



## C-Star Calibration

Date **March 24, 2021** S/N# **CST-1681DR** Pathlength **25**

---

	Analog output	Digital output
$V_d$	<b>0.003 V</b>	<b>0 counts</b>
$V_{air}$	<b>4.834 V</b>	<b>15881 counts</b>
$V_{ref}$	<b>4.697 V</b>	<b>15430 counts</b>

Temperature of calibration water	<b>18.0 °C</b>
Ambient temperature during calibration	<b>23.2 °C</b>

---

Relationship of transmittance (Tr) to beam attenuation coefficient (c), and pathlength (x, in meters):  $Tr = e^{-cx}$

To determine beam transmittance:  $Tr = (V_{sig} - V_{dark}) / (V_{ref} - V_{dark})$

To determine beam attenuation coefficient:  $c = -1/x * \ln (Tr)$

$V_d$  Meter output with the beam blocked. This is the offset.

$V_{air}$  Meter output in air with a clear beam path.

$V_{ref}$  Meter output with clean water in the path.

Temperature of calibration water: temperature of clean water used to obtain  $V_{ref}$ .

Ambient temperature: meter temperature in air during the calibration.

$V_{sig}$  Measured signal output of meter.