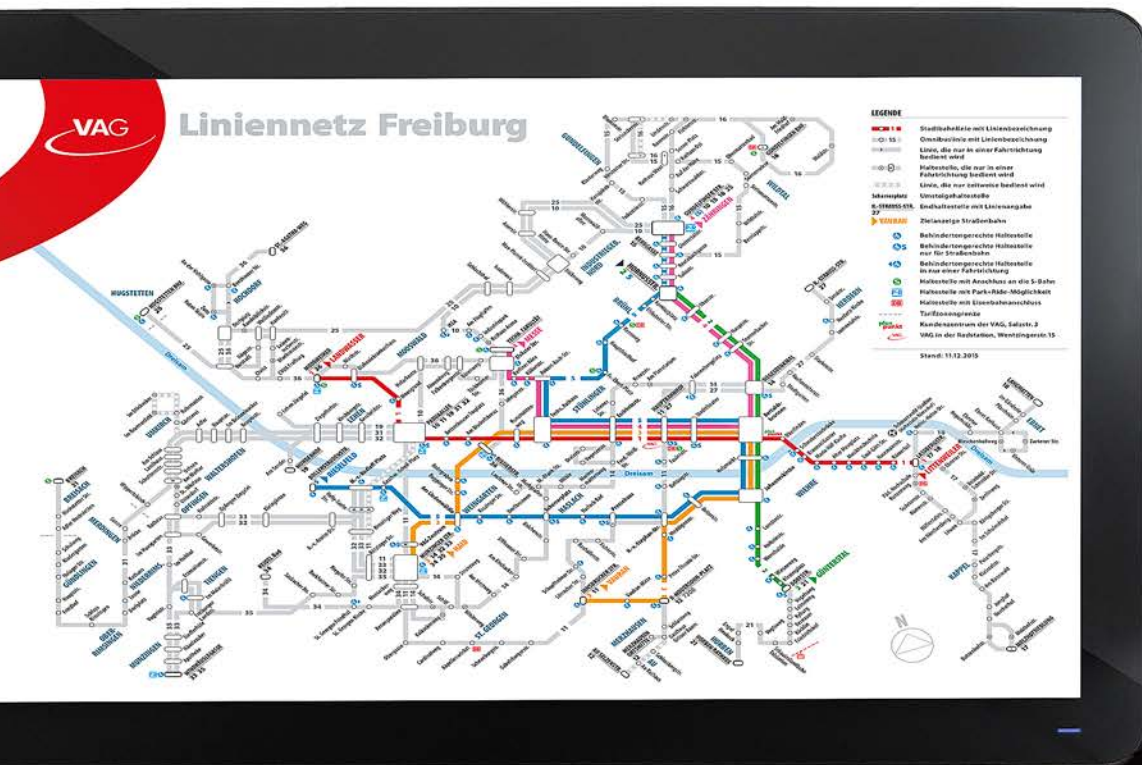


VISUAL FOCUS



Reference Markets for Customized Display Solutions



Public Transportation

Our custom displays meet the critical demands of the Public Transportation Market

PUBLIC TRANSPORTATION

Canvys Capabilities



Why work with Canvys?

Canvys designs and manufactures custom monitors for Original Equipment Manufacturers (OEMs). These customized displays are built with the highest quality components, innovative technologies, and long-term product availability. For approx. 30 years, we have successfully engineered display solutions for applications in: automation, retail, gaming, point of sale, cash desks, point of information, kiosk systems, security, surveillance, marine and **PUBLIC TRANSPORTATION**.

Canvys brings together a deep understanding of visual technologies, wide-ranging capabilities and a worldwide network to create complete solutions. Whether you need a custom-engineered system, modifications to an off-the-shelf product, or advice on specifying the right equipment, our team of experts is here to help.

As a division of Richardson Electronics, Ltd. (NASDAQ: REL), we're supported by a network of strategically located sales offices and stocking locations in North America, Europe, Asia/Australia and Latin America, as well as Technology Innovation Centers in North America and Europe.

