

User Manual

70 METER HDMI EXTENDER

ULTRA-SLIM 70 METER HDMI VIA HDB_{ASET} EXTENDER SET
4K HDMI 2.0 WITH HDCP 2.2 & BI-DIRECTIONAL POWER



The AVPro Edge primary extender is the most cost effective, state of the art, and reliable single CAT 70 meter extender on the market today. It solves problems for both commercial and residential markets for distributing high value 4K UHD content from rack to display. With the additional ability to cascade extenders, affordable and reliable HDMI extension is now possible. Additionally AC-EX70-UHD-KIT offers solutions for UHD/HD uncompressed distribution in residential digital entertainment centers, retail stores, AV events that require reliable and long distance distribution, suitable for Data Center, Control Rooms, Conference Rooms, Schools and Corporate Training environment.

Product Overview

Model Numbers:

- AC-EX70-UHD-T ~ HDBaseT Transmitter w/ IR, RS-232
- AC-EX70-UHD-R ~ HDBaseT Receiver w/ IR, RS-232

Features

- HDMI 2.0
- 4K60 4:2:0, 4K30 4:4:4
- HDR Support up to 4:2:2 12 Bit
- Ultra Slim (.47 inch/12mm)
- Supports 3D
- HDCP 2.2 & Earlier
- CEC Pass Through
- 70M (230ft) on 1080P (Cat6a)
- Up to 40m (131ft) on 4K (Cat6a)
- 48v PoH (Power Over HDBaseT, only one Power Supply Needed)
- I-Pass Feature for control system "pass-through"
- 3-20v protection circuit built in for safe IR transport
- Bi Directional RS232 Transport
- LED Status, Link, Power indication lights
- Use single UTP/STP LAN cable (CAT-5E/6A) with substitute HDMI cable to achieve long distance transmission.
- Supports uncompressed PCM 2- Ch., LPCM 5.1 & 7.1, Dolby Digital, DTS, Dolby TrueHD, DTS HD-Master Audio, Atmos on HDMI
- ESD protection circuitry (Inputs & Outputs) to 7KV
- Can Cascade

Whats in the box

- AC-EX70-UHD-TX (Transmitter)
- AC-EX70-UHD-RX (Receiver)
- 48V Power Supply (One supplied as Rx is powered by Tx)
- 1 x IR Tx Unit
- 1 x IR Rx Unit
- 3.5mm stereo plug to male DB9 for RS-232 to serial port
- 3.5mm stereo plug to female DB9 for RS-232 to PC
- Rack Ear

