

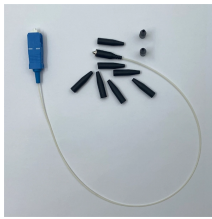
Instruments for testing fiber optic cable vibration



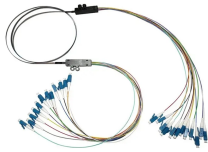
Instruments for testing fiber optic cable vibration



It simulates the collision and vibration of products during transportation and use, and detects the actual working conditions and structural strength of products.



Fluke Networks is a market leader in enterprise fiber testing equipment, with a wide range of field-tough fiber testers to help you inspect, clean, verify, certify, and troubleshoot your fiber optic cable networks.



Discover the essential fiber optic test equipment used by network installers and engineers. From OTDRs and loss testers to inspection scopes and certifiers. Learn how each tool ...



This paper aims to develop an optical fiber vibration identification system based on big data analysis to realize the real-time monitoring and data analysis of the running state of optical ...



Fiber testers provide the precision needed to install, certify, and maintain high-speed optical networks. This category includes OLTS certifiers, OTDRs, optical power meters, light sources, and visual fault ...



To monitor for ground shifts and potential rupture points, an energy company installed optical fiber vibration sensors along a remote pipeline route. The system enabled real-time alerts on vibration ...



We offer a wide range of fiber optic testing products, including OTDRs, MPO testers, and optical power meters. Joinwit ensures accurate, high-performance tools for network installation, maintenance, and ...



Fiber optic cable testing instruments evaluate whether fiber optic cables are installed correctly and measure the live optical energy transmitted through them. These handheld instruments also ...



When vibration is transmitted to an optical fiber, the optical fiber expands and contracts due to that vibration. A fiber optic vibration sensor measures the changes in scattered light caused by the ...



When you need to test fiber optic cables in the field, you'll want a tester that handles multiple functions without slowing you down. You can choose from devices that combine optical ...