Canvys Display Solutions for Public Transportation



DISPLAY OPTIONS

Canvys offers a full range of display options customized to each customers' needs:

- Different sizes from 10.4" up to 21.5"
- Classic and wide format
- High Brightness LED solutions
- Stretched Display (Bar Type)
- All-in-One solution from ARM® Cortex® to Intel® Atom™ I7



ENVIRONMENTAL REQUIREMENTS

Unique applications require special attention to designs for safety and to protect against vandalism:

- Plastic, metal or die cast housing
- Acrylic or safety glass
- IP protection based on requirements
- Customized colors or adoptions to customer's marketing guide lines



CONTROL METHODS AND INTERFACES

Our team of experts are able to engineer displays or modify off-the-shelf products to get you the right solution every time:

- AD Board design
- Various I/Os like Video, VGA, Digital, Composite Video, ...
- Long cable distance solution
- Remote OSD
- Network control



APPROVALS AND SAFETY

Our products adhere to the strict safety regulations required by the public transportation industry:

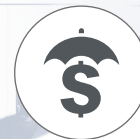
- CE, FCC, UL
- E-Mark
- R118
- EN50155
- EN45545



APPLICATION SPECIFIC

Our experts consider the customer-specific application in all design and engineering plans:

- Rounded corners
- Special fittings: rear mount, side mount, ...
- Easy to change protection shield
- Hidden OSD



RELIABLE PARTNER & EXPERTISE

As a division of Richardson Electronics, we have the worldwide support to deliver you the products and services you need:

- Both globally positioned though locally strong partner
- Industrial grade and reliable display technology
- Long-time available products
- End-of-Life Management
- After Sales Services

Overview Transportation Solutions

10.4" Display			Metal Housing		
Page 5			Page 6-7		
			DCA15XLOZBABXXX		
	10.4"	Display with black IP40 enclosure, composite video input, anti reflective protection shield and industrial grade components, ...		15"	Metal housing display, round corners, easy to exchange protection shield, VGA, DVI, composite video input, wide range 12 ~ 36 VDC input, ...
	4:3	Options: on request various customizings are possible, ...		4:3	Options: Housing color, network control, customized housing possible, high-brightness LED backlight, wide temperature range, ...
Die Cast Housing			DCA17XLOZBABXXX		
Page 8-9			also available as All-in-One		
True Flat S					
	18.5"	Die cast housing display, slim True Flat design, protection shield with AR coating, long distance solution up to 30 m, VGA, ...		17"	Metal housing display, round corners, easy to exchange protection shield, VGA, DVI, composite video input, wide range 12 ~ 36 VDC input, ...
	16:9	Option All-in-One: Intel® Atom™ / Core™ i3, PCap touch, variable interfaces, different housing colors, customized branding, ...		5:4	Options: Housing color, network control, customized housing possible, high-brightness LED backlight, wide temperature range, ...
True Flat S			DCA19XLOZBABXXX		
	21.5"	Die cast housing display, slim True Flat design, protection shield, long distance solution up to 15 m, VGA, DVI and Display Port input, ...		19"	Metal housing display, round corners, easy to exchange protection shield, VGA, DVI, composite video input, wide range 12 ~ 36 VDC input, ...
	16:9	Option All-in-One: Intel® Atom™ / Core™ i3, PCap touch, variable interfaces, different housing colors, customized branding, ...		5:4	Options: Housing color, network control, customized housing possible, high-brightness LED backlight, wide temperature range, ...
			DCA18ELOZBABXXX		
				18.5"	Metal housing display, round corners, easy to exchange protection shield, VGA, DVI, composite video input, wide range 12 ~ 36 VDC input, ...
				16:9	Options: Housing color, network control, customized housing possible, high-brightness LED backlight, wide temperature range, ...
			DCA21ELOZBABXXX		
				21.5"	Metal housing display, round corners, easy to exchange protection shield, VGA, DVI, composite video input, wide range 12 ~ 36 VDC input, ...
				16:9	Options: Housing color, network control, customized housing possible, high-brightness LED backlight, wide temperature range, ...

Canvys delivers a wide range of display solutions for public transportation and railway applications.

This selection is based on the experience of Canvys and the real needs of its customers. It allows final products which are highly integrated in every transportation environment.

