



**BLONDER
TONGUE**
LABORATORIES, INC.

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INSTRUCTION MANUAL

DHDP Series

Digital High Definition Processor Series

DHDC-DV (Downconverter) • Stock No. 6264A

DHDC-UV (Upconverter) • Stock No. 6265A

DHDC-DH (Downconverter-Horizontal) • Stock No. 6261A

DHDC-UH (Upconverter-Horizontal) • Stock No. 6262A

DHDP-V - Vertical Combo Pack • Stock No. 6266B; (Combo: 6264A + 6265A)

DHDP-H - Horizontal Combo Pack • Stock No. 6263A; (Combo: 6261A + 6262A)



651211000E

The lightning flash with arrow-head symbol within an equilateral triangle is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER FROM THIS UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE

NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV System Installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Safety Instructions

WARNING!



You should always follow these instructions to help ensure against injury to yourself and damage to your equipment.

Read all safety and operating instructions before you operate the modulator.

Retain all safety and operating instructions for future reference.

Heed all warnings on the modulator and in the safety and operating instructions.

Follow all installation, operating, and use instructions.

Unplug the modulator from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the modulator.

Do not use accessories or attachments not recommended by Blonder Tongue, as they may cause hazards, and will void the warranty.

Do not operate the modulator in high-humidity areas, or expose it to water or moisture.

Do not place the modulator on an unstable cart, stand, tripod, bracket, or table. The modulator may fall, causing serious personal injury and damage to the modulator. Install the modulator only in a mounting rack designed for 19" rack-mounted equipment.

Do not block or cover slots and openings in the modulator. These are provided for ventilation and protection from overheating. Never place the modulator near or over a radiator or heat register. Do not place the modulator in an enclosure such as a cabinet without proper ventilation. Do not mount equipment in the rack space directly above or below the modulator.

Operate the modulator using only the type of power source indicated on the marking label. Unplug the modulator power cord by gripping the plug, not the cord.

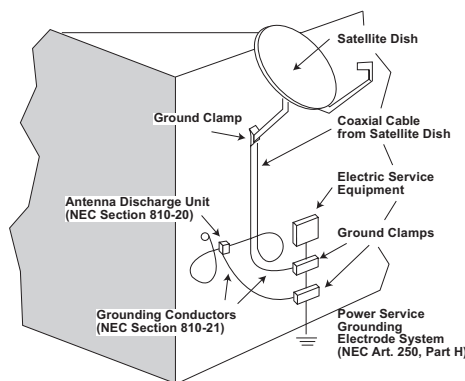
Safety Instructions - continued

The modulator is equipped with a three-wire ground-type plug. This plug will fit only into a ground-type power outlet. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the ground-type plug.

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

Be sure that the outdoor components of the antenna system are grounded in accordance with local, federal, and National Electrical Code (NEC) requirements. Pay special attention to NEC Sections 810 and 820.

See the example shown in the following diagram:



We strongly recommend using an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the modulator is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the lines between the modulator and the antenna. This will prevent damage caused by lightning or power line surges.

Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing the antenna, take extreme care to avoid touching such power lines or circuits, as contact with them can be fatal.

Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.

Never insert objects of any kind into the modulator through openings, as the objects may touch dangerous voltage points or short out parts. This could cause fire or electrical shock.

Do not attempt to service the modulator yourself, as opening or removing covers may expose you to dangerous voltage and will void the warranty. Refer all servicing to authorized service personnel.

Unplug the modulator from the wall outlet and refer servicing to authorized service personnel whenever the following occurs:

- The power supply cord or plug is damaged;
- Liquid has been spilled, or objects have fallen into the modulator;
- The modulator has been exposed to rain or water;
- The modulator has been dropped or the chassis has been damaged;
- The modulator exhibits a distinct change in performance.

When replacement parts are required, ensure that the service technician uses replacement parts specified by Blonder Tongue. Unauthorized substitutions may damage the modulator or cause electrical shock or fire, and will void the warranty.