Contents
 What Is Fiber Optic Cable and Why Is It used?
 What Is Fiber Optic Testing?
 Why Is Fiber Optic Testing Important?
 Methods of Fiber Testing and Tools Used
 How to Inspect and Test Fiber Optic Cable For Light Loss
 How to Test Fiber Connections and Cables with Fluke Tools
 Keep Learning
 Fiber testing is the process of verifying the performance of optical fiber cabling. This process includes a range of tests and measurements such as insertion loss, optical return loss, and fiber length. It encompasses all of the standards, processes, and tools used to test the components of both newly installed and deployed fiber optic networks, in...
 See more on flukenetworks .pa_item .pa_img.white_bg,.pa_hover .pa_hover_img.white_bg{background-color:#f5f5f5}@media(forced-colors:none){.pa_item .pa_img.white_bg img,.pa_hover .pa_hover_img.white_bg img{mix-blend-mode:multiply}}.pa_carousel .b_slideexp{margin-bottom:0}.pa_carousel .b_slideexp .btn{z-index:8}.pa_carousel_mlo{padding-bottom:var(--smtc-gap-between-content-xx-small)}.b_adBottom .pa_carousel_mlo{margin:var(--mai-smtc-padding-card-default) 0 0 0!important}.narrpole .pa_carousel_ml{padding-right:20px}.pa_carousel_mlo.expanded .pa_carousel_ml{padding-right:var(--smtc-gap-between-content-xx-large)}.pa_carousel_ml .slide{border-collapse:separate}.pa_carousel_ml .slide.anim{visibility:hidden;animation:slideInFromLeft .05s cubic-bezier(.3,.5,.1,1) .3s 1 normal forwards}@-webkit-keyframes slideInFromLeft{0%{visibility:visible;transform:translateX(100%)}100%{visibility:visible;transform:translateX(0)}}@keyframes slideInFromLeft{0%{visibility:visible;transform:translateX(100%)}100%{visibility:visible;transform:translateX(0)}}.pa_carousel_ml .slide:focus-visible{text-decoration:underline}#b_content .pa_carousel_mlo .b_slidesContainer{width:100%}.b_poleContent:has(.pa_carousel_mlo){width:auto}li .pa_mlo{padding-bottom:0}#b_content ol#b_results li.b_ad,#b_content ol#b_topw.b_results_eml li.b_ad{border-bottom:0}.b_ad .pa_carousel_ml .b_adPATitleBlock{padding-left:0}.b_adPATitle{text-overflow:ellipsis;overflow:hidden;white-space:nowrap;padding-right:var(--smtc-gap-between-content-medium);height:26px;font:var(--bing-smtc-text-global-subtitle1-strong);color:var(--smtc-foreground-content-neutral-primary)!important;padding-bottom:var(--smtc-padding-ctrl-sm-text-bottom)}.b_adPATitleBlock{padding-bottom:var(--smtc-gap-between-content-small)}.b_adPATitleBlock .b_floatR{margin-left:var(--mai-smtc-padding-card-default)}.b_adPATitle a:focus-visible{margin-left:var(--smtc-padding-ctrl-text-side);text-decoration:underline}.b_adPATitle a{font:var(--bing-smtc-text-global-subtitle1-strong)!important;color:var(--smtc-foreground-content-neutral-primary)!important;vertical-align:text-bottom}.pa_carousel_ml .b_adPATitleBlock{padding-left:var(--mai-smtc-padding-card-default)}.b_adPATitle_chevron{display:inline-flex;padding:var(--smtc-gap-inside-ctrl-to-secondary-icon)}.b_adPATitleBlock acf-badge{display:inline-flex!important}.b_adChoice{position:relative;width:12px;height:12px;text-indent:0;overflow:hidden;direction:ltr;transform:none;float:right}.b_adChoiceInline{display:inline-block}.b_adChoice::after{transform-origin:-320px 0;transform:scale(.5);position:relative;display:inline-block}.b_adSlugRow .b_adChoice{float:none;vertical-align:-1px;display:inline-block}.pa_sbo+a .b_adChoice{margin-top:8px}.b_adPATitleBlock bubble_lite bubble_item,.b_adSlugRow bubble_lite bubble_item,.b_spa_adblock bubble_lite bubble_item,.b_magazine bubble_lite bubble_item,.ra_car_container bubble_lite bubbli

```

e_item,.b_adinfo{display:inline-block!important}.b_adinfo{cursor:pointer;vertical-align:middle;line-height:0}@media(forced-colors:active){.b_adChoice{filter:invert(1)}}.b_adChoice::after{content:url(/rp/EX_mglLPdYtFnl-37m1pZn5YKII.png)}.emb_ppa
.listad{position:relative}.emb_ppa .b_adinfo bubble_item{height:12px}.emb_ppa
lcard .lc_content .b_factrow
.b_slgw{position:absolute;top:6px;left:8px;display:flex;align-items:center;border:1px
solid #ecec;border-radius:6px;background-color:#fff;justify-
content:center;height:20px;width:71px}div.b_adSlug, lcard .lc_content .b_factrow
div.b_embPPASlug.b_adSlug,#IMapContainer .b_aswta .vertcard .lc_content
div.b_factrow div.b_adSlug,div.gs_VA_slgw
.b_adSlug.b_opttxt.b_divdef.genserp_PA_container .genserp_PA_title
div.genserp_PA_adslug span.genserp_adSlug,.gs_embedded_label_container,.embedd
ed_msan_ad_slug{border:0;margin-right:0}.b_acf_crsl .slide.b_crslitm>*:last-
child,.b_acf_crsl .b_slideexp,#b_topw .b_wpt_container
.b_slidesContainer:has(.b_acf_crsl) .b_slidesContainer{margin-bottom:unset}#b_topw
.b_wpt_container:has(.b_acf_crsl) .b_viewport{padding:unset}#b_topw
.b_wpt_container .b_wpt_bl:has(.b_acf_crsl){overflow:visible}.b_acf_crsl
.b_slidesContainer .slide.b_crslitm{overflow:unset}.b_acf_crsl .btn.next .bg,.b_acf_crsl
.btn.prev .bg{background:unset}.b_acf_crsl.hovexp .b_viewport,.b_acf_crsl.hovexp
.b_slidebar,#b_pole #tob_container .b_acf_crsl.hovexp
.b_viewport{height:unset!important}#b_topw .b_wpt_container .b_acf_crsl
.btn.bld.next,#b_topw .b_wpt_container .b_acf_crsl .btn.bld.prev,.b_acf_crsl
.btn.next,.b_acf_crsl .btn.prev{z-index:5}.b_acf_crsl.b_fadebg .btn.next .bg{backgrou
nd:linear-gradient(90deg,var(--bing-smtc-background-ctrl-fade-on-primary-stop-0)
0%,var(--smtc-background-card-on-primary-default-rest) 60%)} .b_acf_crsl.b_fadebg
.btn.prev .bg{background:linear-gradient(270deg,var(--bing-smtc-background-ctrl-
fade-on-primary-stop-0) 0%,var(--smtc-background-card-on-primary-default-rest)
60%)} .b_acf_crsl.b_fadebg.b_fadebg_theme .btn.next .bg{background:linear-
gradient(90deg,var(--bing-smtc-ctrl-background-fade-stop-0) 0,var(--bing-smtc-
background-card-on-primary-alt-rest) 20px)} .b_acf_crsl.b_fadebg.b_fadebg_theme
.btn.prev .bg{background:linear-gradient(270deg,var(--bing-smtc-ctrl-background-
fade-stop-0) 0,var(--bing-smtc-background-card-on-primary-alt-rest) 20px)} .b_dark
.b_acf_crsl .b_slidebar .slide{background-color:unset}[dir="rtl"] .b_acf_crsl.b_fadebg
.btn.next .bg{background:linear-gradient(270deg,var(--bing-smtc-background-ctrl-
fade-on-primary-stop-0) 0%,var(--smtc-background-card-on-primary-default-rest)
60%)}[dir="rtl"] .b_acf_crsl.b_fadebg .btn.prev .bg{background:linear-
gradient(90deg,var(--bing-smtc-background-ctrl-fade-on-primary-stop-0)
0%,var(--smtc-background-card-on-primary-default-rest) 60%)}[dir="rtl"]
.b_acf_crsl.b_fadebg.b_fadebg_theme .btn.next .bg{background:linear-
gradient(270deg,var(--bing-smtc-ctrl-background-fade-stop-0) 0,var(--bing-smtc-
background-card-on-primary-alt-rest) 20px)}[dir="rtl"]
.b_acf_crsl.b_fadebg.b_fadebg_theme .btn.prev .bg{background:linear-
gradient(90deg,var(--bing-smtc-ctrl-background-fade-stop-0) 0,var(--bing-smtc-
background-card-on-primary-alt-rest) 20px)} .b_acf_crsl.hovexp .leftmost .b_overlay
.b_viewport,.b_acf_crsl.hovexp .leftrightmost .b_overlay
.b_viewport,.b_acf_crsl.hovexp .b_overlay .b_viewport{padding-left:var(--smtc-gap-be
tween-content-x-large)!important;margin-left:calc(var(--smtc-gap-between-content-x-

