

Cookbook How to print colored traffic signage on HP Latex 360 and 365 printers



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1 Overview

Supported Printers, media and RIP

The recommendations of this document apply to the following printers:

- HP Latex 360
- HP Latex 365

The recommendations in this document apply to the following substrates:

- 3M[™] Diamond Grade [™] DG Reflective Sheeting Series 4000
- 3M™ High Intensity Prismatic Reflective Sheeting Series 3930
- 3M[™] Diamond Grade[™] VIP Reflective Sheeting Series 3990
- 3M[™] Engineer Grade Prismatic Reflective Sheeting Series 3430
- 3M™ Diamond Grade ™ Fluorescent LDP 3924

The only supported RIP for this application to be eligible for 3M MCS warranty is:

• SAi Production Manager Authorized 3M Traffic Edition (version 12 or later)

Application purpose

The recommendations of this document cover the following reflective application cases:

Description	Examples
Long term regulated traffic signs using the following colors as per ASTM D4956 – 09^{E1} norm: Green Blue Brown Red Purple Black Yellow Printed on white media.	RORTH 20 24 EAST Franklyn 1 wux
Temporary and Permanent regulated traffic signs for work zones printed with black color only with a colored background. The background color comes from the color of the film being used.	RDAD CLOSED
Non-regulated reflective signs printed on color or with black color only.	RESERVED MARKING BUS STOP

This document **does not cover** printing the following types of signs:

Description	Examples	Recommended work-around
Long term regulated traffic signs using the following as per ASTM D4956 – 09^{E1} norm:		Cut the desired shape(s) from colored reflective vinyl and apply it to the digitally-printed sign.
• Orange	\checkmark	
Combined with other colors (aside black)		

2 Before Printing

Download and install the media presets for the reflective substrate being used. Media presets can be downloaded either from the **media locator webpage** or by using the **Online Search** menu located on the printer front panel. For your convenience, a link to the media locator webpage is listed in the following section.

How to install media presets using media locator

To download and install media presets from the media locator to a Latex 3X0 printer follow the next steps:

- 1. **Open** a web browser **and visit the HP Media locator** page: <u>https://www.printos.com/ml/#/medialocator/latex</u>
- 2. Search for the media preset filtering by:
 - Printer: Latex 360/365
 - Supplier: 3M Commercial Graphic
 - Application: Reflective signage
- 3. Locate the profiles designed for your media:
 - DG 4000 Traffic Colors v3
 - 3930 Traffic Colors v3
 - 3990 Traffic Colors v3
 - 3430 Traffic Colors v3
 - 3924 Preset for Black Only Images v3

Make sure the profile name includes "v3" at the end.

0	Classification	Manufacturer	Name	
	Profiled Only	3M Commercial Graphics Division	DG 4000 Traffic Colors v3	
	Profiled Only	3M Commercial Graphics Division	3930 Traffic Colors v3	
	Profiled Only	3M Commercial Graphics Division	3990 Traffic Colors v3	
	Profiled Only	3M Commercial Graphics Division	3430 Traffic Colors v3	
	Profiled Only	3M Commercial Graphics Division	3924 Preset for Black Only Images v3	

