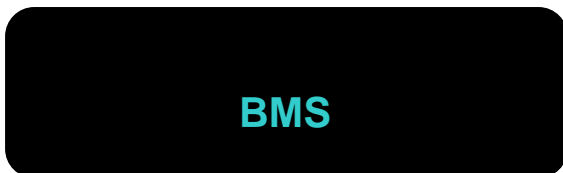


Figure 1. Transmitter control panel

## 1.2 Using the transmitter

When the transmitter is powered on, the display will show the letters, BMS; then, once the bootup is completed, the frequency and current channel will appear.



### 1.3 Configuring the transmitter

To change the transmitter's settings, touch the Select Button for about 3 seconds to enter the menu. NOTE: If the menu is already activated and does not allow any further commands from any of the control buttons, the display change back to the start screen after about one minute.

(1) CHANNEL	Preset Channel 1 - 30
(2) FREQUENCY	Transmission frequency set
(3) VIDEO INPUT	CVBS / SDI / AUTO
(4) VIDEO CONFIG	720x480i / 720x480p / 720x576i / 720x576p / 1280x720i / 1280x720p / 1920x1080i / 1920x1080p
(5) FRAME RATE	23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60 fps
(6) CONSTELLATION	QPSK / 16QAM / 64QAM
(7) HP FEC	1/2 ; 2/3 ; 3/4 ; 5/6 ; 7/8
(8) GUARD INTERVAL	1/4 ; 1/8 ; 1/16 ; 1/32
(9) BAND WIDTH	6 / 7 / 8 MHz
(10) OUTPUT POWER	OFF / LOW / HIGH
(11) DISP CONTRAST	1 (Dark) ... 15 (Bright)
(12) DISP OFF TIME	--- (Off) ... 240sec. (15sec. Step)
(13) SOFTWARE	Shows software version

Figure 2. Menu structure

To change any of the settings, enter the associated menu by touching the select button. Use the up or down arrow buttons to navigate through the menus.

If you are in a submenu the display will appear as below. Two arrows are shown with the different values which can be set.



If the display OFF time is set to a value between 15 seconds and 240 seconds, the display will turn off after that time. To “wake up” the display you must slide your finger from the display to the BMS logo, pressing all three buttons along the way.

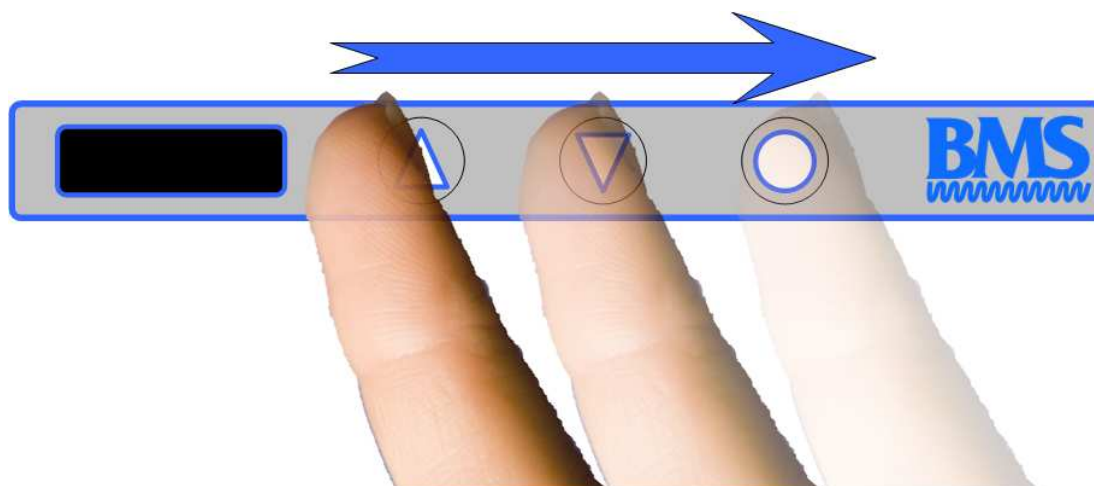




Figure 3. Waking up the unit's display

## 1.4 Inputs and outputs

<b>BNC (f)</b>	Video in	SDI; HD-SDI	75 $\Omega$
<b>BNC (f)</b>	Video in	CVBS	75 $\Omega$
<b>4pol Hirose (f)</b> 	Audio in  1: GND 2: Audio R+ 3: Audio L+ 4: n.c.	2x Analog audio in Line or Mic Level	
<b>4pol Hirose (m)</b> 	Data  1: Data in 2: Data TX 3: Data RX 4: GND	RS232	
<b>SMA (f)</b>	RF out	200mW	50 $\Omega$