```

```

large)*-1)!important}.b_acf_crsl.hovexp .middle .b_overlay
.b_viewport,.b_acf_crsl.hovexp .rightmost .b_overlay .b_viewport{padding-
left:unset!important;margin-left:unset!important}.b_colg_4xs .slide{margin-inline-
end:var(--smtc-padding-ctrl-text-side)!important}.b_rowg_4xs .slide>*{margin-
bottom:var(--smtc-padding-ctrl-text-side)!important}.b_colg_3xs .slide{margin-inline-
end:var(--smtc-padding-ctrl-sm-text-top)!important}.b_rowg_3xs .slide>*{margin-
bottom:var(--smtc-padding-ctrl-sm-text-top)!important}.b_colg_2xs .slide{margin-
inline-end:var(--smtc-gap-between-content-xx-small)!important}.b_rowg_2xs .slide>*
{margin-bottom:var(--smtc-gap-between-content-xx-small)!important}.b_colg_xs .slid
e{margin-inline-end:var(--smtc-gap-between-content-x-small)!important}.b_rowg_xs
.slide>*{margin-bottom:var(--smtc-gap-between-content-x-
small)!important}.b_colg_s .slide{margin-inline-end:var(--smtc-gap-between-content-
small)!important}.b_rowg_s .slide>*{margin-bottom:var(--smtc-gap-between-content-
small)!important}.b_colg_m .slide{margin-inline-end:var(--smtc-gap-between-content-
medium)!important}.b_rowg_m .slide>*{margin-bottom:var(--smtc-gap-between-
content-medium)!important}.b_colg_l .slide{margin-inline-end:var(--mai-smtc-
padding-card-default)!important}.b_rowg_l .slide>*{margin-bottom:var(--mai-smtc-
padding-card-default)!important}.b_colg_xl .slide{margin-inline-end:var(--smtc-gap-
between-content-x-large)!important}.b_rowg_xl .slide>*{margin-bottom:var(--smtc-
gap-between-content-x-large)!important}.b_colg_2xl .slide{margin-inline-
end:var(--smtc-gap-between-content-xx-large)!important}.b_rowg_2xl .slide>*{margi
n-bottom:var(--smtc-gap-between-content-xx-large)!important}.b_colg_3xl
.slide{margin-inline-end:var(--smtc-padding-content-xx-large)!important}.b_rowg_3xl
.slide>*{margin-bottom:var(--smtc-padding-content-xx-large)!important}.b_colg_4xl
.slide{margin-inline-end:var(--smtc-padding-content-xxx-
large)!important}.b_rowg_4xl .slide>*{margin-bottom:var(--smtc-padding-content-
xxx-large)!important}.b_acf_crsl .b_acf_card:focus-visible,.b_acf_crsl
.b_acf_card.b_acf_kbd_focus{outline:2px solid var(--smtc-ctrl-focus-outer-stroke);outli
ne-offset:-3px;border-radius:var(--mai-smtc-corner-card-default);z-index:1}.b_acf_car
d{box-sizing:border-box;border-radius:var(--mai-smtc-corner-card-default);-webkit-us
er-select:none;user-select:none;position:relative;width:100%;height:100%;position:rel
ative}.b_acf_card.b_acf_bckgnd{background:var(--bing-smtc-background-card-on-pri
mary-alt-rest)}.b_acf_card_link{border-radius:var(--mai-smtc-corner-card-default);out
line-offset:-1px;position:absolute;width:100%;height:100%}.b_acf_card_link:hover{te
xt-decoration:unset}.acf_col1_4{width:140px}.acf_col1_6{width:160px}@media(forc
ed-colors:active){.b_acf_card_link{background-color:unset}.b_acf_card .acf_t_c_title{
color:LinkText!important}}.acf_col1{width:88px}.acf_col2{width:200px}.acf_col3{wi
dth:312px}.acf_col4{width:424px}.acf_col5{width:536px}.acf_col6{width:648px}.ac
f_col7{width:760px}.acf_col8{width:872px}.acf_col9{width:984px}.acf_col10{width:
1096px}.acf_col11{width:1208px}.acf_col12{width:1320px}.acf_row1{height:88px}.
acf_row2{height:200px}.acf_row3{height:312px}.acf_row4{height:424px}.acf_row5
{height:536px}.acf_row6{height:648px}.acf_row7{height:760px}.acf_row8{height:8
72px}.acf_row9{height:984px}.acf_row10{height:1096px}.acf_row11{height:1208px
}.acf_row12{height:1320px}.b_overlay .btn{height:100%;position:absolute;width:20
px;cursor:pointer;z-index:1;-moz-user-select:none;-khtml-user-select:none;-webkit-us
er-select:none;-o-user-select:none;-ms-user-select:none;user-select:none}.b_overlay
.btn *{transition:opacity .3s linear}.b_overlay .btn .bg{position:absolute;width:100%;