4. Download the media presets from media locator:

_				
6		Printer	Models	HP Latex 110
3M Commercial G	raphics Division			HP Latex 115, HP Latex 210
C +1 330 - 764 - 7	1680	a second	200	Contractory Contractory
Washington		Appeca	DOITS.	Outdoor panners , Reflective si
a contraction of the second	10000	Туре		Self-Adhesive Vinyl
Aveledie wulde.	6*5cm(30*) 9*1cm(30*) 94cm(30*) 101cm(40*) *22cm(48*)	Sub-ty	26	Reflective
Download	media preset	- Pr	malate Version	NEDKUS_01_112_00 +
RP OWES	0MES	1	COLOS VAISIES	611
Tested on	Classification	- Martine Control of C	1	
Tested on	Classification	Printer setting	1	
Tested on 13-Nov-2011	Classification	Printer setting	100 CM/WG/20	
Tested on 15-Nov-2011	Classification	Printer setting Aritas Caton Caton Temperatur	100 CMVNcm	
Tested on 15-Nov-2017	Classification Photocory	Printer setting Anton Caton Cumg Temperatur Cator	100 CMVKCH 5117 Epidde	
Tested on 15Aw-2011	Classification	Printer setting Arise Cator Cator Cator HP Later Optimize	102 CMMAN 977 Enates 4	
Tested on	Classification	Printer setting Antos Coore Cump Tonyaratare Cump MP Later Optimize Set Linet	noo CMVNicos 1917 Erestes 4 1953	
Tested on 15-two-2017	Classification Profile of	Printer setting Antes Comp Tonyarature Cutter MP Later Optimizer Mol Lent Mpsk Tension	100 CM/Wark 107 Entitle 4 102	
Tested on 15-Nov-2017	Classification Profile of y	Printer setting Artise Cates Cates Office Philade Phil	933 CM/Wcore 977 Enutrie 4 950 200	
Tested on 15-fwx-3817	Classification Profile of y	Printer setting: Anton Colors Curing Temperature Office Million Colors Million Market Present State Anton Landree	900 CM/Weath 1977 Enutrie 4 350 2000 Dath Adhenion Wing	
Tested on 15-fwx-3817	Classification Professionly	Printer setting: Anton Colors Curing Temperature Office MP Later Optimize Set Level Very own disky Optimize Lead or Catalo	noo CMMMoor 1917 Ervates 4 200 Sall-Adventor Whyl Ervates	
Tested on 15-fwx-3817	Classification Professory	Printer setting: Anton Colors Curing Temperature Office Million Colors Mark Press Setting office Colors Colors Colors Colors Colors Colors Colors	noo CMMMorr 197 Srintes 4 300 Sall-Adventee Winyl Fradde Q	

5. Install the media presets on the printer using the Embedded Web Server (EWS).

The process to install the media preset is:

1. Enter IP	2. Setup	> 3. Import and select media present
Interview Interview <t< th=""><th>With an and a state of the state of the</th><th>Conception of the second second</th></t<>	With an and a state of the	Conception of the second
Open a web browser and enter the IP address of the printer where the profile will be installed.	On the top menu select the Setup tab. On the vertical menu, select Substrate presets management .	Then select Import and, using the browse button, navigate to and select the media preset (an .oms file) that was previously downloaded from the media locator webpage.

How to install media presets using the "online search" from the printer's menu

To download and install media presets from a Latex 3X0 printer follow the next steps:

- 1. Press the Substrate Library button on the main 2. Select the Online search option and filter the printer menu.
 - results by Brand (3M Commercial Graphics) & **Application** (Reflective Signage).

▲ LC large cartridge has expired	Substrate library				
	Q. ONLINE SEARCH	Bund 🖤 Typs 🔍	Camillation - Appl	iona (~	
	SELF-ADHESIVE				
	VINIT	ARPLEN	IDPF Balaforrad Baunar	-	
	TEXTLE (18)	ATP Adhesive Systems AG		-	
BARETRATE LIBRARY PRINTING JEB	Tence and allowed to the state	Advantage Sign & Graphic Sol.	anner	-	
	PVC BANNER (14)	Ahlstrom		-	
	PP & PE FILM &	Alprint	it Scrim Banner		
and the second s	BANNER	Alpha3			
	DET EX M	Aogy	rd Benner	<u>.</u>	
	PET PLP (0)	Arton	or Add as has this of		
	PAPER (32)	Auron Specialty Textiles Group	>> sanesive vinys	<u>.</u>	
AND COMPLETATIV PROVIDE STERS GUOD SETTINGS		Avery Denrison	er Film	1000	

- 3. Select the media preset to download by clicking the **download icon**.
 - DG 4000 Traffic Colors v3
 - 3930 Traffic Colors v3
 - 3930 Traffic Colors v3
 - 3430 Traffic Colors v3
 - 3924 Preset for Black Only Images v3

Make sure the profile name includes "v3" at the end.



4. The media preset will be **downloaded and installed automatically on the printer**.

How to install the SAi Production Manager Authorized 3M Traffic Edition RIP

Locate the activation voucher provided by SAi. Create an account at <u>www.saicloud.com</u> and activate the license. You will access a webpage where you will be able to download and install the software. The first time the software is launched, a setup window will ask for the printer model and, later, its IP address.