VIDEO:	
VIDEO RESOLUTIONS	UP TO 4K 60HZ 4:2:0 & 4K30 4:4:4
VESA RESOLUTIONS	UP TO 2560X2048 (QSXGA)
HDR FORMATS/RESOLUTIONS	4K24 4:2:2 12 BIT, 4K24 4:2:0 10 BIT
COLOR SPACE	YUV (COMPONENT), RGB (CSC: REC. 601, REC. 709, BT2020, DCI, P3 D6500)
CHROMA SUBSAMPLING	4:4:4, 4:2:2, 4:2:0 SUPPORTED
DEEP COLOR	UP TO 16 BIT (1080) UP TO 12 BIT (4K)
AUDIO:	
AUDIO FORMATS SUPPORTED HDMI	PCM 2.0 CH, LPCM 5.1 & 7.1, DOLBY DIGITAL, DTS 5.1, DOLBY DIGITAL PLUS, DOLBY TRUEHD, DTS-HD MASTER AUDIO, DTS-X, DOLBY ATMOS
DISTANCE:	
HDBASET DISTANCE (4K & HDR)	40 METERS (131 FEET) (CAT 6A)
HDBASET DISTANCE (FULL HD)	70 METERS (230 FEET) (CAT 6A)
HDMI LEAD IN/OUT	UP TO 50 FEET (USING BULLET TRAIN HDMI)
HDMI LEAD IN/OUT (W/ AOC CABLE)	UP TO 130 FEET (USING BULLET TRAIN AOC)
OTHER:	
BANDWIDTH	10.2 GBPS
CEC	YES
HDCP	HDCP 2.2 AND EARLIER
PORTS:	
HDMI (TX & RX)	TYPE A
HDBASET	RJ45 W/ POH FOR HDBASET RECEIVERS
IR RX	3.5MM STEREO (3 CONDUCTOR)
IR OUT & I-PASS	3.5MM MONO (2 CONDUCTOR)
RS232	3.5MM STEREO (3 CONDUCTOR)
ENVIRONMENTAL:	
OPERATING TEMPRATURE	23 TO 125°F (-5 TO 51°C)
STORAGE TEMPERATURE	-4 TO 140°F (-20 TO 60°C)
HUMIDITY RANGE	5-90% RH (NO CONDENSATION)
POWER:	
POWER CONSUMPTION (TOTAL)	7.5 WATTS MAX
POWER SUPPLY - MATRIX	INPUT: AC 100-240V ~ 50/60HZ OUTPUT: DC 48V .5A
DIMENSIONS:	
DIMENSIONS (TX/RX ONLY, HEIGHT/DEPTH/WIDTH)	MM: 12.7 X 80 X 100.3 INCH: 0.5 X 3.15 X 3.95
DIMENSIONS (PACKAGED HEIGHT/DEPTH/WIDTH)	MM: 90 X 135 X 155 INCH: 3.54 X 5.31 X 6.1
WEIGHT (UNIT)	0.4 LBS (0.18 KG)
WEIGHT (PACKAGED)	0.6 LBS (0.27 KG)
*SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. MASS & DIMENSIONS ARE APPROXIMATE	

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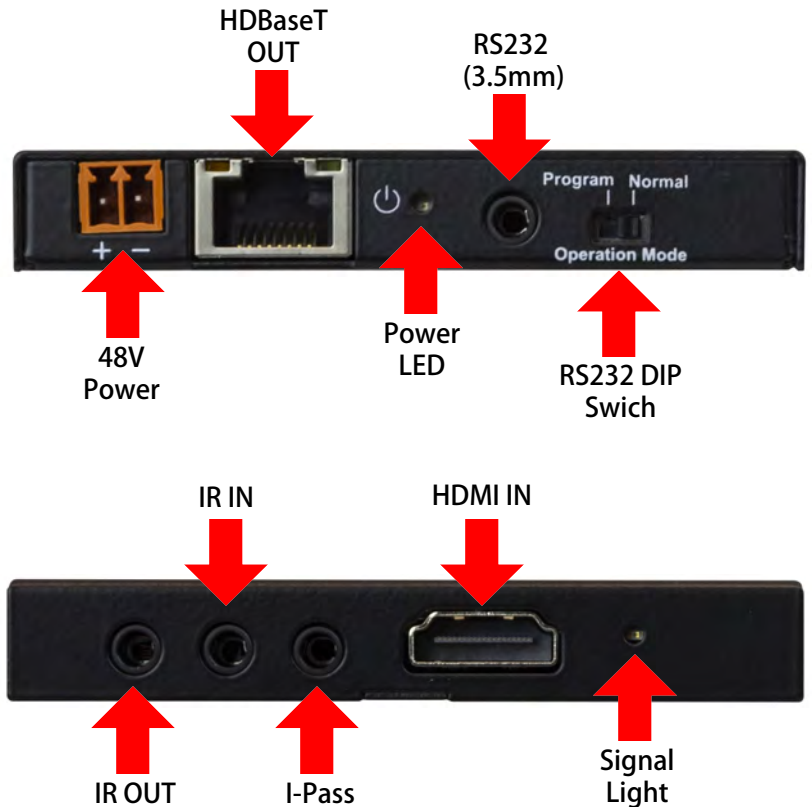
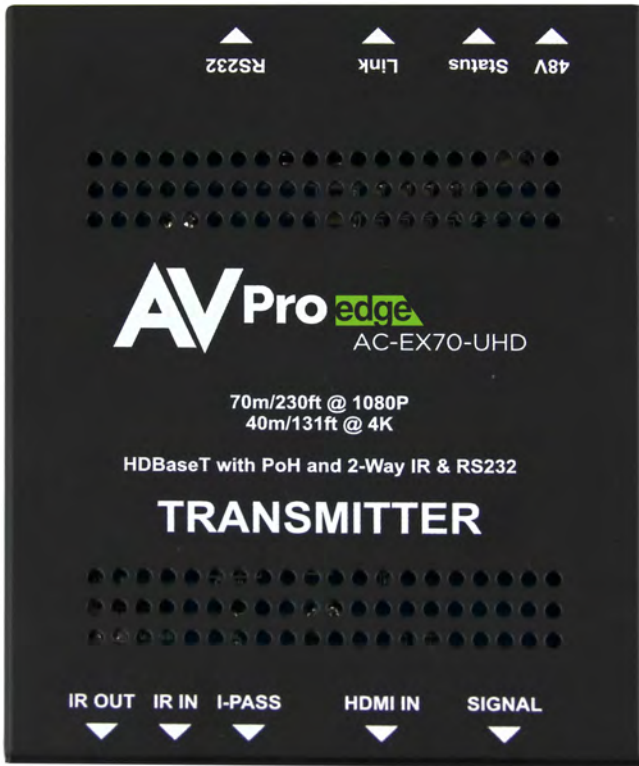
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▪ **The Transmitter**



