

AV-TC 30 I - WSS

Decoder of the WSS Signal (Wide Screen Signalling)

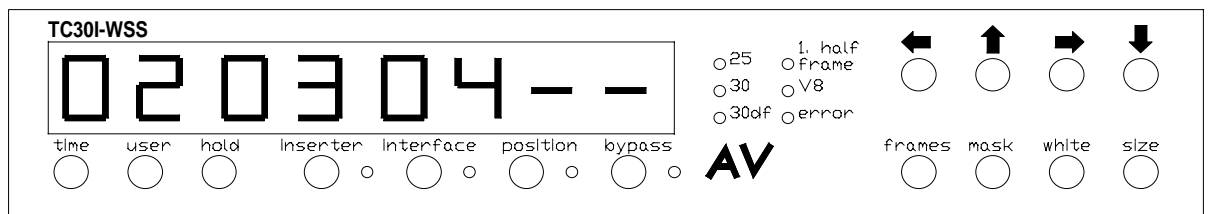


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A1 Safety Instructions

- General rules:** Only use the device as directed in a dry atmosphere. Treat the AV-TC 30 I - WSS with the same care as other studio devices. Please follow the advice in the following operators manual. Whenever it is likely that safe operation is impaired, the instrument must be made inoperative and secured against unintended operation. The appropriate service authority must then be informed.
- Damages in transit:** If the device shows obvious damages from transit the shipper in question must be notified and the dealer must be informed.
- Positioning:** Position device only where sufficient air circulation can be maintained. Extreme temperatures, dust, humidity, shocks and strong electromagnetic fields must be avoided.
- Maintenance:** Use a moist soft textured fabric cloth when cleaning the housing. Do not use polish or any other cleaning agents.
- Repairs:** The AV-TC 30 I - WSS does not require any extra maintenance. There are no user serviceable parts inside the device. Repairs should be sent to an authorized service partner.
- EMC:** The EMC regulations are observed only under the following condition: use high quality shielded cables at data inputs and outputs.

A2 Copyright

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A3 CE Declaration of Conformity

We,

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herewith declare under our sole responsibility that the

AV-TC 30 I - WSS

meets the intent of the following directives, standards and specifications:

89/336/EEC Electromagnetic Compatibility

EN 50081-1 Emissions

- EN 55022
- EN 55103-1

EN 50082-1 Immunity

- EN 55024
- EN 55103-2

1 Functions Overview

The AV-TC 30 I - WSS decodes the data of line 23 of a 625-line television signal according to the European Standard **EN 300 294** (version V1.3.2, 1998-04). The following data groups will be decoded, checked and visibly inserted in a video window:

- Data group 1 = aspect ratio: aspect ratio label, letterbox format, position.
- Data group 2 = enhanced services: film bit, colour coding bit, helper bit.
- Data group 3 = subtitles: subtitles yes/no and mode.
- Data group 4 = others: surround sound bit, copyright information.

Changes and extensions are reserved.

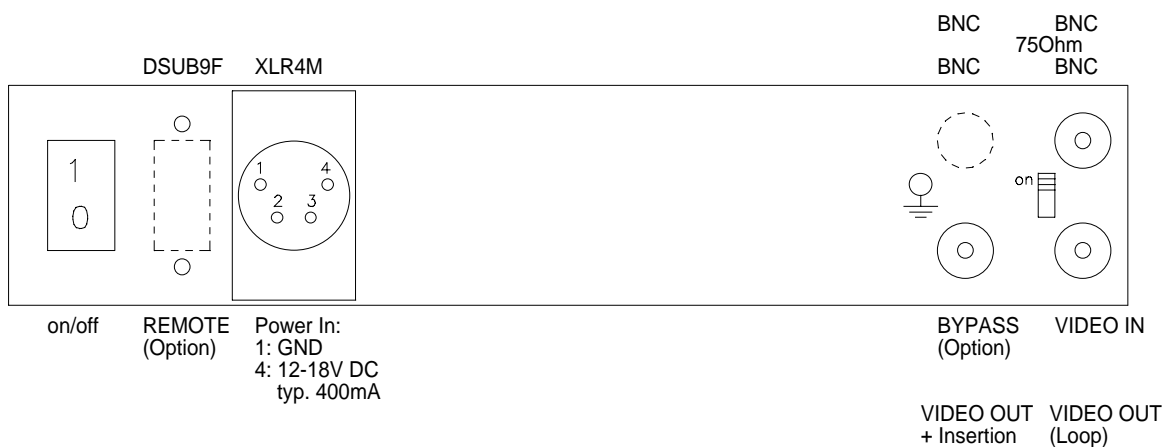
For the insertion of the decoded data in a video window you may select:

- any position at the screen;
- different display formats;
- the brightness;
- the background mask.