Upon completion of any service or repair to the modulator, ask the service technician to perform safety checks to ensure that the modulator is in proper operating condition.

Description

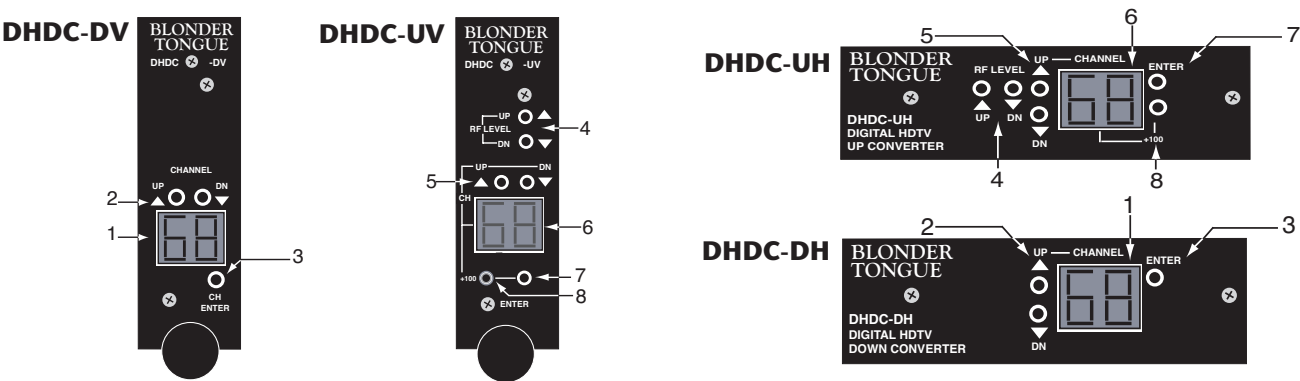
The DHDP Series consists of 2 parts, the DHDC-D (Downconverter) and the DHDC-U (Upconverter). The units are intended to operate as a system in order to process digital & high definition television (HDTV) signals.

Operating Controls and Indicators

Front Panel

- 2-Digit LED Display — 2 digit LED Channel display
- Up/Down Channel Buttons — Up & down push button controls for setting the channel.
- Enter Button - Button used to enter the displayed channel into memory.
- Up/Down RF Level Buttons — Up & down push button controls for RF level.
- Up/Down Channel Buttons — Up & down push button controls for channel and mode adjustment.
- 2-Digit LED Display — 2 digit LED display for Channel, mode and RF level information.
- Enter Button — Button used to “enter” channel, mode or RF level selection into memory.
- +100 Channel LED Indicator — LED illuminates to indicate CATV channels 100 to 135.

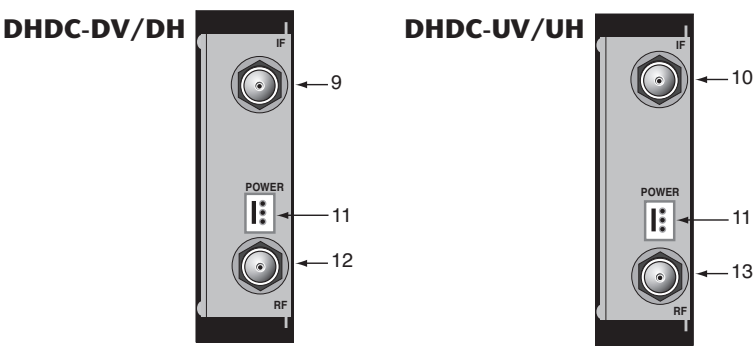
Front Panel Views



Rear Panel

- IF Output - “F” Connector
- IF Input - “F” Connector
- Power Connector
- RF Input - “F” Connector
- RF Output - “F” Connector

Rear Panel Views



Specifications

DHDC-D Down Converter

Input Tuning Range (Off-Air 8VSB) (54-216, 470-864 MHz)
 VHF: CH 2-13, UHF: CH 14-69, CH 70-78 Extended UHF