```

```

height:100%;background-color:#444;opacity:.3;filter:alpha(opacity=30)}.b_overlay
.btn.nobg .bg{background-color:transparent}.b_overlay .btn:hover
.bg{opacity:.7;filter:alpha(opacity=70)}.b_overlay .btn.nohover:hover
.bg{opacity:.3;filter:alpha(opacity=30)}.b_overlay .btn.disabled .bg,.b_overlay
.btn.nohover.disabled .bg{opacity:.01;filter:alpha(opacity=1)}.b_overlay .btn.hidden
.bg,.b_overlay .btn.nohover.hidden .bg{opacity:.01;filter:alpha(opacity=1)}.b_overlay
.btn.disabled,.b_overlay .btn.hidden{cursor:default}.b_overlay .btn .cr{text-
align:center;line-height:0}.b_overlay .btn.bld.polecarchev.hidden .cr,.b_overlay
.btn.bld.polecarchev.disabled .cr,.b_overlay .btn.bld.rounded.hidden .cr,.b_overlay
.btn.bld.rounded.disabled .cr,.b_overlay .btn.bld.bigrounded.hidden .cr,.b_overlay
.btn.bld.bigrounded.disabled .cr{opacity:.01;visibility:unset}.b_overlay .btn.hidden
.cr,.b_overlay .btn.disabled .cr{visibility:hidden}.b_overlay .btn.prev.ltr .cr,.b_overlay
.btn.next.rtl .cr{transform:scaleX(-1)}.b_overlay .btn.next{right:0}.b_overlay .btn
.cr>div{background-size:40px 200px;background-repeat:no-
repeat;width:20px;height:40px;background-position:-10px 0}.b_overlay .btn
.cr>div{background-
image:url(/rp/S9lIHAMBy7JxaR5m1KRvMwDswyw.png)}.b_overlay
.acfdefaultchev.btn.next{right:0!important}.b_overlay
.acfdefaultchev.btn.prev{left:0!important}.b_overlay .acfdefaultchev.btn:hover
.bg{opacity:unset;filter:unset}.b_overlay .acfdefaultchev.btn.disabled,.b_overlay
.acfdefaultchev.btn.hidden{display:none}.b_overlay
.acfdefaultchev.btn{width:48px}.b_overlay .acfdefaultchev.btn
.bg{opacity:unset}.b_overlay .acfdefaultchev.btn.prev .cr{left:0}.b_overlay
.acfdefaultchev.btn.next .cr{right:0}.acfdefaultchev .cr{display:flex;justify-
content:center;align-items:center;flex:1 0 0;align-self:stretch;width:36px;height:48px;
position:absolute;margin:unset;opacity:unset;transition:unset;border-radius:var(--smt
c-corner-ctrl-lg-rest);background:var(--bing-smtc-background-container);box-shadow:
var(--smtc-shadows-floating-action-button-rest);fill:var(--smtc-foreground-content-
neutral-secondary)}.acfdefaultchev .cr:hover{background:var(--smtc-ctrl-fab-
background-hover)}.acfdefaultchev .cr:active{background:var(--smtc-ctrl-fab-
background-pressed)}.b_ofchev .acfdefaultchev.btn.prev .cr{left:-18px}.b_ofchev
.acfdefaultchev.btn.next .cr{right:-18px}@media(forced-
colors:active){.acfdefaultchev .cr{background:ButtonFace}.acfdefaultchev
.cr>svg{fill:ButtonText}.acfdefaultchev .cr:hover,.acfdefaultchev .cr:has(:focus-
visible){background:Highlight}}.b_nochevshadow .acfdefaultchev
.cr,.b_nochevshadow .acfdefaultchev .cr:hover,.b_nochevshadow .acfdefaultchev
.cr:active,.b_nochevshadow .acfdefaultchev
.cr:focus{background:none!important;box-shadow:none!important}.b_overlay
.btn.bld.prev{left:-20px}.b_overlay
.btn.bld.next{right:-20px}.slide.b_crslitm.b_sldfitcont{width:fit-content}#b_content
.pa_carousel_mlo .pa_item.pa_vCard .pa_title,#b_content .pa_carousel_mlo
.pa_item.pa_vCard .pa_caption,#b_content .pa_carousel_mlo .pa_item.pa_vCard
.b_finalText,#b_content .pa_carousel .pa_item.pa_vCard .pa_title,#b_content
.pa_carousel .pa_item.pa_vCard .pa_caption,#b_content .pa_carousel
.pa_item.pa_vCard .b_finalText,#b_content .pa_grid .pa_item.pa_vCard
.pa_title,#b_content .pa_grid .pa_item.pa_vCard .pa_caption,#b_content .pa_grid
.pa_item.pa_vCard .b_finalText{padding:0 var(--smtc-padding-ctrl-horizontal-

```

```

default)}}#b_content .pa_carousel_mlo .pa_item.pa_vCard .cico,#b_content
.pa_carousel .pa_item.pa_vCard .cico,#b_context .pa_grid .pa_item.pa_vCard
.cico{margin-bottom:var(--smtc-gap-between-content-small)}}#b_content
.pa_carousel_mlo .pa_item.pa_vCard .pa_title,#b_content .pa_carousel
.pa_item.pa_vCard .pa_title,#b_context .pa_grid .pa_item.pa_vCard .pa_title{font:var(
--bing-smtc-text-global-body3);color:var(--smtc-ctrl-link-foreground-brand-
rest)}}#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption,#b_content
.pa_carousel .pa_item.pa_vCard .pa_caption,#b_context .pa_grid .pa_item.pa_vCard .
pa_caption{margin-top:var(--smtc-gap-between-content-x-small);padding-bottom:var
(--smtc-gap-between-content-x-small);font:var(--bing-smtc-text-global-
caption1)!important}}#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption
.pa_price,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption
.pa_price,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .pa_price{margin-
bottom:var(--smtc-gap-between-content-xx-small)}}#b_content .pa_carousel_mlo
.pa_item.pa_vCard .pa_caption .pa_price .prc_clr_grn,#b_content .pa_carousel
.pa_item.pa_vCard .pa_caption .pa_price .prc_clr_grn,#b_context .pa_grid
.pa_item.pa_vCard .pa_caption .pa_price .prc_clr_grn{color:var(--smtc-status-success-
tint-foreground)}}#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption
.pa_price strong,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption .pa_price
strong,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .pa_price
strong{color:var(--smtc-foreground-content-neutral-primary)}}#b_content
.pa_carousel_mlo .pa_item.pa_vCard .pa_caption .pa_price .original_price,#b_content
.pa_carousel .pa_item.pa_vCard .pa_caption .pa_price .original_price,#b_context
.pa_grid .pa_item.pa_vCard .pa_caption .pa_price .original_price{font:var(--bing-smtc-
text-global-caption1);padding-left:var(--smtc-gap-between-content-x-
small)}}#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption
.pa_installmentDesc,#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption
.pa_unitprice,#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption
.vertical_converted_price,#b_content .pa_carousel_mlo .pa_item.pa_vCard
.pa_caption .pa_shippingcost,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption
.pa_installmentDesc,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption
.pa_unitprice,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption
.vertical_converted_price,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption
.pa_shippingcost,#b_context .pa_grid .pa_item.pa_vCard .pa_caption
.pa_installmentDesc,#b_context .pa_grid .pa_item.pa_vCard .pa_caption
.pa_unitprice,#b_context .pa_grid .pa_item.pa_vCard .pa_caption
.vertical_converted_price,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .pa_ship
pingcost{font:var(--bing-smtc-text-global-caption1);margin-bottom:var(--smtc-gap-be
tween-content-xx-small);color:var(--bing-smtc-foreground-content-neutral-secondary-
alt)}}#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption
.b_attribution,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption
.b_attribution,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .b_attribution{marg
in-bottom:var(--smtc-gap-between-content-xx-small);color:var(--bing-smtc-foreground
-content-neutral-secondary-alt);border-bottom:0;font:var(--bing-smtc-text-global-
caption1)}}#b_content .pa_carousel_mlo .pa_item.pa_vCard .pa_caption .b_attribution
cite,#b_content .pa_carousel .pa_item.pa_vCard .pa_caption .b_attribution
cite,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .b_attribution cite{font:var(--