The AV-TC 30 I - WSS may be enhanced with the following modules:

- Serial interface RS232 or RS422 for WSS data transfer.
- External switch bypass: switching on/off the video window.
- GPI: relay closure dependent on WSS data evaluation.

2 Rear Panel and Technical Data



- Dimensions:** 214 (W) x 43 (H) x 262 (D) mm (½ 19", 1U)
- Weight:** 1.5 kg approx.
- Operating temperature:** 5°C to 40°C
- Allow. humidity of air:** 35% to 85%
- Power supply:** 12 - 18V DC
- Power consumption:** typical 400mA at 14V DC
- Video input:** CVBS, 1Vpp, 75Ω
- Video input:** CVBS, 1Vpp ±1%, 75Ω
- Bypass (Option):** external switch input, function = insertion on/off
 Input "LOW": max +0.8V
 Input "HIGH": 2 - 15V

3 Display of the WSS Data

There are 14 WSS bits in total, grouped in 4 groups:

Group 1	Group 2	Group 3	Group 4
b0 b1 b2 b3	b4 b5 b6 b7	b8 b9 b10	b11 b12 b13
aspect ratio	enhanced services	subtitles	others

The AV-TC 30 I - WSS visibly inserts up to five rows in a CVBS video signal. The WSS data thus will be decoded and then displayed in a text or bit format. Each row may be assigned to one out of four formats:

Format 0 switches off the row.

Format 1 indicates the bits (LSB = first left):

- Row 1: bits b0...b3, e.g. **1: 0001**
- Row 2: bits b4...b7, e.g. **2: 0000**
- Row 3: bits b8...b10, e.g. **3: 0000**
- Row 4: bits b11...b13, e.g. **4: 0000**
- Row 5: bits b0...b13, e.g. **5: 0001·0000·000·000**

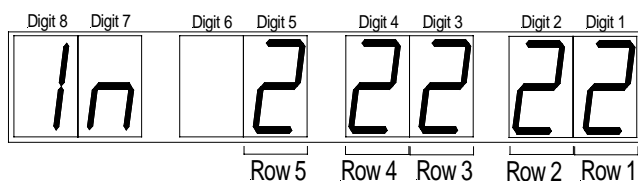
Format 2 assigned to row 1...4: text (see chapter 7 for detailed description):

- Row 1: group 1, e.g. **4:3 FULL FORMAT**
- Row 2: group 2, e.g. **CAMERA/STANDARD/-HLP**
- Row 3: group 3, e.g. **-SUB TXT/NO OPEN SUB**
- Row 4: group 4, e.g. **-S.SOUND/-CR/-RES**
- Row 5: indicates the bits same as format 1, but the bits (of the last valid WSS data) will be displayed even if currently no valid WSS data can be received.

Format 3 not used.

In the case that no valid WSS data can be received, this will be indicated after a delay of approx. 4 seconds by e.g.: **1: --**, except at row 5 at format 2.

Press **insert** button (LED at this button lights-up) to select the formats. The front display shows e.g.:



The flashing field indicates the row, at which the format may now be changed using \uparrow and \downarrow buttons. The next field (row) is selected using \leftarrow or \rightarrow buttons.

Use **time** or **hold** button to quit the set mode.

4 Adjusting the Video Window

The video window can display up to five rows. Each row reserves place for up to 20 characters. Each row may be switched on or off individually, and may be placed vertically at one of nine vertical positions.

All rows together may be positioned in fine steps horizontally and vertically.

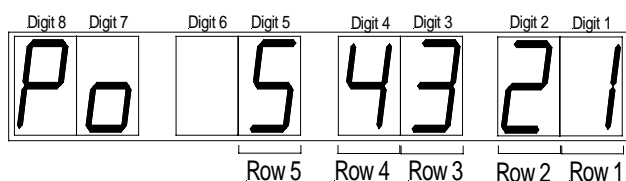
Remark upon adjusting the horizontal position: place will be reserved always for the maximal number of characters (= 20) of each row, i.e. a short text cannot be placed right justified.