Operating Input Level Range: -20 to +25 dBmV

Installation Input Range: -15 to +20 dBmV
 (any undesired channel < +25 dBmV)

Max undesired to desired channel ratio: < +25 dBc

Max adjacent to desired channel ratio: < +15 dBc

IF Output Level Digital: +30 dBmV*

Rejection of Adjacent Analog Channels: -70 dB Typical

Power Requirements:
 110 mA @ +12 VDC, 370 mA @ +5 VDC

DHDC-U Up Converter

IF Input Level: +30 dBmV

Output Frequency Range:
 Standard CATV, IRC, HRC & Broadcast 54-864 MHz

RF Output Level Digital: +45 dBmV*

Display Error: ±2 dB

Output Level Adjustment Range: +35 to +45 dBmV

Spurious Output (54-864 MHz): -60 dBc

Phase Noise @ 10 kHz Offset: -95 dBc/Hz

Broadband Noise, Out of Channel: -70 dBc (5.5 MHz BW)

Power Requirement:
 310 mA @ +12 VDC, 320 mA @ +5 VDC

* Average Measurement

Setting Up the Units

1. Place each of the units into the appropriate Blonder Tongue Micromodular chassis by sliding the unit into the retaining rails.
 - a. It is recommended to physically place one Downconverter and one Upconverter next to one another in the chassis.
2. Connect the digital or HDTV signal (8VSB format) to the RF 'F' connector on the DHDC-D unit.
3. Connect the IF 'F' connector of the DHDC-D to the IF 'F' connector of the DHDC-U.
4. Connect the RF 'F' connector of the DHDC-U to the appropriate combining device.
5. Connect each unit to the power supply using one of the power supply cables.

Programming the Unit

The DHDC-D unit is intended to accept any digital UHF or VHF signal and convert it to IF. The DHDC-U unit is intended to accept any digital IF signal and process it to any channel from 54-864 MHz. The unit has 4 valid operating modes, STD CATV, IRC, HRC & Broadcast UHF/VHF. It comes factory set to operate in Standard CATV Mode. If you wish to change the operating mode skip to the Operating Mode Selection section.

Programming the DHDC-D

1. Navigate to the desired channel number by depressing the CH ▲ UP and ▼ DN buttons.
 - a. Press and hold the CH ▲ UP or ▼ DN arrow button for fast scrolling.
2. Press the ENTER button when you reach the desired channel setting. This will tune the downconverter input to the corresponding frequency for this entry.
 - a. The LED display will blink continuously during the channel programming process and will not change the channel until the ENTER button is depressed.
 - b. The unit has a special feature that alerts an operator of an inadvertent or desired change to the unit by flashing LED readout. The LED will continue to flash for 30 seconds if the ENTER button is not depressed and if no additional entries are made then the readout will return to the display of the previously programmed channel entry setting.

Programming the DHDC-U

The DHDC-U unit comes factory set to operate in the Standard CATV mode. The unit has 4 valid operating modes: STD, CATV, IRC, HRC & Broadcast UHF/VHF (see the operating mode selection section for programming information).

Programming a Channel

1. Navigate to the desired channel number by depressing the CH ▲ UP and ▼ DN buttons.
 - a. Continue past 99 for channels 100-135, the +100 LED will illuminate.
 - b. Press and hold the CH ▲ UP or ▼ DN arrow button for fast scrolling.
2. Press the ENTER button when you reach the desired channel setting. This will tune the upconverter output to the corresponding frequency for this entry.
 - a. The LED display will blink continuously during the channel programming process and will not change the output channel until the ENTER button is depressed.
 - b. The unit has a special feature that alerts an operator of an inadvertent or desired change to the unit by flashing LED readout. The LED will continue to flash for 30 seconds if the ENTER button is not depressed and if no additional entries are made then the readout will return to the display of the previously programmed channel entry setting.