Find more detailed information at: <u>https://youtu.be/izQ5SxtuiR8</u> (for the HP Latex 360 and 365, the activation code is not included with the printer, as shown in the video, but should be provided by SAi).

The *SAi Production Manager Authorized 3M Traffic Edition 12* comes with pre-installed presets for the HP Latex printers, which include the right color formulations to match Traffic Signage standards on 3M sheeting.

Once the RIP detects new media presets have been installed on the printer, it will request to synchronize.

After a few minutes the printer and RIP will be ready to print.

Media presets for 3M reflective substrates

Different media presets have been created to print signs on 3M reflective substrates. The table below helps in choosing the right media preset depending on the sign being printed.

		Use			
Substrate	Media File Name	Information Signs (process colors)	Temporary Traffic Signs (Traffic BLACK only)	Warning, Regulatory and Guide Signs (traffic colors)	
3M 3924s	3M 3924 Preset for Black Only Images v3		√		
3M 3430 Series	3M 3430 Traffic Colors v3	V			
3M 3930 Series	3M 3930 Traffic Colors v3	√		\checkmark	
3M 3990 Series	3M 3990 Traffic Colors v3	√		\checkmark	
3M 4000 Series	3M 4000 Traffic Colors v3	\checkmark	1	\checkmark	

Find more information about the 3M MCS warranties in the Warranties Section of this document.

(*)The background color of the signal comes from the color of the film being used.

For Regulated Traffic signs, these are the supported regulated colors by media:

Substrate	Traffic BLACK	Traffic RED	Traffic GREEN	Traffic BLUE	Traffic BROWN	Traffic PURPLE	Traffic YELLOW
3M 3924s	√						
3M 3430 Series	√	√	✓				
3M 3930 Series	√	√	✓	~	√	~	
3M 3990 Series	√	~	~	~	~	~	
3M 4000 Series	√	√	\checkmark	1	~	1	√

3 Loading Media

When loading a 3M reflective substrate, HP advises following these recommendations:

• It is recommended to **load the media** in the second loading position.



• It is mandatory to use edge holders to print on reflective substrates.



• Before printing, advance the media until it shows up in the output bin.



• It is recommended to use the **Take-up reel** when printing on reflective substrates.

• It is recommended to set "Skew Acceptance" to 1mm/m for dimensional accuracy.

	Load configuration	
Skew acceptance: 17 to Slimmin	Length tracking:	Double-sided:
- 1 +		ott 👻
Printing zone:		
Pleton Ink collector	10	
Use loading accessory	5-61P	
Assisted menual load		and a
Use edge holders		
Show instructions		Continue

• When asked, **select the correct media preset** from the substrate library menu. The media presets for 3M reflective signs will be found inside the **"Self-Adhesive Vinyl"** media folder.

Substrate library				
		+ New Self-Adhesive Vinyl	>	
Q ONLINE SEARCH		+ New Self-Adhesive Vinyl optimized for tiling	>	
SELF-ADHESIVE VINYL	(22)	🖈 3M 3930 Traffic Colors v3	26 Sep 2018	
TEXTILE	(44)	Print mode: 12p_CMYKcm_158		
PVC BANNER	(4)	Clone Modify	Select	
PP & PE FILM & Banner	(6)	★ 3M 780mC-10r	24 Apr 2018	
PET FILM	(6)	🚖 3M U180mC-10	07 Jun 2018	
PAPER	01)	★ 3M1J680CR-10	05 Apr 2018	

Color Calibration

This step is not necessary for Non-regulated nor Black-only signs.

Color calibration is essential to ensure that printed colors meet traffic regulations.

When Color Calibration is required, the front panel will show a message of **Obsolete** or **Recommended** on the **Substrate menu**, as shown in the following image:



As the printer's internal calibration cannot be used on reflective material, an alternative process needs to be used:

- 1. Load a roll of 3M IJ180 Self-adhesive Vinyl on the printer
- 2. On the Front Panel, select it as your reflective material (3M 4000 Traffic Colors or 3M 3930 Traffic Colors)
- 3. Click on:

Settings > Image Quality Maintenance > Color Calibration > Calibrate



4. Once the calibration process is finished, **load the reflective material** as specified in the previous chapter.

Important: Do not reset the color calibration.

If for any reason, the color calibration is **"reset to factory"**, **delete that media profile**. Begin again by downloading it and reinstalling it, as explained in previous chapters.