Remark upon adjusting the vertical position: one row cannot be placed at the upper border and another row at the lower border of the screen. Only combining the fine and the individual method of vertical positioning the whole video window can be placed either at the upper or the lower border of the screen.

The following buttons can be used to immediately adjust the video window:

Button	Description
←	Fine positioning of the video window in left hand direction.
↑	Fine positioning of the video window in upward direction.
→	Fine positioning of the video window in right hand direction.
↓	Fine positioning of the video window in downward direction.
mask	Modifies the insertion representation: with border / with background mask / without border or background mask.
white	Brightness of the characters, five steps.
mask + white	Both buttonss pressed simultaneously: brightness of border/background, four steps.

Press **position** button (LED at this button lights-up) to individually position the rows. The front display shows e.g.:



The flashing number indicates the row, which may now be adjusted vertically using ↑ and ↓ buttons. The next number (row) is selected using ← or → buttons.

Use **time** or **hold** button to quit the set mode.

BYPASS button: Switch on/off the video window as a whole:

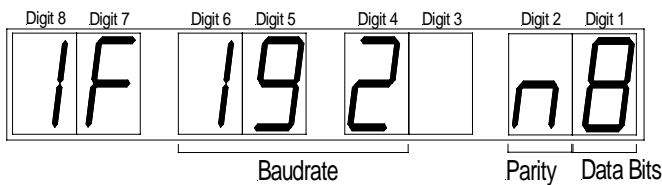
LED off: Video window switched on.

LED on: Bypass activated, the video window is switched off.

5 Serial Interface Parameters

This function requires a hardware module. With this module built in, the status display will show a **2** at digit 5 (second step) after power-on.

The parameters of the serial interface may be adjusted. Press **interface** button (LED at this button lights-up), the front display shows e.g.:



The flashing field may be changed using ↑ and ↓ buttons. The next field is selected using ← or → buttons.

Digit 1 (**Data Bits**): 7 or 8.

Digit 2 (**Parity**):

- n no parity bit transmitted or received.
- o odd parity bit.
- E even parity bit.
- 1 fixed parity bit 1 transmitted, parity check disabled.
- 0 fixed parity bit 0 transmitted, parity check disabled.

Digits 4..6 (**baud rate**): 4800, 9600, 19200, 38400.

Use **hold** button to quit the set mode and to store a new adjustment.

Use **time** button to quit the set mode without storing a new adjustment.

6 Further Functions of Buttons

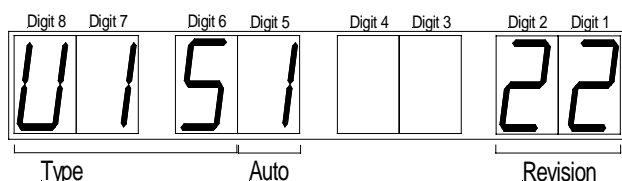
Button	Function
time + size: pressed simultaneously for a long time	"Reset"

7 After Power-On

After power-on the stored data of the last current setting will be tested. In case of a storage error a „reset“ will be made, i.e. the factory settings will be restored and written into the non-volatile memory as well. During this operation the display indicates **reset**.

Then, status messages are displayed in two steps, and all LEDs light up for testing purposes.

Step 1 e.g.:

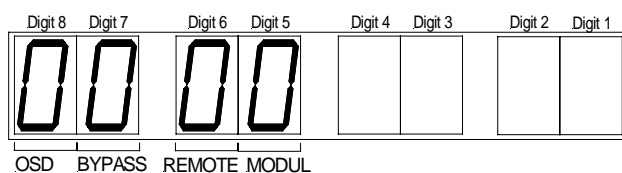


Digits 8..6 indicate the type of the unit = "U1S" ("U0S" = VPS, "U2S" = VPS + WSS).

Digit 5 indicates the presence of the automatic threshold control, 0 = no, 1 = yes.

Digits 2 and 1 indicate the revision of the firmware.

Step 2 e.g.:



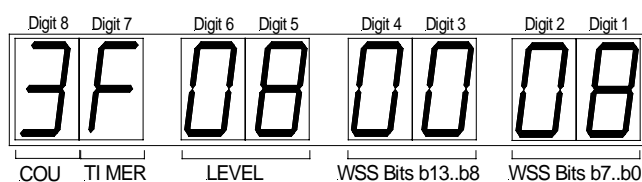
Digit 8 indicates the type of built-in display controller.

Digit 7 indicates the BYPASS option.

Digit 6 indicates the REMOTE option (serial interface).