Programming the DHDC-U (Continued)

Programming RF Level

1. Depress the RF Level ▲ UP or ▼ DN buttons to increment or decrement the RF output level to the desired setting.
 - a. The unit has a specified adjustment range of +35 dBmV to +45 dBmV output. The unit software however, will permit entries from +33 to +47 dBmV, the out of range entries of 33-34 & 46-47 dBmV are meant for usage to correct any display error, allowing the unit to be operated in the specified range.

ATTENTION!

It is also recommended to set the output level to +45 dBmV for optimum noise performance and externally attenuate down to a desired level.

2. Press the ENTER button when you reach the desired RF Level setting. This will tune the upconverter output to the corresponding level entry.
 - a. The LED display readout will also flash continuously during the RF Level programming process. The LED display will continue to flash for 30 seconds if the ENTER button is not depressed and then will return to the display of the previously programmed channel entry setting.

Operating Mode Selection

The unit has 4 valid operating modes: STD CATV, IRC, HRC & Broadcast UHF/VHF.

The DHDC-U unit comes factory set to operate in the Standard CATV mode.

To change the operating mode

1. Simultaneously depress the RF Level ▲ UP and ▼ DN buttons for approximately 5 seconds.
2. The Channel LED display will switch to the operating mode selection.
3. Use the RF Level ▲ UP and ▼ DN buttons to select the desired mode:
 - a. C = STD CATV
 - b. H = HRC
 - c. I = IRC
 - d. U = Broadcast (VHF/UHF)
4. After selecting the desired mode depress the ENTER button to set the mode.
5. The unit will return to the channel display mode.
 - a. Programming will reflect the mode chosen – See Appendix for detailed frequency plans.
 - b. The operating mode will also flash continuously during the mode selection process. The LED display will continue to flash for 30 seconds if the ENTER button is not depressed and then will return to the display of the previously programmed channel & mode entry setting. NOTE: THE MODE PRESENTLY IN MEMORY WILL BE DISPLAYED WITHOUT FLASHING DURING THE MODE SELECTION PROCESS.

Trouble Shooting

A continuously flashing Channel Display indicates an Error Condition detected by the unit microcontroller.

Sample conditions include:

- Channel Selector Entry does not match the channel number on which the unit is operating, the display will flash for 30 seconds and then revert back to the previous CH entry
- E1 is displayed if the Input VCO is Not Locked
- E2 is displayed if the Output VCO is Not Locked

Correction Suggestion

The User should perform the following steps to correct an Error Condition:

1. Check that the Channel Display is set to the desired channel & reset as appropriate.
2. Check that the unit is set to the appropriate desired operating mode.
3. Verify the unit output on a spectrum analyzer.
4. Disconnect and reconnect power to the unit.

If an error condition continues to be displayed, unit should be replaced and serviced.

Appendix A

DHDC-D Input & DHDC-U Output Center Frequencies

VHF Broadcast Channels	
Channel	(MHz)
2	57
3	63
4	69
5	79
6	85
7	177
8	183
9	189
10	195
11	201
12	207
13	213
UHF Broadcast Channels	
Channel	(MHz)
14	473
15	479
16	485
17	491
18	497
19	503
20	509
21	515
22	521
23	527
24	533
25	539
26	545
27	551
28	557
29	563
30	569
31	575
32	581
33	587
34	593
35	599
36	605
37	611
38	617
39	623
40	629
41	635
42	641
43	647
44	653
45	659
46	665
47	671
48	677
49	683
50	689
51	695
52	701
53	707
54	713
55	719
56	725
57	731
58	737
59	743
60	749
61	755
62	761
63	767
64	773
65	779
66	785
67	791
68	797
69	803