```

```

bing-smtc-text-global-caption1);color:var(--bing-smtc-foreground-content-neutral-
secondary-alt);opacity:unset}#b_content .pa_carousel_mlo .pa_item.pa_vCard
.pa_caption .b_secondaryText,#b_content .pa_carousel .pa_item.pa_vCard
.pa_caption .b_secondaryText,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .b_
secondaryText{font:var(--bing-smtc-text-global-caption1);color:var(--bing-smtc-
foreground-content-neutral-secondary-alt)}#b_content .pa_carousel_mlo
.pa_item.pa_vCard .pa_caption .b_secondaryText .pa_rebateText,#b_content
.pa_carousel .pa_item.pa_vCard .pa_caption .b_secondaryText
.pa_rebateText,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .b_secondaryText
.pa_rebateText{font:var(--bing-smtc-text-global-caption1);color:var(--bing-smtc-
foreground-content-neutral-secondary-alt)}#b_content .pa_carousel_mlo
.pa_item.pa_vCard .pa_caption .b_secondaryText .pa_promo a,#b_content
.pa_carousel .pa_item.pa_vCard .pa_caption .b_secondaryText .pa_promo
a,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .b_secondaryText .pa_promo
a{color:var(--smtc-ctrl-link-foreground-brand-rest)}#b_content .pa_carousel_mlo
.pa_item.pa_vCard .pa_caption .b_secondaryText .pa_rating a,#b_content
.pa_carousel .pa_item.pa_vCard .pa_caption .b_secondaryText .pa_rating
a,#b_context .pa_grid .pa_item.pa_vCard .pa_caption .b_secondaryText .pa_rating
a{color:var(--bing-smtc-foreground-content-neutral-secondary-alt)}#b_content
.pa_carousel_mlo .slide,#b_content .pa_carousel .slide,#b_context .pa_grid .pa_item{
border-radius:var(--mai-smtc-corner-card-
default)!important;overflow:hidden}#b_pole .pa_carousel_mlo{margin-
right:0}#b_content .pa_carousel_mlo .pa_item.pa_vCard,#b_content .pa_carousel
.pa_item.pa_vCard{margin-bottom:0!important}#b_content .pa_carousel_mlo
.pa_carousel .slide{margin:var(--smtc-gap-between-content-xx-small) 0}#b_content
.pa_carousel_mlo .pa_carousel{margin:calc(-1*var(--smtc-gap-between-content-xx-
small)) 0}#b_content .pa_carousel .slide{margin:calc(var(--smtc-gap-between-
content-xx-small) - var(--smtc-gap-between-content-xxx-small)) 0}#b_results
.pa_carousel_mlo .pa_carousel .b_slidebar .slide:first-child,#b_topw .pa_carousel_mlo
.pa_carousel .b_slidebar .slide:first-child{margin-left:var(--smtc-gap-between-content-
xxx-small)}.pa_item.pa_vCard{word-wrap:break-word;line-
height:20px;overflow:hidden}.pa_item.pa_vCard p strong,.pa_item.pa_vCard
.pa_price strong{color:#111}.pa_item.pa_vCard .pa_deal{text-decoration:line-
through}#b_content .pa_item.pa_vCard .b_attribution{font-size:14px;padding-
bottom:0;line-height:20px}#b_context .pa_item.pa_vCard p,#b_rrat_cont
.pa_item.pa_vCard p{line-height:20px}#b_content .pa_item.pa_vCard .pa_title{line-
height:20px;overflow:hidden}.pa_item.pa_vCard .b_footnote{line-
height:17px;padding-bottom:0}.pa_item.pa_vCard .pa_caption{padding-
bottom:8px}.pa_item.pa_vCard .pa_caption,.pa_item.pa_vCard .pa_title{padding-
left:4px;padding-right:4px}.pa_item.pa_vCard
.b_finalText{position:absolute;width:100%;box-sizing:border-box;left:0;padding:0 4px
0 4px;bottom:8px}.pa_item.pa_vCard .cico{display:block;padding-bottom:0;margin-
bottom:8px;margin-left:auto;margin-right:auto;border-radius:0}.pa_item.pa_vCard
.pa_img{position:relative}.pa_item.pa_vCard .pa_price:hover,.pa_item.pa_vCard
.b_attribution:hover,.pa_item.pa_vCard
.b_footnote:hover{cursor:pointer}.pa_carousel .slide{box-shadow:0 0 0 1px
rgba(0,0,0,.1)!important}.pa_carousel .slide.see_more{box-shadow:0 0 0