Indicator Troubleshooting Lights on the Transmitter:

POWER - On the back by power supply input: (Red) This is an indicator that the power is connected. There are only two states for light:

- Light Is On = Power supply is connected and functioning.
- Light Is Off = Power supply is not connected or there is no power present. (In order to have power: check the power supply, USP, Outlet, etc...)

SIGNAL - On front by HDMI Port: (Blue) This indicator shows that the HDMI source is connected. The states are:

- Light Is On (Solid) = Sync w/ HDMI source is correct and solid.
- Light Is Flashing = The light flashes during the sync process. If it is flashing continuously, a picture may not be present.

If the **BLUE HDMI STATUS LIGHT** is flashing, check the following:

1. The source. Plug it directly into the display to be sure it's functioning properly.
2. Try a longer HDMI cable. Some HDMI cables do not sync well at shorter lengths.
3. Contact AVProEdge if these suggestions do not work.

Indicator Troubleshooting Lights on the Transmitter (cont.)

LINK - Above RJ45 (HDBT) Port: (Green) This indicator shows that the AV HDBT link between the Tx and Rx is intact. This light should ALWAYS be solid. If this light is flashing or not present attempt following:

1. Check the length. The maximum distances are 40m (131ft) on 4K and 70m (230ft) on 1080P.
2. Remove any coils of cable and make sure that there is not excess cabling.
3. Bypass all patch panels and punch-down blocks.
4. Re-terminate connectors. Sometimes, even if a cable tester indicates the run is valid, something may be slightly off.
5. Contact AVProEdge if these suggestions do not work.

STATUS- Above RJ45 (HDBT) Port: (Amber) This is an indicator showing that the power is present between the Transmitter and Receiver. This light ALWAYS BLINKS steadily indicating everything is OK. If you do not see this light, attempt the following:

1. Check the length. The maximum distances are 40m (131ft) on 4K and 70m (230ft) on 1080P.
2. Remove any coils of cable and make sure that there is not excess cabling.
3. Bypass all patch panels and punch-down blocks.
4. Re-terminate connectors. Sometimes, even if a cable tester indicates the run is valid, something may be just slightly off.
5. Try powering from the Receiver instead of the Transmitter (See Receiver page for more about PoE direction).
6. Contact AVProEdge if these steps do not work.