## 1.5 Specifications

Frequency	5.725 to 5.850 GHz
Channel Bandwidth	8 MHz
RF Output Power	max. 200 mW (Adjustable via PC: Low - High)
Modulation	COFDM, ETS 300744, 2k carriers QPSK, 16 QAM, 64 QAM
MPEG-2 Encoding	MPEG-2 SP@ML MPEG-2 MP@ML MPEG-2 SP@HL(HD) MPEG-2 422 in SD and HD
Video	1920x1080i (HD) 23.98/24/25/29.97/30 fps 1280x720p (HD) and 720x576i 23.98/24/25/29.97/30/50/59.94/60 fps
Power Input	12 to 17.5 VDC
Consumption approx.	<16 W
Temperature	- 10°C to + 50°C (-4°F to +122°F)
Relative Humidity	5 % to 95 %
Dimensions (W x D x H)	NT5723SDHD without brackets: 158 x 80 x 46 mm (6.22"x3.14"x1.81")
Weight	390g (0.86 lbs)

### 1.5.1 CE Marking



The CE mark is affixed to indicate compliance with the following directives:

89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility.

73/23/EEC of 19 February 1973 on the harmonisation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits.

## 1.5.2 FCC Marking

FCC ID: VFB-NT5723SDHD5G8 for P/N 11.2531.000

### **Radio Frequency Interference (FCC 15.105)**

This equipment has been tested and found to comply with the limits for Class B digital devices pursuant to Part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### **Labeling Requirements (FCC 15.19)**

This equipment complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

### **Modifications (FCC 15.21)**

Changes or modifications to this equipment not expressly approved by BMS may void the user's authority to operate this equipment.

## **2 PREVENTIVE MAINTENANCE**

There are no preventive maintenance procedures for this product.

### 3 REPAIR SERVICE/WARRANTY INFORMATION

Repair service is available from the factory for repair or replacement within 14 days after receipt of a malfunctioning unit. Warranty position will be established upon receipt of inoperative equipment. If equipment is confirmed defective and is BMS' responsibility, repair action will be initiated immediately. When the malfunction is determined to be user responsibility, repair will be initiated after confirmation with the user's buying authority.

BMS warrants that, at time of delivery, the product will be free from defects in materials and workmanship provided the equipment or system is installed, operated and maintained in accordance with the Operation and Maintenance manual or such other BMS documentation as may be applicable. Any such defect reported to BMS within two years, BMS will take reasonable and prompt action to repair or replace such equipment. Should any of the components be defective, please contact BMS immediately. Please have the following information available so we can best serve you. Much of this information can be found on the unit's BMS product label (**Fehler! Verweisquelle konnte nicht gefunden werden.**).

- Customer and contact person names, with address, phone, and e-mail address;
- BMS model number;
- Product serial number;
- Detailed description of problem;
- Return information.

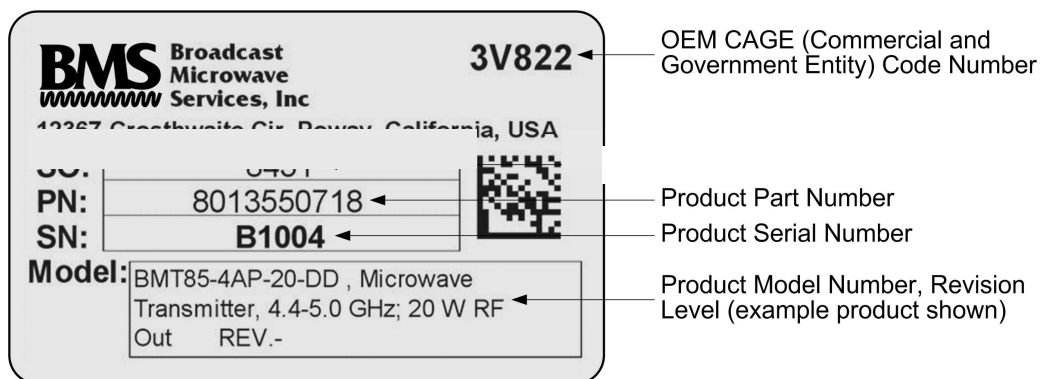


Figure 4. BMS product label

Defective components under BMS warranty will be repaired/replaced promptly at the discretion of BMS. Items no longer under warranty will require a PO before repairs can proceed.



**NOTE: All goods returned for service require an RMA number. Any goods received without an RMA number may not be processed in a timely manner. Please contact BMS for an RMA number.**

### 3.1 Customer Service Contact Information

**Broadcast Microwave Services, Inc.**

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