General features of the solutions:

- High quality industrial grade components
- Long-term available
- Well-prepared for the future through optional touch screen integration
- Nearly limitless customizing options
- Special approvals like E-Mark and EN50155

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PUBLIC TRANSPORTATION

Examples

True Flat S



Canvys True Flat S Series – A field-tested and reliable base for transportation applications



Hong Kong – Canvys True Flat S monitor in a bus showing the stops – Project realized for the whole Asia / Pacific region

Features of the series in general

- Ruggedized aluminum housing: Standard colors: black (RAL 9005), silver (RAL 9006) or white (RAL 9003)
- IP 54 protection: Splash proof, dust proof and industrial grade housing
- Slim housing with only 42 mm in depth
- Built with aluminum as the primary material weighing only 6.4 kg / 14.1 lbs with acrylic shield
- Longterm available
- Full approved to CE, UL and FCC

All-in-One Version

- Different configurations with integrated Intel® Atom™ or Core™ i3 / i7 processors available

Required and realized features of the application

- Robust and vandal-proof case with rounded edges (public transportation installations refuse sharp corners)
- Anti-vandal acrylic front protection shield
- Sealed case without vents prevents dust and particulate ingress
- Long cable distance solution, no OSD visible
- OSD access through remote control
- High bright panel which is anti glare coated makes the unit suitable for viewing in high ambient light
- Fitted with a wide range power supply with surge & burst protection to cope with the voltage spikes emitted from alternates
- E-Mark, EN50155, R118 and EN45545 possible



Rear view of All-in-One version



I/O cover locked with security screws



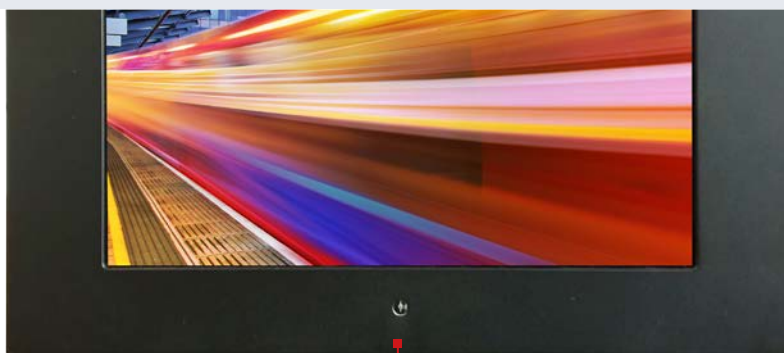
Side view of True Flat S with silver housing

Key Features

- IP 40 enclosure
- Anti reflective protection shield
- Black housing
- Wide range DC input
- High-quality industrial grade components
- Special approvals like EN50155, EN45545 on demand



Model / Type	10.4" Display
Size Aspect Ratio	10.4" / 26.4 cm 4:3
Active Area (H × V)	211.2 × 158.4 mm
Resolution	800 × 600 SVGA
Pixel Pitch	0.264 mm
Display Colors	16.2 M
Response Time	15 ms (typ.)
Brightness	400 cd/m² (typ.)
Contrast Ratio	700:1 (typ.)
Viewing Angle (H × V)	160° / 130° (typ.)
I/O Ports	VGA or composite video input, lockable DC input, ground bolt
Dimensions (W × H × D)	280 × 220 × 56.5 mm / 11.02 × 8.66 × 2.22 in
Weight	3.2 kg / 7.05 lbs
Temperature Operating	-25 °C to +70 °C / -13 °F to +158 °F
Temperature Storage	-30 °C to +85 °C / -22 °F to +185 °F
Power Consumption	12 W
Power Supply	Wide range 9 ~ 36 VDC
Safety & Ergonomics	EN50155, EN45545 on demand, on project base
Misc.	VESA 75, anti reflective protection shield, IP40 (w/o IO), light sensor, picture rotation 180°



Ambient Light Sensor

PUBLIC TRANSPORTATION

15" / 17" / 19" Metal Housing

Key Features

- Metal housing with round corners
- Easy replaceable protection shield
- Wide range DC input 12 ~ 36 VDC with surge and burst protection
- VGA, DVI and VIDEO input
- Lockable input and DC connectors
- OSD not directly accessible
- Remote OSD through D-Sub 9-pin
- CE and E-Mark available for MP
- High-brightness LED up to 1500 cd/m² (on demand)
- Wide temperature range (on demand)