Powering the System

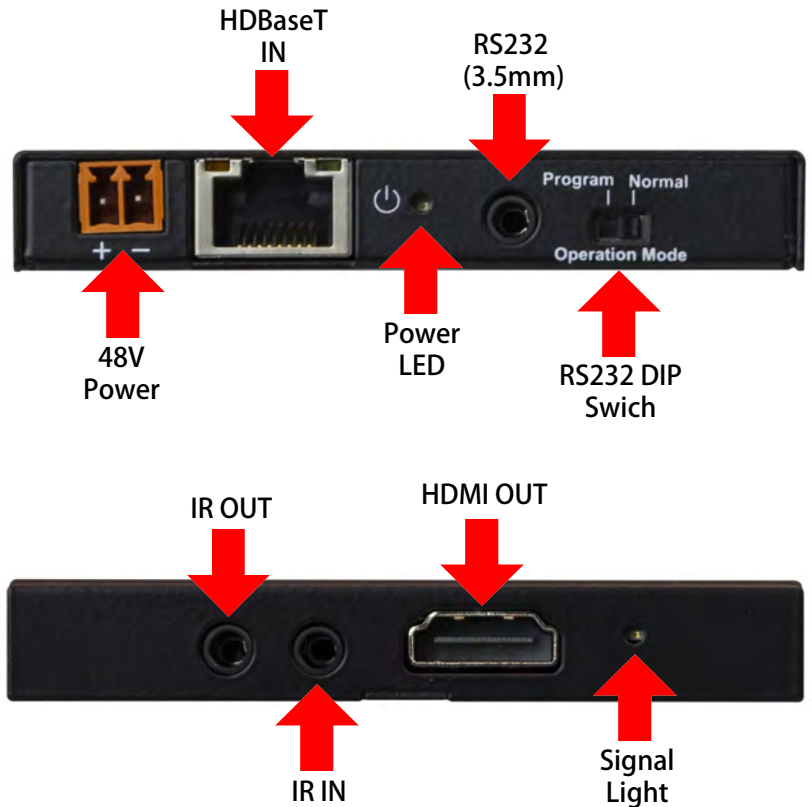
Bi-Directional Power - The AC-EX70-UHD-KIT allows you to choose where you power the system. You have to power options:

1. From the HDBaseT Tx - In this mode power will be supplied to the Rx through the CAT cable.
2. From the HDBaseT Rx - In this mode power will be supplied to the Tx through the CAT Cable (This is known as "Reverse Power")

***NOTE:** There is no button or switch to set the mode - Simply plug the power supply into the Tx or Rx and the system will electronically know what to do.



▪ **The Receiver**



Indicator Troubleshooting Lights on the Receiver:

POWER - On the back by power supply input: (Red) This is an indicator that the power is connected. There are only two states for light:

- Light Is On = Power supply is connected and functioning.
- Light Is Off = Power supply is not connected or there is no power present. (In order to have power: check the power supply, USP, Outlet, etc...)

SIGNAL - On front by HDMI Port: (Blue) This indicator shows that the HDMI sink is connected. The states are:

- Light Is On (Solid) = Sync w/ HDMI sink is correct and solid.
- Light Is Flashing = The light flashes during the sync process. If it is flashing continuously, a picture may not be present.

If the **BLUE HDMI STATUS LIGHT** is flashing, check the following:

1. Try a longer HDMI cable. Some HDMI cables do not sync well at shorter lengths
2. Try another port on the Display if possible
3. Contact AVProEdge if these suggestions do not work

Indicator Troubleshooting Lights on the Receiver (cont.)

LINK - Above RJ45 (HDBT) Port: (Green) This indicator shows that the AV HDBT link between the Tx and Rx is intact. This light should ALWAYS be solid. If this light is flashing or not present attempt following:

1. Check the length. The maximum distances are 40m (131ft) on 4K and 70m (230ft) on 1080P.
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3. Bypass all patch panels and punch-down blocks.
4. Re-terminate connectors. Sometimes, even if a cable tester indicates the run is valid, something may be slightly off.
5. Contact AVProEdge if these suggestions do not work.

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Powering the System

Bi-Directional Power - The AC-EX70-UHD-KIT allows you to choose where you power the system. You have to power options:

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2. From the HDBaseT Rx - In this mode power will be supplied to the Tx through the CAT Cable (This is known as "Reverse Power")

***NOTE:** There is no button or switch to set the mode - Simply plug the power supply into the Tx or Rx and the system will electronically know what to do.