4 Printing Color Regulated Signs

This step is not necessary for Non-regulated nor Black-only signs.

These instructions reference the RIP: SAi Production Manager Authorized 3M Traffic Edition 12

First of all, verify the color calibration does not appear as **Obsolete** or **Recommended** on the **Substrate menu**.

If it is **Obsolete**, follow the instructions in the chapter **Color Calibration** in this document.

	Substrate			
TROLL	C OK Type: Self-Adhesine Vinyl Hame: 3M DB 4000 Traffic Calors v1 With: 1373 mm Langth Lift: Universal Printing zone: Plate installed Toto-up neal: Chinestalled Double-outled: Off Color Calibration (Percommended)			
	X Nove Tain-ro test			

Important: In your image editor, define the colors on the image as **spot colors**. The following naming must be used for each color (Caution: the names are case-sensitive):

- Traffic **RED**
- Traffic **GREEN**
- Traffic **BLUE**
- Traffic **PURPLE**

- Traffic **BLACK**
- Traffic BROWN
- Traffic YELLOW

If the images are created using *SAi FlexiPRINT Authorized 3M Traffic Edition 12*, these colors will already be defined in the color palette.

The RIP will later translate these spot colors to the right CMYK values to comply with the ASTM D4956 – 09^{E1} norm.



• You may send the job to the RIP directly from *SAi FlexiPRINT Authorized 3M Traffic Edition 12*, by clicking on *RIP and Print*.



- Select the correct Preset and ensure **"Use Color Correction"** is enabled on the Color management tab.
- Then, click the *Send* button.

RIP and Print			
Latex 365 Printer@TCP/IP 🗾	dot	Status	
I Traffic HP365 3930 Seri ▼			Layout Preview
Output settings Use color correction Output profile: 3M 3930 Traffic (Media: 3M 3930 Traffic (Print mode: Default Color mode: CMYK(84 Resolution: 300x300	Color Settings V Ignore ov Solors v3_12p_CMYKcm_150.icc Colors v3(Default) Dots) V DPI	srprint ▼	e <u>12 28 24 20 1</u> e 12 8 4
Dither type:	Screen.		
Miscellaneous settings Print substrate Print dimensions and labels Print as senarations:	Color: Black	yptions	
Al Print separations in color	Print color bands Top Top Batom Rig	9 . 8 . 8 .	
Use printer spotcolors	Total size: 33.95in x 4.15in Driver Op	tions	
			Sand David

Find more information on using *SAI FlexiPRINT Authorized 3M Traffic Edition 12* to design signs at: http://flexihelp.saicloud.com/en/Content/Home.htm

If a different job editor is used:

- Open SAI Production Manager Authorized 3M Traffic Edition 12.
- Load the image at Job > Add Job, or click on your **printer's name** and then on **Add Job**.

				6	Nizard.	🧭 Jab 🔹	Gi RF •	C. Set	Entmale	Net
	Job 🔻	RIP 🔻	Send	Esi	0(9)	N THE	PHPLand	6) Priniu (R	15.83.4.167	
T	Add Job				Setur.	l dati sed Pri	Ner	id Job		-
8	Move Job.				Outras		н	P Applicatio	n Center	
1	Break Apa	irt			E .	NA BALANCE NO.	Se D	tup Properti dault Job Pr	es operties	

- Open the Job Properties.
- Go to Color Management tab.
- Select the **"Preset"** corresponding to your **media and printer**.

Important: Ensure **"Use color mapping"** is **enabled**. This will make sure the spot colors use the exact CMYK combinations. The design file must contain the correct spot color names.

olor correction Use color corre	ection	-		
Output profile:	3M 3930 Traffic Cold	ors v3_12p_CM	YKcm_150.i 🔻	
Media:	3M 3930 Traffic Cold	ors v3	•	
Print mode:	Default		•	
Resolution:	300x300		▼ DPI	
Color mode:	CMYK(8bits)	•	Choke	
Dither:		•	Edit	
Smooth grad	dients		<u>A</u> dvanced	
Simulation:	None		•	



Once all jobs are ready click on Send to start printing

5 Post processing

Protection

To achieve the maximum sign durability it is recommended to laminate the prints with a matching over laminate. 3M ElectroCut ™ Film Series 1170 has been specifically designed to protect 3M reflective substrates and has been tested on Latex 360/365 printed sings.