Model / Type	DCA15XLOZBABXXX	DCA17XLOZBABXXX	DCA19XLOZBABXXX
Size Aspect Ratio	15" / 38.1 cm 4:3	17" / 43.2 cm 5:4	19" / 48.3 cm 5:4
Active Area (H×V)	304.128 × 228.096 mm	337.920 × 270.336 mm	376.32 × 301.06 mm
Resolution	1024 × 768 XGA	1280 × 1024 SXGA	
Pixel Pitch	0.297 mm	0.264 mm	0.294 mm
Display Colors	16.2 M	16.7 M	
Response Time	8 ms (typ.)	30 ms (typ.)	5 ms (typ.)
Brightness	450 cd/m² (typ.)	350 cd/m² (typ.)	
Contrast Ratio	800:1 (typ.)		1000:1 (typ.)
Viewing Angle (H×V)	160° / 150° (typ.)	160° / 140° (typ.)	170° / 160° (typ.)
I/O Ports	VGA, DVI, CVBS, S-Video		
Dimensions (W×H×D)	400 × 299 × 52 mm	430 × 350 × 52 mm	t.b.d.
Weight	7.1 kg / 15.65 lbs	8.75 kg / 19.29 lbs	t.b.d.
Temperature Operating	+10 °C to +40 °C / +50 °F to +104 °F		
Humidity Operating	30 % to 75 % RH		
Power Consumption	< 15 W	< 20 W	< 25 W
Power Supply – AC (optional)	AC 110 ~ 240 VAC external		
Power Input – DC	12 ~ 36 VDC		
Safety & Ergonomics	CE, E-Mark (E1) available	CE, E-Mark (E1) under development	
Misc.	Protection shield		



Side view



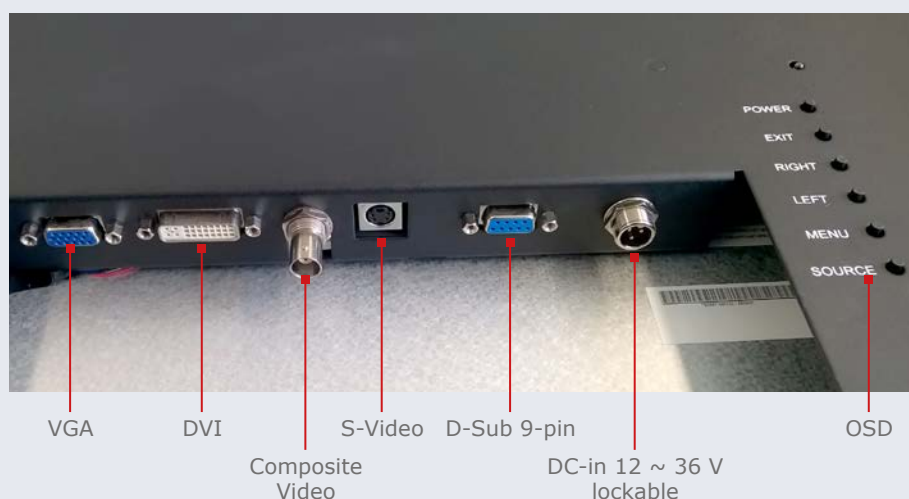
Rear view

Key Features

- Metal housing with round corners
- Easy replaceable protection shield
- Wide range DC input 12 ~ 36 VDC with surge and burst protection
- VGA, DVI and VIDEO input
- Lockable input and DC connectors
- OSD not directly accessible
- Remote OSD through D-Sub 9-pin
- CE and E-Mark available for MP
- High-brightness LED up to 1500 cd/m² (on demand)
- Wide temperature range (on demand)