```

```

rgba(0,0,0,0)!important}.pa_caption .pa_price:hover strong,.pa_hover
.pa_hover_content .pa_price:hover strong{text-decoration:underline;text-decoration-
color:#111}.pa_caption .b_attribution:hover,.pa_hover .pa_hover_content .b_attribution:
hover{text-decoration:underline}.pa_caption>.b_secondaryText:hover,.pa_hover .
pa_hover_content>.b_secondaryText:hover{color:#444}.b_ads1line{white-
space:nowrap;overflow:hidden;text-overflow:ellipsis;display:block}.pa_item
.b_attribution cite,#b_context .pa_item .b_attribution cite,.pa_hover .b_attribution
cite,.pa_item .b_footnote .pa_url cite,.pa_item .b_attribution cite,#b_rrat_cont
.pa_item .b_attribution cite,.pa_hover .b_attribution cite,.pa_item .b_footnote .pa_url
cite{color:#111;opacity:.8}#bpage.b_drk .pa_item .b_footnote .pa_url cite{color:#d2
d0ce}.pa_item.pa_vCard{cursor:pointer}@supports(-webkit-line-clamp:2){.b_adsTrun
Tx{display:-webkit-box;overflow:hidden;-webkit-box-orient:vertical;white-
space:normal;visibility:visible}.b_ellipsis{display:none}.b_adsTrunTx .b_hiddenTx{dis
play:inline}}.b_hiddenTx{display:none}.pa_rating{white-space:nowrap;text-
overflow:ellipsis;min-height:17px}#b_results .pa_item
.pa_ratingssmaller>span,#b_topw.b_results_eml .pa_item
.pa_ratingssmaller>span{transform:translateZ(0)}#b_results .pa_item
.pa_ratingssmaller .sw_st,#b_results .pa_item .pa_ratingssmaller .sw_sth,#b_results
.pa_item .pa_ratingssmaller .sw_ste,#b_topw.b_results_eml .pa_item .pa_ratingssmaller
.sw_st,#b_topw.b_results_eml .pa_item .pa_ratingssmaller
.sw_sth,#b_topw.b_results_eml .pa_item .pa_ratingssmaller
.sw_ste{transform:scale(calc(10/12));margin:-1px -2px -1px -1px}.pa_hover
.pa_rating .rms_img{display:inline-block;margin-bottom:0;margin-left:0;margin-
right:0}#b_content .b_ad .b_secondaryText .b_colorBlend,#b_results>.b_ad
.b_colorBlend,#b_topw.b_results_eml>.b_ad .b_colorBlend,#b_results>.b_ad
.b_accentColor,#b_context>.b_ad .b_accentColor,#b_results>.b_ad
.b_accentColor,#b_rrat_cont>.b_ad .b_accentColor,#b_topw.b_results_eml>.b_ad
.b_accentColor,#b_context>.b_ad .b_accentColor,#b_topw.b_results_eml>.b_ad
.b_accentColor,#b_rrat_cont>.b_ad .b_accentColor,#b_context>.b_ad
.b_colorBlend,#b_rrat_cont>.b_ad .b_colorBlend,#b_dynRail>.b_ad
.b_colorBlend,.pa_hover .b_secondaryText .b_colorBlend,#b_pole .pa_carousel
.b_secondaryText .b_colorBlend{color:var(--bing-ads-smtc-desktop-foreground-
snippet-default)}.b_ad .csrc,.pa_item .csrc{padding-right:0}.csrc
.sw_rtcOLOR{color:#d32f2f;font-weight:bold;font-family:"Segoe
UI",Arial,Helvetica,Sans-Serif}.b_dark .csrc .sw_rtcOLOR{color:#f66}.csrc
.sw_rtright{padding-left:5px}.csrc .sw_rtleft{padding-right:5px}.csrc
.nobg{background-image:none}.csrc .rms_st{padding-right:1px;vertical-align:inherit;
max-height:14px;max-width:14px}.pa_hover{background-color:var(--smtc-backgroun
d-web-page-primary);box-shadow:none;position:absolute;opacity:0;visibility:hidden;w
ord-wrap:break-word;cursor:pointer;overflow:hidden;z-index:4;pointer-
events:none}.pa_hover .pa_hover_content{padding-bottom:var(--smtc-gap-between-
content-x-small)}.pa_hover .pa_hover_title,.pa_hover .pa_price,.pa_hover
.b_attribution,.pa_hover .b_secondaryText,.pa_hover
.pa_additionTx,.pa_hover>div>.b_ads1line,.pa_hover .b_footnote,.pa_hover .pa_hover
_content>.pa_loclnv{padding-left:var(--smtc-padding-ctrl-horizontal-default);padding-
right:var(--smtc-padding-ctrl-horizontal-default)}.pa_hover
.pa_hover_img{position:relative}.pa_hover .pa_hover_img img{display:block;margin-