Appendix B

DHDC-U Output Center Frequencies

EIA Chan.	Standard CATV	Incremental (IRC)	Harmonic (HRC)
2	57	57	55.75
3	63	63	61.75
4	69	69	67.75
1		75	73.75
5	79	81	79.75
6	85	87	85.75
95	93	93	91.75
96	99	99	97.75
97	105	105	103.75
98	111	111	109.75
99	117	117	115.75
14	123	123	121.75
15	129	129	127.75
16	135	135	133.75
17	141	141	139.75
18	147	147	145.75
19	153	153	151.75
20	159	159	157.75
21	165	165	163.75
22	171	171	169.75
7	177	177	175.75
8	183	183	181.75
9	189	189	187.75
10	195	195	193.75
11	201	201	199.75
12	207	207	205.75
13	213	213	211.75
23	219	219	217.75
24	225	225	223.75
25	231	231	229.75
26	237	237	235.75
27	243	243	241.75
28	249	249	247.75
29	255	255	253.75
30	261	261	259.75
31	267	267	265.75
32	273	273	271.75
33	279	279	277.75
34	285	285	283.75
35	291	291	289.75
36	297	297	295.75
37	303	303	301.75
38	309	309	307.75
39	315	315	313.75
40	321	321	319.75
41	327	327	325.75
42	333	333	331.75
43	339	339	337.75
44	345	345	343.75
45	351	351	349.75
46	357	357	355.75
47	363	363	361.75
48	369	369	367.75
49	375	375	373.75
50	381	381	379.75
51	387	387	385.75
52	393	393	391.75
53	399	399	397.75
54	405	405	403.75
55	411	411	409.75
56	417	417	415.75
57	423	423	421.75
58	429	429	427.75
59	435	435	433.75
60	441	441	439.75
61	447	447	445.75
62	453	453	451.75

EIA Chan.	Standard CATV	Incremental (IRC)	Harmonic (HRC)
63	459	459	457.75
64	465	465	463.75
65	471	471	469.75
66	477	477	475.75
67	483	483	481.75
68	489	489	487.75
69	495	495	493.75
70	501	501	499.75
71	507	507	505.75
72	513	513	511.75
73	519	519	517.75
74	525	525	523.75
75	531	531	529.75
76	537	537	535.75
77	543	543	541.75
78	549	549	547.75
79	555	555	553.75
80	561	561	559.75
81	567	567	565.75
82	573	573	571.75
83	579	579	577.75
84	585	585	583.75
85	591	591	589.75
86	597	597	595.75
87	603	603	601.75
88	609	609	607.75
89	615	615	613.75
90	621	621	619.75
91	627	627	625.75
92	633	633	631.75
93	639	639	637.75
94	645	645	643.75
100	651	651	649.75
101	657	657	655.75
102	663	663	661.75
103	669	669	667.75
104	675	675	673.75
105	681	681	679.75
106	687	687	685.75
107	693	693	691.75
108	699	699	697.75
109	705	705	703.75
110	711	711	709.75
111	717	717	715.75
112	723	723	721.75
113	729	729	727.75
114	735	735	733.75
115	741	741	739.75
116	747	747	745.75
117	753	753	751.75
118	759	759	757.75
119	765	765	763.75
120	771	771	769.75
121	777	777	775.75
122	783	783	781.75
123	789	789	787.75
124	795	795	793.75
125	801	801	799.75
126	807	807	805.75
127	813	813	811.75
128	819	819	817.75
129	825	825	823.75
130	831	831	829.75
131	837	837	835.75
132	843	843	841.75
133	849	849	847.75
134	855	855	853.75
135	861	861	859.75