Model / Type	DCA18ELOZBABXXX	DCA21ELOZBABXXX
Size Aspect Ratio	18.5" / 46.99 cm 16:9	21.5" / 54.61 cm 16:9
Active Area (H × V)	409.8 × 230.4 mm	476.64 × 268.11 mm
Resolution	1366 × 768	1920 × 1080
Pixel Pitch	0.300 mm	0.248 mm
Display Colors	16.7 M	16.7 M
Response Time	5 ms (typ.)	16 ms (typ.) / optional: 18 ms (typ.)
Brightness	300 cd/m ² (typ.)	300 cd/m ² (typ.) / optional: 250 cd/m ² (typ.)
Contrast Ratio	1000:1 (typ.)	5000:1 (typ.) / optional: 3000:1 (typ.)
Viewing Angle (H × V)	170° / 160° (typ.)	178° / 178° (typ.)
I/O Ports	VGA, DVI, CVBS, S-Video	
Dimensions (W × H × D)	512.2 × 308 × 55.5 mm	t.b.d.
Weight	8.67 kg / 19.11 lbs	t.b.d.
Temperature Operating	+10 °C to +40 °C / +50 °F to +104 °F	
Humidity Operating	30 % to 75 % RH	
Power Consumption	< 30 W	< 35 W
Power Supply – AC (optional)	AC 110 ~ 240 VAC external	
Power Input – DC	12 ~ 36 VDC	
Safety & Ergonomics	CE, E-Mark (E1) under development	
Misc.	Protection shield	



Rear view with open back cover showing the interfaces and OSD



Rear view with closed back cover and hidden OSD in normal operating mode

PUBLIC TRANSPORTATION

18.5" Die Cast Housing and All-in-One Version

Key Features

- Slim and light-weight die cast aluminum housing with True Flat design
- Industrial grade housing with IP40 protection
- Protection shield with AR coating
- Optional certifications: E-Mark, R118, EN50155, EN45545
- Many customizing possibilities: Housing color, protection shield, variable inputs, ...



Model / Type	True Flat S
Size Aspect Ratio	18.5" / 47 cm 16:9
Active Area (H×V)	409.8 × 230.4 mm
Resolution	1366 × 768 WXGA
Pixel Pitch	0.300 mm
Display Colors	16.7 M
Response Time	30 ms (typ.)
Brightness	300 cd/m ² (typ.)
Contrast Ratio	1000:1 (typ.)
Viewing Angle (H×V)	170° / 160° (typ.)
I/O Ports	VGA, RS-232 remote control interface
Dimensions (W×H×D)	472.4 × 293 × 42.5 mm / 18.60 × 11.54 × 1.67 in
Weight	5 kg / 11.02 lbs
Power Consumption	25 W (max.)
Power Supply	12 ~ 32 VDC
Safety & Ergonomics	CE Optional: E-Mark, R118, EN50155, EN45545
Misc.	VESA 100, protection shield with AR coating, IP40 (w/o IO), ambient light sensor
Options on request	PCap touch, variable interfaces, USB-Hub, different housing colors, customized branding etc.
All-in-One PC	On request, on project base



Top view with different housing colors



Top view

Key Features

- Slim and light-weight die cast aluminum housing with True Flat design
- Splash-proof, dust-proof and industrial grade housing with IP54 protection
- Protection shield with AG coating
- Optional certifications: E-Mark, R118, EN50155, EN45545
- Many customizing possibilities: Housing color, protection shield, variable inputs, ...



Model / Type	True Flat S
Size Aspect Ratio	21.5" / 54.6 cm 16:9
Active Area (H × V)	476.6 × 268.1 mm
Resolution	1920 × 1080 Full HD
Brightness	250 cd/m ² (typ.)
Contrast Ratio	3000:1 (typ.)
Viewing Angle (H × V)	178° / 178° (typ.)
I/O Ports	VGA, DVI-D, Display Port
Dimensions (W × H × D)	538 × 329.5 × 42 mm / 21.18 × 12.97 × 1.65 in
Weight	6.9 kg / 15.21 lbs
Power Consumption	22.5 W (typ.) / 30 W (max.)
Safety & Ergonomics (Display)	CE, UL, FCC Optional: E-Mark, R18, EN50155, EN45545
Options on request	PCap touch, variable interfaces, USB-Hub, different housing colors, customized branding etc.
All-in-One PC	
CPU	Intel® Core™ i3-3217UE
HDD / RAM	SSD 64 GB / DDR3 4 GB
Interfaces	VGA, HDMI/DP, 4× USB, 2× LAN, RS-232
Safety & Ergonomics (Panel-PC)	CE, EN50155, EN45545
Options on request	Intel® ATOM™ / Celeron™, PCap touch, variable interfaces, different housing colors, customized branding etc.