```

```

left:auto;margin-right:auto}.pa_hover .pa_hover_title{font:var(--bing-smtc-text-global-body3)!important;color:var(--smtc-ctrl-link-foreground-brand-rest);margin-bottom:var(--smtc-gap-between-content-x-small)}.pa_hover .pa_hover_title:hover{text-decoration:underline}.pa_hover .pa_price{margin-bottom:var(--smtc-gap-between-content-xx-small)}.pa_hover .pa_price .prc_clr_grn{color:var(--smtc-status-success-tint-foreground)}.pa_hover .pa_price strong{color:var(--smtc-foreground-content-neutral-primary);font:var(--bing-smtc-text-global-caption1-strong)}.pa_hover .pa_price .original_price{font:var(--bing-smtc-text-global-caption1);padding-left:var(--smtc-gap-between-content-x-small)}.pa_hover .pa_installmentDesc,.pa_hover .pa_unitprice,.pa_hover .vertical_converted_price,.pa_hover .pa_shippingcost{font:var(--bing-smtc-text-global-caption1);margin-bottom:var(--smtc-gap-between-content-xx-small);color:var(--bing-smtc-foreground-content-neutral-secondary-alt);padding-bottom:0}.pa_hover .b_attri_bution{margin-bottom:var(--smtc-gap-between-content-xx-small);color:var(--bing-smtc-foreground-content-neutral-secondary-alt);border-bottom:0;font:var(--bing-smtc-text-global-caption1)}.pa_hover .b_attribution cite{font:var(--bing-smtc-text-global-caption1);color:var(--bing-smtc-foreground-content-neutral-secondary-alt);opacity:unset}.pa_hover .pa_bcSeparator{margin:var(--smtc-gap-between-content-xx-small) 0;border-top:1px solid #ececec}.pa_hover .b_secondaryText{font:var(--bing-smtc-text-global-caption1);color:var(--bing-smtc-foreground-content-neutral-secondary-alt)}.pa_hover .b_secondaryText .pa_rebateText{font:var(--bing-smtc-text-global-caption1);color:var(--bing-smtc-foreground-content-neutral-secondary-alt)}.pa_hover .b_secondaryText .pa_promo a{color:var(--smtc-ctrl-link-foreground-brand-rest)}.pa_hover .b_secondaryText .pa_rating a{color:var(--bing-smtc-foreground-content-neutral-secondary-alt)}.pa_hover .b_secondaryText .b_colorBlend{color:var(--bing-smtc-foreground-content-neutral-secondary-alt)!important}.pa_hover .pa_additionTx,.pa_hover .pa_loclnv{font:var(--bing-smtc-text-global-caption1);color:var(--bing-smtc-foreground-content-neutral-secondary-alt)}a .pa_hover_adLink:hover{text-decoration:none}.pa_hover:has(.pa_hover_content.pa_hcgp){border-radius:var(--mai-smtc-corner-card-default)}.pa_hover.ad_scpah.pa_animation{background-color:var(--smtc-background-card-on-primary-default-hover);box-shadow:var(--bing-smtc-shadows-card-hover-3);pointer-events:auto}.pa_item.pa_vCard>a:hover{text-decoration:none}.pa_hover:not(:has(.b_pa_hov_indicator_c)) .pa_hover_img img{margin-bottom:var(--smtc-gap-between-content-small)}.pa_hover.ad_scpah.pa_animation{transition:height var(--smtc-duration-medium-01) var(--bing-smtc-animation-ease-default),background-color var(--smtc-duration-medium-01) var(--bing-smtc-animation-ease-default),box-shadow var(--smtc-duration-medium-01) var(--bing-smtc-animation-ease-default)}.b_secondaryText .pa_targ{line-height:20px}.pa_ml .pa_targ img.pa_targImage,.pa_sb .pa_targ img.pa_targImage{float:left;margin:2px 2px 0 0}.pa_targ .pa_tgt_icon{display:inline-block;margin:3px 2px 0 0;width:12px;height:12px}.pa_targ .pa_shipping_icon{background-image:url("data:image/png;base64,iVBORw0KGgoAAAANSUUhEUgAAAaAAAAMCAYAAABWdVznAAAA1UIEQVR4AY1S0Q2CMBC9Fj74ZATZQEEdwAzcQvwIQJ9ANbCAkfOlkjuAKjNBvEqjvIjhKjOkITdt37/Ve7iryPFdCiAsRxfQjrLXnuq71cg9Bvg3DkLRt26/JSqnNNE1PHD8CKorC0p/gPC92wndJHiGITOCkRMXYs6C17rF1sFeGPgLHtvESVFUIFqGXJTfmCuhAyu3lkuM4XpumuTsYZVI2ZiZPAokHElvMYhdFETI9T4HtFwycDkM8yCAITquq5r27kzcgG35AOJbm7wFLyrH0hTH3BREqamOtXfQ1AAAAEIFTkSuQmCC")}.b_dark .pa_targ .pa_shi