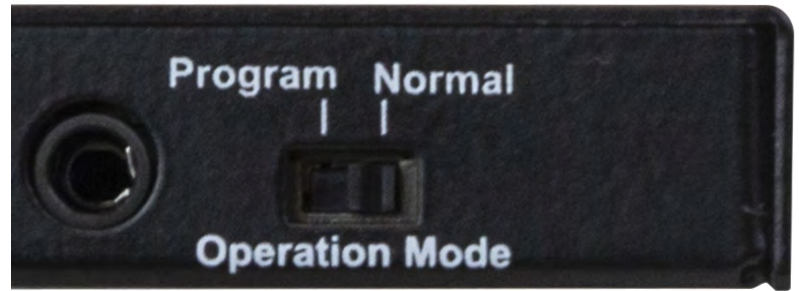


RS-232 Configuration

Setting Dip Switch

Serial RS232 Selection:

- Normal (Default) - This is the standard operating mode and allows for RS232 pass through.
- Program - This is only for firmware updating the units. For questions on updating the firmware please contact AVProEdge.



To use RS232 for control signal transmission, connect supplied RS232 cables to each end of the extenders RS232 ports. This Serial connection will work bi-directionally as a full featured RS232 extension cable.

***NOTE - The "Male" DB9 cable is typically for the display or used with the Rx & the "Female" is typically from a PC or Control System and used on the Tx.**

RS232 Pin-out

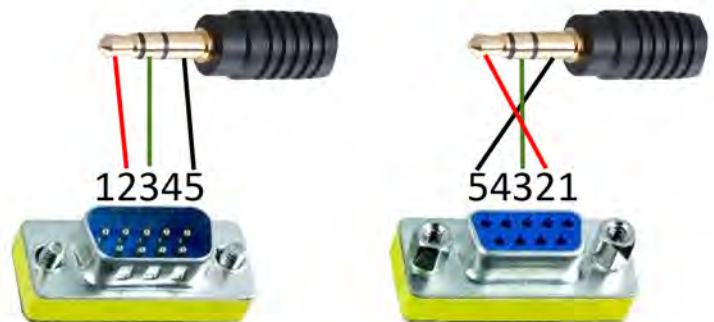
For custom RS232 cables the pin-out on the 3.5mm jack for the HDBaseT Tx and Rx is as follows:

- TIP = RS232 Tx (RS232 OUT/SEND)
- RING = RS232 Rx (RS232 IN/RECEIVE)
- SLEEVE = Ground

Typical RS232 routing requires Rx --> Tx and Tx--> Rx in straight configurations, meaning you always connect a RS232 Tx to a RS232 Rx (and a Rx to Tx). UNLESS the configuration is "NULL" or "Crossover" the a Tx will connect to Tx and Rx to Rx (This is rare.)

Provided 3.5mm to DB9 Cables:

TX = TIP (TOP) = PIN #2
 RX = RING (MIDDLE) = PIN #3
 GND = SLEEVE (BOTTOM) = PIN #5



IR Configuration

IR can be used in 3 ways:

1. **From Rack:** Use an IR Sensor on the AC-EX70-UHD Transmitter (IR In Port) to send IR Signals to the remote end (Receiver) and come out of the IR Out Port with an emitter.
2. **From Remote End:** Use an IR Sensor on the AC-EX70-UHD Receiver (IR In Port) and send IR Signals BACK to the rack and come out of the TRANSMITTER IR Out Port with an emitter.
3. **Control System Direct:** Plug an MONO 3.5mm cable into an emitter port of any control system directly into the "I-PASS" Port on the AC-EX70-UHD Transmitter to send pass IR Signals directly to the remote end.