For more information on protection, refer to the 3M bulletins for each product:

- <u>http://multimedia.3m.com/mws/media/3499140/pb-4000-3m-diamond-grade-dq3-</u> <u>reflective-sheeting.pdf?fn=PB4000.pdf</u>
- http://multimedia.3m.com/mws/media/2540310/high-intensity-grade-reflective-products.pdf
- <u>http://multimedia.3m.com/mws/media/3466410/pb-3924s-3mtm-fl-orange-prismatic-work-</u> <u>zone-sheeting.pdf</u>

Application method

All sheets incorporate a pressure sensitive adhesive and should be applied using a **roll laminator**, either **mechanical** or **hand driven**.

Note: Hand application may show visual irregularities.

6 Troubleshooting and Tips & Tricks

Length Consistency: the print does not match the expected dimensions

There should not be significant size differences even when doing tiling jobs. If the size doesn't match the expected one or if it varies between jobs:

- Make sure the image size is correctly defined in your image editor.
- Make sure you are using the latest version of the Media Profiles available in the **Media solutions locator** (see Chapter 2 step 3). Uninstall and download the new profiles if necessary.
- Check that OMAS is disabled in the Media Profile.

In the Substrate Library, select your media. Click Modify > Modify Print Mode 2 > Advanced Settings. Check OMAS enable is disabled

- Load the media with Maximum Skew of 1 mm/m.
- Cover the OMAS sensor with opaque tape.
- Use the Take-up-reel.

If size differences persist:

• Reduce Input tension.

In the **Substrate Library**, select your media. Click **Modify > Modify Print Mode** > Advanced Settings and modify the Input Tension value (see following image).

Advanced	l setti	ngs	
(-6.to.@mm		D	12
Latex Optimizar level /Disc 2007 %	-	4	+
Vacuum printing 70 to 1000 mm H20	-	20	+
Advance factor	-	0	4
Inter-pass delay offset /One 1500 ms	-[200	+
Printing airflow pressure (175 to 2007mm HEP 100		180	+
Input tension (data 420 Man	-	10	+
OMAS enabled	0		
Colors	EMI	/Kem =	

Curing: If the printed image is not curing properly.

Samples should be completely cured inside the printer. If samples are not properly cured:

• Slightly increase the curing temperature in 5 degrees increments until the prints are completely cured.

Note: Increasing temperature may cause media deformations.

- Increase inter-pass delay offset (ISD) on printer's front panel by 200ms increments. By increasing the ISD of the printer, the image will remain under the curing module for some additional time but the throughput will slightly decrease.
- Control the temperature and humidity conditions in the printer's room. Ideally, the best conditions to print are close to 25°C / 77°F and 50% RH.
- Move to a slower print mode. Sixteen or Twenty-pass print modes generally offer better curing performance than twelve-pass print modes.

Rewetting: The image seems properly cured but after some time, an oily finish appears on the surface.

Rewetting is the result of an **improperly cured print**. Follow the same recommendations in the section above.

Head crashes: Damaged prints while printing.

Reflective substrates are very stiff and sensitive to heat. Conforming to the following recommendations will help prevent ruining the output while printing:

- Use the **recommended media presets** when possible.
- **Do not overheat** the substrate.
- Load the roll in the **second loading position**.
- Always **use edge holders** when printing reflective substrates.
- Use the **take-up reel** to print on reflective signs.

Note: Before printing, advance the media until it passes through the curing zone.

The printer **cannot automatically cut** reflective sheets.

Reflective vinyl, due to its special makeup, cannot be properly cut by the printer's automatic cutter.

7 Warranties

The products below, printed on the HP Latex 360, Latex 365 are covered by the 3M warranty on certain countries:

- 3M[™] Diamond Grade [™] DG Reflective Sheeting Series 4000
- 3M[™] High Intensity Prismatic Reflective Sheeting Series 3930

The warranty requires the samples to be laminated with an appropriate over laminate (3M ElectroCut ™ Film Series 1170).

Warranties vary by country. Contact your local 3M representative for details.

For more information on the warranty conditions visit the following web page: <u>www.3M.com/trafficsignprinting</u>