```

pping_icon{background-image:url("data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAwAAAANCAYAAACdKY9CAAACXBIWXMAAAAsTAAALEwEAmpwYAAAAAXNSR0IArs4c6QAAAAARnQU1BAACxjwv8YQUAAADXSURBVHgBjZHBDYJAEV3Re6WsCVI4MINKzF2oBVQgnaAVqBUWJEDECyBEvZMAuv/BBkYnYSMsObmZ0/u7Kua9X3/VGsWNU2jzAMm+l/g+LMGKNW6pXrus8vUpalEX+M+aq4jzP1TBB2BknJdYNvu+f6luiiKwaKAIOSyljW0kCxW+4yGrpebxlgLFydV3Ht9CO46Se5+kZG/JkjClJl8G73mNsNMYCPhnZnYxNgzRsfga8BkEglxIWjEvfjPAR4OMpDQpPv9gkiScd0J0ifGGHyxqjQCw/XdSIXPndwAAAABJRu5Erkjggg==").pa_targ .pa_pricedrop_icon{background-image:url("data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAwAAAAMCAYAAABWdVznAAAACXBIWXMAAA7DAAAOwwHHb6hkAAAAGXRFWHRTb2Z0d2FyZQB3d3cuaW5rc2NhcgUub3Jnm+48GgAAANRjREFUKJG1jz9KA1EQh795llbZlWScWFj6WCGFOYa1lbA77xWewQO8d4EUkmyhYBAtt7HaxcYz2OQUOzYupFASEH/VMHzf/IF/T13XG1WdHco759wj0MYTtwFCCceq2lZVdfaTcNR13Yf3fgvcl2X5aWYr4E1E7rz3bd/32xFW1RcHkHNem1kwsyVwm1KqgBsReQ0hnO8smLuxyjk/FEUxSSk1ACmldXBtZs8xxouRk31Pxbghv2FogCvgaa/wfftCRBozm/wqqOo7MN1pHR8y/O/5AhF8R3I2zwNWAaaaaEIFtkSuQmCC").b_dark .pa_targ .pa_pricedrop_icon{background-image:url("data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAwAAAAMCAYAAABWdVznAAAACXBIWXMAAAAsTAAALEwEAmpwYAAAAAXNSR0IArs4c6QAAARnQU1BAACxjwv8YQUAAACHSURBVHgBtU/LDYAgDKWdxBFMSNjDEZxE3cQN3INAdANWcAHANpGEkIbe6KWlvF+F6F7GmFNrPf7FYwhhRsQjkbTiKujQAIxicyVAFbqW4xxlbFjKXVlaRzywEv+ZLD3fpjS7vzOnd8aoJU3OScncohNQkmifn4Sihvrkay1jg4fivUtutcdZ+xS9rwRsT8AAAAASUVORK5CYII=").pa_targ .pa_topview_icon{background-image:url("data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAwAAAAMCAYAAABWdVznAAACXBIWXMAAA7DAAAOwwHHb6hkAAAAGXRFWHRTb2Z0d2FyZQB3d3cuaW5rc2NhcgUub3Jnm+48GgAAATRjREFUKJG1kb9KQmEcht/fpyK22FQkFA0NQVptEVTSDbQ5tLR1hurwSRLR5g2o8H0idO6ipJultv6NDIEkhdEUBzy/t6UhoSWiZ3uHZ3le4L+R78NaOwNgS1VnAUBEeul0+rzZbD6MCEEQjOVyuSbjXQDXAG5FREguACiKyKkxptZqtT5MvV5PZ7PZC5LrqrriinFtW1SMRqTnnlkiuktXmkqRbqVRSZjAYnljXCaTKbfb7aswDCNjzKOqPllrO977S5IbAOYLhcKxEZEDknuNRuM1DMOyiGynUqmiqi6S3LHWrrnnvXwDskzw0cRyXvPddADDGTAAy5PP5+36/fwfgDcAkADjnzobDYXGkUrVaHVfVGwA9AlbkdbZHpSiK3n/M+iVNqWpAkkmSRJ1O5/mv3/2OT2YVjsqITb0WAAAAAEIFTkSuQmCC").b_dark .pa_targ .pa_topview_icon{background-image:url("data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAA AwAAAAMCAYAAABWdVznAAAACXBIWXMAAAAsTAAALEwEAmpwYAAAAAXNSR0IArs4c6QAAAAARnQU1BAACxjwv8YQUAAADrSURBVHgBxZDNDYJAEIV3I5BwtAOxAYBAwk0rUCs wVqAt2IEdaAdqBeqJhF870BI48+t7iRouHo2TvOxk5ps3A0L8OuQ7yfN8UNf1Wim16LrOfJVvFVvmyAIHp+BKlOsgOcXcETOv2BwBK2QDtq2nfu+f1NwNgllKbeu6040TTsBmlFIWV5Qs9HbkwnD0JRjktD5gcaSw3A6A+b6ArJgYCOKNE13PFVxNW/k2zSNhaLgJmgOZ9am7GEDmUL2/0Acx2NABxjYhmEQzgHOHMe5vhnVH/A878J7dV2/A74jP/bhr8FvybJsKP4ST5cvd6Jdk9MJAAAAAEIFTkSuQmCC").pa_targ .pa_condition_icon{background-image:url("data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAwAAAAMCAYAAABWdVznAAAACXBIWXMAAA7DAAAOwwHHb6hkAAAAGXRFWHRTb2Z0d2FyZQB3d3cuaW5rc2NhcgUub3Jnm+48GgAAARpJREFUKJF1jzFKA1EQhr+ZtwewsRDFC3gCSSFY6BUCSTzBew+jKa0FQRd2wzZ2FjaidjZBEMTGSq8QvIPd27EwK5vFTDfz//PflCiYowfIYS97lxXGUQkqOqd936/Pc8AxuPxZkopBw6ANQAz+01UvQU2/gwhhK2U0ruIVM65SZ7nXwDe+55z7rGu69HixVcRGWbApYhURVGcL/2qeg0Mp9Pp8+LiE3CVichhSumky1CW5U67TyndZFI2pgvAlfBNOecSIARmgEEjeO97McbPrkFVj4BZZmanInIPXDSgwLBZDCGsi8jlzCaquivtIbJjHNjuhH+b2ayu6+OqquZZWxGRAfBgZv2yLF/+Y1mCLYrizcz6QLUK/gcay2Kj1EE/gwAAAABJRu5Erkjggg==").b_dark .pa_targ .pa_condition_icon{background-image:url("data:ima

```
ge/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAwAAAAOCAYAAAAbvf3sAAAACXBIW
XMAAAsTAAALewEAmpwYAAAAAXNSR0IArs4c6QAAARnQU1BAACxjwv8YQUAADwS
URBVHgBrVHbDYJAEOR4/GMH2IEXCAII2IFUoCVoBcYKKEE70D8SAjk6kBL85+VMAgYuk
S82gWV3Z4e5OcNYK/I8V1mW7fS++W+h67rYNM27vmTzpZTy2rZN8MmhO2PEEtL2V
w9gJYR4WZa1DYJA8MEfjHoV8n6Q+EzT1LMBvql++75/05gTzPZhGJasSeg4TiKw2YN5I6
X8GAsBJS4I3jz0IIALlwsldB7HDI2hpTqyaZoD0sOGnHhw6Elw6ju1T6UAfMIZjnVdSzFIKYri
3fe9p5FTcglwHEVRZU8nZKbvtHJ0R4/ZTRNEMC011oovCux/EdBOneMAAAAASUVORK5
CYII=")}.pa_targ .rms_img,.pa_targ_text{vertical-align:top}.pa_hov_border
.pa_targ_longtext{font-size:12px;line-height:14px}#slideexp0_389D7C .slide:last-
child { margin-inline-end: 0; } #slideexp0_389D7C .slide>*:last-child { margin-
bottom: unset !important; } .b_acf_crsl #slideexp0_389D7Cc .b_slidebar .slide { box-
shadow: unset; -webkit-box-shadow: unset; } .b_acf_crsl.hovexp
#slideexp0_389D7Cc.b_slideexp .b_overlay .b_slidesContainer { overflow: visible
!important; } .b_acf_crsl.hovexp #slideexp0_389D7Cc.b_slideexp .b_overlay
.b_viewport, .b_acf_crsl.hovexp #slideexp0_389D7Cc.b_slideexp .b_viewport {
padding-top: 12px !important; margin-top: -12px !important; padding-bottom: 12px
!important; margin-bottom: -12px !important; } .b_acf_crsl.hovexp
#slideexp0_389D7Cc.b_slideexp .b_overlay .b_viewport { padding-bottom: 24px
!important; margin-bottom: -24px !important; }Sponsored
```

Contact Us

For more information, pricing, or custom data center solutions, please contact us:

Website: <https://www.yoahorroenergia.es>

Email: hello@yoahorroenergia.es

Phone: +233 54 318 7269

Address: Plot 28, Spintex Road, Accra, Greater Accra, Ghana

This document is for informational purposes only. Specifications subject to change without notice.