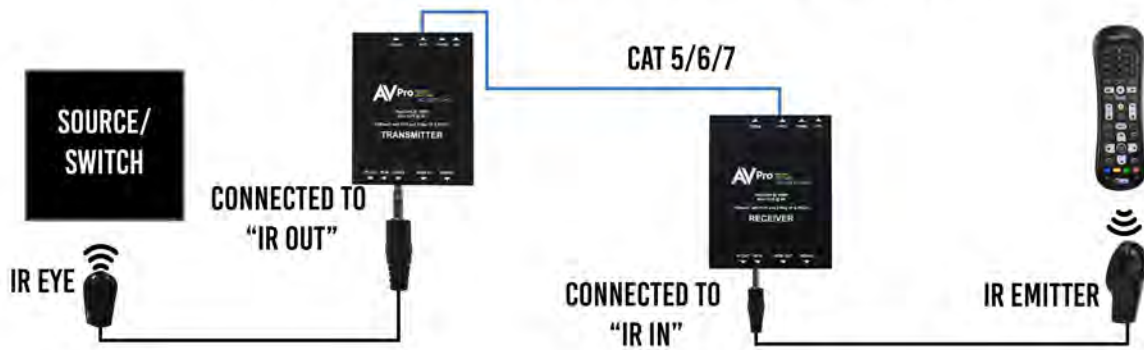
IR CONTROL - IPASS



IR CONTROL - SENDING



IR CONTROL - RECEIVING

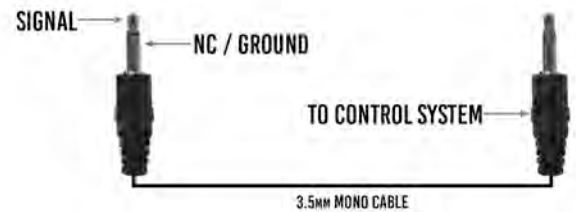


■ IR INPUT to AC-EX70-UHD-T (Transmitter) has two options

Use the "IR IN" to use an IR Receiving Eye



Use the "I-PASS" to connect directly to a control system



■ IR AC-EX70-UHD-R (Receiver)

■ IR OUTPUT

IR OUT Emitter (Non-Flashing)



■ IR INPUT

IR IN w/ Receiver Eye



■ *Troubleshooting*

- Verify Power - Pg.5 & 7
- Verify Connections - Check that all cables are properly connected
 - TX Indicator Troubleshooting Lights - Pg. 5-6
 - RX Indicator Troubleshooting Lights - Pg. 7-8
- IR Issues - Verify correct connections - P. 10-11
 - Visibly flashing Emitters may not function properly, try the IR Cables that come in the box if you are experiencing issues
- Still having issues, contact us
 - Support Direct - +1-605-977-3477

 - + 1-605-274-6055

 - Submit a support request ticket
 - <https://support.avproedge.com/hc/en-us/requests/new>

▪ Maintenance

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

- Use the power supplies provided. If an alternate supply is required, check voltage, polarity and that it has sufficient power to supply the device it is connected to.
- Do not operate these products outside the specified temperature and humidity range given in the above specifications.
- Ensure there is adequate ventilation to allow this product to operate efficiently.
- Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive components that may be damaged by any mistreatment.
- Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.
- Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

▪ Damage Requiring Service

The unit should be serviced by qualified service personnel if:

- The DC power supply cord or AC adaptor has been damaged
- Objects or liquids have gotten into the unit
- The unit has been exposed to rain
- The unit does not operate normally or exhibits a marked change in performance
- The unit has been dropped or the housing damaged

■ Support

Should you experience any problems while using this product, first, refer to the Troubleshooting section of this manual before contacting Technical Support. When calling, the following information should be provided:

- Product name and model number
- Product serial number
- Details of the issue and any conditions under which the issue is occurring

■ Warranty

If your product does not work properly because of a defect in materials or workmanship, AVProEdge (referred to as “the warrantor”) will, for the length of the period indicated as below, (Parts/Labor (10) Years), which starts with the date of original purchase (“Limited Warranty period”), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor. During the “Labor” Limited Warranty period there will be no charge for labor. During the “Parts” warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

This warranty extends to products purchased directly from AVPro or an authorized dealer. AVPro is not liable to honor this warranty if the product has been used in any application other than that for which it was intended, has been subjected to misuse, accidental damage, modification or improper installation procedures, unauthorized repairs or is outside of the warranty period. Please direct any questions or issues you may have to your local dealer before contacting AVPro.

Thank you for choosing AVProEdge!

Please contact us with any questions, we are happily at your service!



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