Limited Warranty

Blonder Tongue Laboratories, Inc. (BT) will at its sole option, either repair or replace (with a new or factory reconditioned product, as BT may determine) any product manufactured by BT which proves to be defective in materials or workmanship or fails to meet the specifications which are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing (i) for a period of one (1) year from the date of original purchase (or such shorter period of time as may be set forth in the license agreement specific to the particular software being licensed), with respect to iCentral™ (hardware and software) and all other software products (including embedded software) licensed from BT, (ii) for a period of one (1) year from the date of original purchase, with respect to all MegaPort, IPTV products and fiber optics receivers, transmitters, couplers and integrated receivers/distribution amplifiers (including TRAILBLAZER™, RETRO-LINX™ and TWIN STAR™ products) as well as for VideoCipher® & DigiCipher® satellite receivers, and (iii) for a period of three (3) years from the date of original purchase, with respect to all other BT products. Notwithstanding the foregoing, in some cases, the warranty on certain proprietary sub-assembly modules manufactured by third party vendors and contained in BT products and on certain private-label products manufactured by third parties for resale by BT are of shorter duration or otherwise more limited than the standard BT limited warranty. In such cases, BT's warranty with respect to such third party proprietary sub-assembly modules and private-label products will be limited to the duration and other terms of such third party vendor's warranty. In addition, certain products, that are not manufactured but are resold by BT, carry the original OEM warranty for that product. The limited warranty set forth in this paragraph does not apply to any product sold by BT, which at the time of sale constituted a Closeout Product.

BT will at its sole option, either repair or replace (with a new or factory reconditioned product, as BT may determine) any product sold by BT which at the time of sale constituted a refurbished or closeout items ("Refurbished Product" and "Closeout Product"), which proves to be defective in materials or workmanship or fails to meet the specifications which are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing, for a period of ninety (90) days from the date of original purchase. Notwithstanding the foregoing, in some cases, the warranty on third party software and on certain proprietary sub-assembly modules manufactured by third party vendors and contained in BT products and on certain private-label products manufactured by third parties for resale by BT are of shorter duration or otherwise more limited than the BT limited warranty for Closeout Products. In such cases, BT's warranty for Closeout Products constituting such third party software, third party proprietary sub-assembly modules and private-label products will be limited to the duration and other terms of such third party vendor's warranty. In addition, notwithstanding the foregoing, (i) certain Closeout Products that are not manufactured (but are resold) by BT, carry the original OEM warranty for such products, which may be longer or shorter than the BT limited warranty for Refurbished or Closeout Products. All sales of Refurbished or Closeout Products are final.

To obtain service under this warranty, the defective product, together with a copy of the sales receipt or other satisfactory proof of purchase and a brief description of the defect, must be shipped freight prepaid to: Blonder Tongue Laboratories, Inc., One Jake Brown Road, Old Bridge, New Jersey 08857.

This warranty does not cover damage resulting from (i) use or installation other than in strict accordance with manufacturer's written instructions, (ii) disassembly or repair by someone other than the manufacturer or a manufacturer-authorized repair center, (iii) misuse, misapplication or abuse, (iv) alteration, (v) lack of reasonable care or (vi) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

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All claims for shortages, defects and non-conforming goods must be made by Buyer in writing within five (5) days of receipt of merchandise, which writing shall state with particularity all material facts, concerning the claim then known to Buyer. Upon any such complaint, Buyer shall hold the goods complained of intact and duly protected, for a period of up to sixty (60) days. Upon the request of BT, Buyer shall ship such allegedly nonconforming or defective goods, freight prepaid to BT for examination by BT's inspection department and verification of the defect. BT, at its option, will either repair, replace or issue a credit for products determined to be defective. BT's liability and responsibility for defective products is specifically limited to the defective item or to credit towards the original billing. All such replacements by BT shall be made free of charge f.o.b. the delivery point called for in the original order. Products for which replacement has been made under the provisions of this clause shall become the property of BT. Under no circumstances are products to be returned to BT without BT's prior written authorization. BT reserves the right to scrap any unauthorized returns on a no-credit basis. Any actions for breach of this contract must be commenced by Buyer within thirteen (13) months after the cause of action has accrued. A copy of BT's standard terms and conditions of sale, including the limited warranty, is available from BT upon request. Copies of the limited warranties covering third party proprietary sub-assembly modules and private label products manufactured by third parties are also available from BT on request. VideoCipher® & DigiCipher® are registered trademarks of Motorola Corp.



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