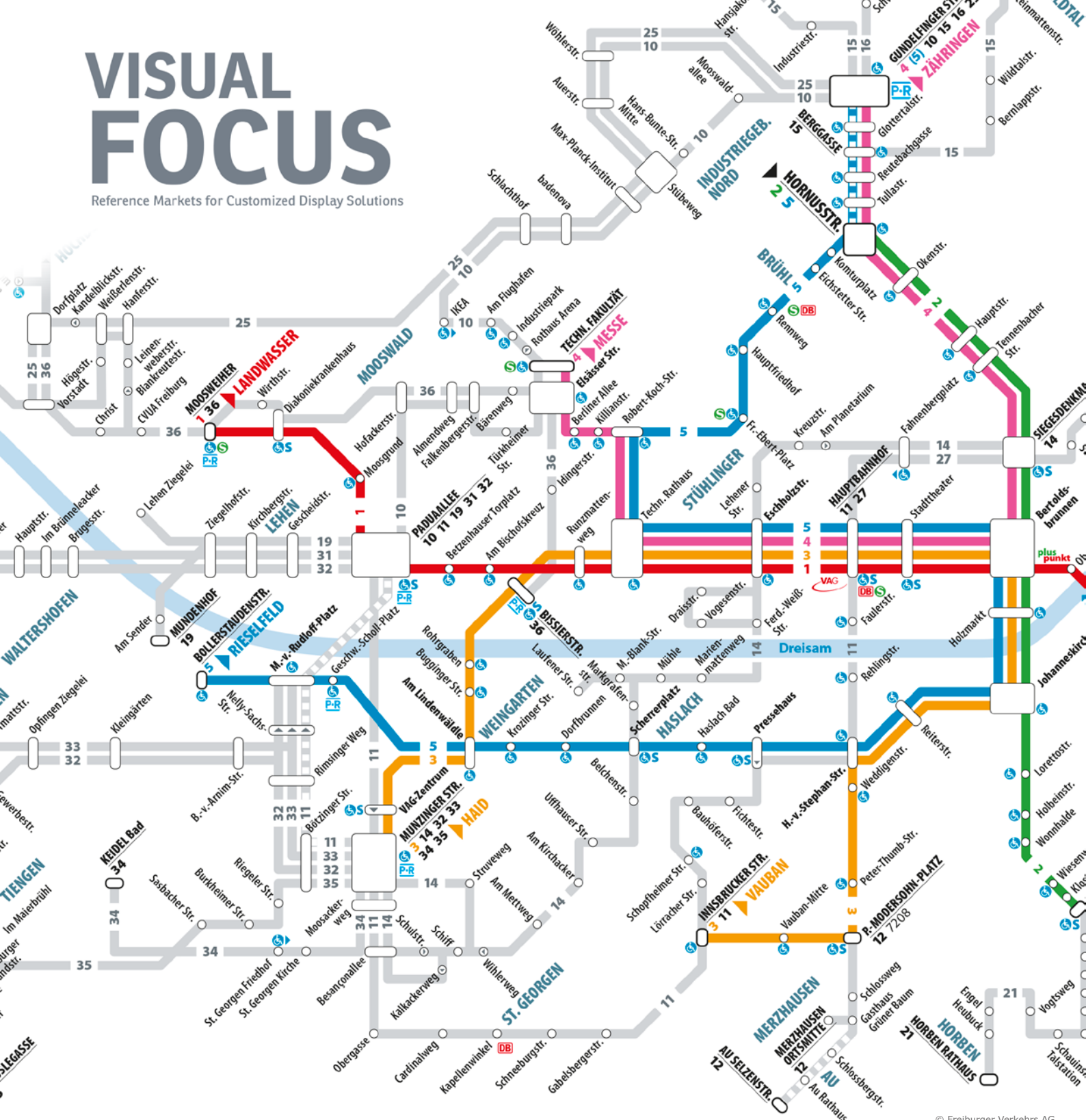
Front view



Rear view with different housing colors

VISUAL FOCUS

Reference Markets for Customized Display Solutions



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