Digit 5 indicates the presence of the serial interface: =0 no, =2 yes.

After these two steps the display indicates data concerning the WSS data reception, e.g.:



COU: Indicates the quality of the data reception. The reception without errors will be indicated by a stable 3, no reception is possible if always 0 is displayed.

TIMER: Timer for the shut-off delay after bad data reception. In the case that no valid WSS data can be received the timer counts down from hexadecimal "F" to "0". The reception without errors will be indicated by an "F". As soon as "0" is reached the insertion of text will be switched off.

LEVEL: Indicates the value of the D/A converter of the data separation circuit.

Digits 4/3 Hexadecimal representation of the WSS bits b13 ... b8.

Digits 2/1 Hexadecimal representation of the WSS bits b7 ... b0.

8 Decoding of the WSS Data

Group 1, bits b0 b1 b2 (b3 = parity), aspect ratio:

<i>b0 b1 b2</i>	<i>Aspect Ratio</i>	<i>Full format/ Letterbox</i>	<i>Position</i>	<i>No. of active lines</i>	<i>Text representation row 1 of TC30I-WSS</i>
000	4:3	full format	-	576	4:3 FULL FORMAT
100	14:9	letterbox	centre	504	14:9 BOX CENTRE
010	14:9	letterbox	top	504	14:9 BOX TOP
110	16:9	letterbox	centre	430	16:9 BOX CENTRE
001	16:9	letterbox	top	430	16:9 BOX TOP
101	> 16:9	letterbox	centre	-	+ 16:9 BOX CENTRE
011	14:9	full format	centre	576	4:3 FULL FOR. CENTRE
111	16:9	full format	-	576	16:9 FULL FORMAT

Group 2, bits b4 b5 b6 (b7 = not used), enhanced services:

<i>b4</i>	<i>Film Bit</i>	<i>Text TC30I-WSS</i>	<i>b5</i>	<i>Colour Coding Bit</i>	<i>Text TC30I-WSS</i>	<i>b6</i>	<i>Helper Bit</i>	<i>Text TC30I-WSS</i>
0	Camera mode	CAMERA	0	Standard	STANDARD	0	No Helper	-HLP
1	Film mode	FILM	1	Motion Adaptive Colour Plus	COLOUR+	1	Helper Signal	+HLP

Row 2 e.g.: **CAMERA/STANDARD/-HLP**

Group 3, bits b8 b9 b10, subtitles:

<i>b8</i>	<i>Subtitles within Teletext</i>	<i>Text TC30I-WSS</i>	<i>b9 - b10</i>	<i>Subtitling Mode</i>	<i>Text TC30I-WSS</i>
0	no subtitles	-SUB TXT	0 0	no open subtitles	NO OPEN SUB
1	subtitles	+SUB TXT	1 0	subtitles in active image area	ACTIVE AREA
			0 1	subtitles out of active image area	OUT OF AREA
			1 1	reserved	-

Row 3 e.g.: **-SUB TXT/NO OPEN SUB**

Group 4, bits b11 b12 b13, others:

<i>b11</i>	<i>Surround Sound</i>	<i>Text TC30I-WSS</i>	<i>b12</i>	<i>Copyright Bit</i>	<i>Text TC30I-WSS</i>	<i>b13</i>	<i>Generation Bit</i>	<i>Text TC30I-WSS</i>
0	no surround sound information	-S.SOUND	0	no © asserted or status unknown	-CR	0	Copying not restricted	-RES
1	Surround Sound Mode	+S.SOUND	1	© asserted	COPYR	1	Copying restricted	RESTR

Row 4 e.g.: **-S.SOUND/-CR/-RES**

9 Option: Indicate the Aspect Ratio by Relays

With this option four relays indicate the aspect ratio decoded out of the WSS data:

Relay 1: 4:3
 Relay 2: 14:9
 Relay 3: 16:9
 Relay 4: > 16:9

Only one relay may have its contacts (COM - NO) closed. After power-on all relays have its contacts open, until a valid aspect ratio have been decoded. In case of a failure of the video signal or the WSS data, the last decoded status will be kept.

The contacts of the relays are connected to a 9-pin DSUB female connector "REMOTE". The contacts are marked COM (= Common) and NO (= Normally Open).

Technical data of the relay:

Max. switchable power: 5W
 Max. switchable voltage: 175V
 Max. switchable current: 0.25A
 Max. transportable current: 1A

Pinning of "REMOTE" connector:

