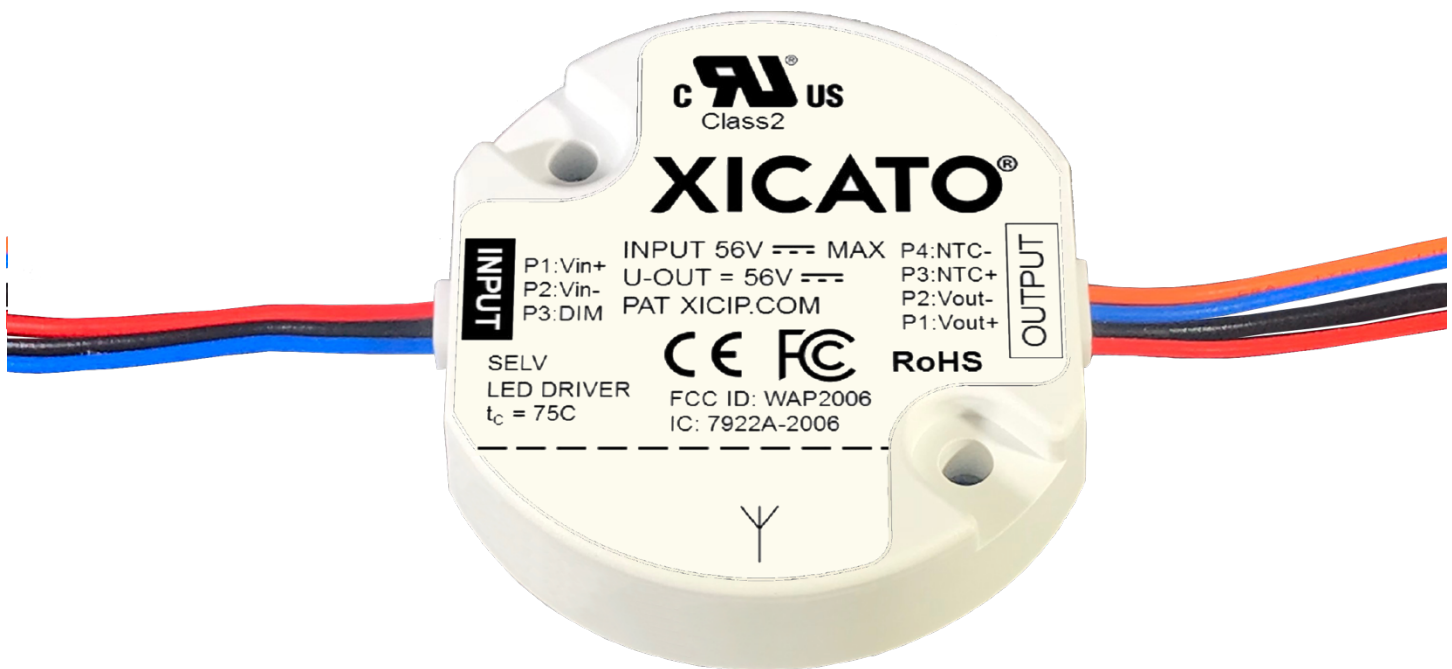# DATA SHEET

## XID: Xicato Intelligent Drivers A6A



Figure 1: Xicato Intelligent Driver (XID) is just ø46mm x 12mm.

### About Xicato

Xicato designs and develops light sources and electronics that enable architects, designers and building managers to create beautiful, smart spaces in which people love to live and work. With thousands of installations around the globe, Xicato continues to be a leading supplier of high quality lighting solutions. Xicato is defining the future of intelligent light sources by integrating electronics, software and connectivity. Founded in 2007, Xicato's headquarters is based in Silicon Valley and the company has offices in China, Japan, Europe and the US.

For further information, visit www.xicato.com.

# ABOUT THIS DOCUMENT

This is just one of many documents and tools available from Xicato to assist lighting designers, specifiers, and luminaire manufacturers in understanding and using Xicato products. These include:

- Datasheets
- Test reports, including third party LM-80, UL, CE, and FCC
- Accessory selection tools for heatsinks, optics, and drivers
- CAD files and drawings
- IES files
- Application and Technical Notes
- Training presentations
- Sales brochures
- Technical whitepapers
- … and much more

Go to the Xicato website under Support / Documents and Tools, or contact your local Xicato representative for more information

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# GENERAL DESCRIPTION

## XID – XICATO INTELLIGENT DRIVER

Xicato Intelligent Drivers (XID) are compact, DC-powered, wireless Bluetooth-controllable LED drivers that can provide constant current control to a wide variety of LED luminaires. XID can be mounted inside a luminaire or inside a track adapter, for example. Multiple XID can be mounted on 24V or 48V DC track powered by a single high capacity power supply unit (PSU), or can be individually powered by a separate, lower-powered AC-DC PSUs. All XID models provide extremely accurate, programmable constant current output with deep, IEEE 1789-compliant dimming to 0.1% with Bluetooth wireless and 0-10V control.

# FEATURES

## PROGRAMMABLE DC INPUT VOLTAGE

XID can be programmed by the luminaire manufacturer or distributor using the Xicato Configuration Tool to accept 24V or 48V DC input, for group or individual power from inexpensive, readily-available power supply units.

## PROGRAMMABLE, CONSTANT CURRENT OUTPUT

XID maximum current output can be factory limited using the Xicato Configuration Tool (XCT-0101) to between 50% and 100% of rated maximum. For example, XID01-50C1D6P14-A6A has a maximum output of 1400mA, but can be factory programmed as low as 700mA to accommodate lower rated LEDs, smaller fixtures with lower thermal dissipation capacity, or more challenging ambient temperature environments. The factory programmed limit is presented to the end user as 100% from the standpoint of dimming, and the dimming curve is adjusted accordingly to provide deep, smooth dimming to 0.1% with optimal flicker performance.

## BROAD OUTPUT VOLTAGE RANGE

XID can control LED arrays with voltages as low as 2.5V, and as high as 45V. This allows XID to control individual LED point sources, COB arrays, linear solutions, and other luminaires up to 63W.

## THERMAL FOLDBACK AND SHUTOFF

XID contains internal sensors that detect the temperature of the internal electronics, and which ensure long life by reducing current output in the event that the temperature exceeds the rated temperature of the components. If, after reducing output, the temperature continues to exceed the maximum rating, the XID automatically shuts off to preserve module lifetime, and to allow the user to troubleshoot the installation.

XID provides two output wires that can be connected to an external 47Kohm NTC to track LED ($T_c$) or overall fixture temperature and provide thermal foldback to protect the LED/fixture from over-temperature situations. LED/fixture foldback temperature can be programmed into the XID by the luminaire manufacturer using the Xicato Configuration Tool (XCT).

## BLUETOOTH® CONTROL

XID01-xxC1D6xx-A6A communicates wirelessly in a Bluetooth mesh with sensors, switches, gateways, and mobile devices, providing simple or complex responses to motion and occupancy, ambient light, schedules, and/or user commands. All A6A models will be over-the-air, field upgradable to the new standard Bluetooth mesh later in 2019.

## WIRELESS DATA REPORTING

XID regularly transmits its current intensity setting, temperature, input power (W), input voltage, and total operating hours, allowing proactive maintenance. It also stores a histogram of intensity settings and temperature for the life of the device, which can be downloaded on request from an application for lifecycle analysis and confirmation of warranty compliance. Among other things, this allows Xicato to verify its product warranty of 7-years or 50,000 hours, and allows users to plan replacement intervals well in advance.

## BLUETOOTH BEACONS

XID can broadcast Apple iBeacons, Eddystone URI beacons, and/or Alt Beacons, enabling a wide variety of location-based information and navigation services.

BLE beacons can act as indoor GPS satellites, allowing mobile apps to provide highly granular, accurate location of users in retail shops, hotels, restaurants, museums, airports, or other public and commercial spaces.

Beacons can also trigger web searches, information screens, or other application responses based on a user's proximity to exhibits, merchandise, or other points of interest.

## CONFIGURABLE ADVERTISING POWER AND INTERVAL

Transmission power for XID beacons, operational data, and other data can be programmed independently. Users can set both advertising frequency and power levels, depending on their specific application requirements.

# ORDERING GUIDE

## XID NUMBERING CONVENTION

| Product | Form | Watts | Channels | Input Voltage | Output per channel | Control |
|---------|------|-------|----------|---------------|--------------------|---------|
| XID | 01 = ø46mm | 25 50 | Cx = CC x1 = 1ch | Dx = DC D6 = 24 or 48 | Pxx = Programmable x03 = 350mA x07 = 700mA x14 = 1400mA | A6A = BLE+DIM |
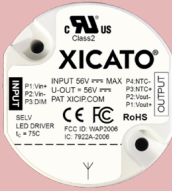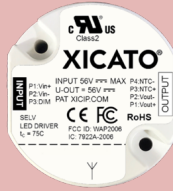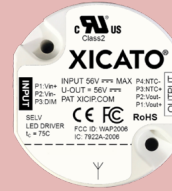
## ORDER CODES

| Part Number[1] | Description |
|----------------|-------------|
| XID01-50C1D6P14-A6A | Xicato Intelligent Driver, ø46mm, 50W, DC 24V or 48V, programmable 1400mA, BLE+1-10V |
| XID01-25C1D6P07-A6A | Xicato Intelligent Driver, ø46mm, 25W, DC 24V or 48V, programmable 700mA, BLE+1-10V |
| XID01-13C1D6P03-A6A | Xicato Intelligent Driver, ø46mm, 13W, DC 24V or 48V, programmable 350mA, BLE+1-10V |
| XSA-332 | Wire harness, 3-pin, TE 2058943-2 |
| XSA-333 | Wire harness, 4-pin, TE 2058943-3 |

Notes:

1. Wire harnesses are not included with the part numbers listed. They are widely available, off the shelf, TE Connectivity products and must be ordered separately. Xicato will carry these as a convenience to our customers.

# MECHANICAL, ELECTRICAL AND WIRELESS SPECIFICATIONS

| | XID01-50C1D6P14-A6A | XID01-25C1D6P07-A6A | XID01-13C1D6P03-A6A |
|---|---|---|---|
| |  |  |  |
| Housing | Injection molded glass filled PBT | | |
| Dimensions (main body) | ø46 mm x 12 mm (1.81" x 0.47"). Recommend aperture ≥ ø47mm to allow space for wires. | | |
| Weight | 26 g (0.9 oz) | | |
| Electrical Connections | Input: 3 pins: DC+, DC- (common), 1-10V Output: 4 pins: Constant Current (2 wire). NTC (2 wire). | | |
| Physical Connections (order separately) | Input side: XSA-332, TE 2058943-2 • 3-pin harness with 158.75mm wires Output side: XSA-333, TE 2058943-3 • 4-pin harness with 158.75mm wires | | |
| Input Voltage Settings | 24V DC or 48V DC 48V is the default setting. Programmable using Xicato Configuration Tool | | |
| Electrical Protection | Inrush over-current and over-voltage protection. Sustained over-voltage protection via non-replaceable fuse. | | |
| Maximum Output Current | 1400mA (default setting) | 700mA (default setting) | 350mA (default setting) |
| Minimum Programmable Current | 700mA | 350mA | 175mA |
| Off-State Power Consumption | < 300mW | | |
| Dimming Curve | Logarithmic (default setting) or Linear | | |
| Minimum Constant Dim Level | 0.1% of programmed maximum | | |
| Dim to Off | Yes | | |
| Dim to On/Off Intensity Threshold | <0.05% | | |
| On-board Sensors | Temperature, Input voltage, Input voltage ripple | | |
| Ingress Protection | IP20 | | |

## RECOMMENDED OPERATING LIMITS

| | All Units | Notes |
|---|---|---|
| Input Voltage range | 45.6Vdc to 50.4Vdc | 1 |
| Output Voltage range | 2.7Vdc to 39Vdc | |
| Temperature at Tc (max) | -20°C to +75°C | |

Notes:

1. Input voltage must be supplied by an SELV (CE) or Class 2 (UR/CNR) power supply to ensure compliant operation with CE or UL safety requirements respectively.

## ABSOLUTE LIMITS

| | XID01-50C1D6P14-A6A | XID01-25C1D6P07-A6A | XID01-13C1D6P03-A6A | Notes |
|---|---|---|---|---|
| Minimum Input Voltage (48V operation) | | Turn on: 42Vdc<br>Turn off: 41Vdc<br>Shutdown: 30Vdc | | 1, 2, 3 |
| Minimum Input Voltage (24V operation) | | Turn on: 20.5Vdc<br>Turn off: 19.5Vdc<br>Shutdown: 18.5Vdc | | 1, 2, 3 |
| Maximum Input Voltage | | 56Vdc | | 3, 4 |
| Maximum Input Current | 1400mA | 700mA | 350mA | 5 |
| Input Power Factor (PF) | | 1 | | |
| Maximum Output Voltage (U-OUT) | | 53Vdc | | 2, 6 |
| Maximum Output Voltage ($U_{rated}$) | | 45Vdc with 48Vdc input / 21Vdc with 24Vdc input | | 2, 7 |
| Output Voltage (min) | | 2.5Vdc | | |
| Maximum Rated Output Current ($I_{rated}$) | 1400mA | 700mA | 350mA | |
| Maximum Rated Power ($P_{rated}$) | 63W | 31.5W | 18.5W | 8 |
| Operating Temperature at Tc (max) | | 75°C | | 9 |
| Ambient Operating Temperature Ta | | 55°C | | 10 |
| Thermal Foldback Temperature | | 83°C | | 11 |
| Thermal Restore Temperature | | 75°C | | 12 |
| Thermal Shutdown Temperature | | 88°C | | 13 |
| Storage Temperature | | -40°C to +85°C | | |

Notes:

1. Voltage values listed are those used by the internal voltage measurement circuitry of the XID. Actual voltage applied on device pins may need to be higher.
2. Under all conditions, the voltage applied at the input of the XID must be at least 3Vdc above the maximum output load voltage to ensure correct operation of the XID.
3. Input voltage must be supplied by an SELV (CE) or Class 2 (UR/CNR) power supply to ensure compliant operation with CE or UL safety requirements, respectively.
4. Exceeding the maximum input voltage may cause permanent damage to the XID.
5. Maximum input current when driving the maximum rated ($U_{rated}$) output voltage
6. Maximum voltage at output of the XID. U-OUT will never exceed the applied input voltage.
7. The maximum voltage that should be driven on the output of the XID to remain within the device specification limits. Exceeding this voltage may cause damage to the device. Under all conditions, the maximum voltage on the output of the XID must be at least 3Vdc below the applied input voltage of the XID to ensure correct operation.
8. $P_{rated} = U_{rated} * I_{rated}$
9. Tc point is on the bottom side of the housing. Refer to the [Customer Drawing](Customer Drawing) for location details.

10. Ambient temperature is provided for reference only and is based on mounting to a Xicato XSA-60 heatsink. Actual acceptable ambient operating temperature may be higher or lower based on not exceeding the Tc point limit of 75°C or the internal operating temperature (Thermal Foldback) limit of 83°C.
11. This is the internal temperature of the XID that will cause the XID to reduce the output drive current by 15% from its specified setting.
12. This is the internal temperature of the XID that must be reached after Foldback occurs to restore the output drive current to its specified setting.
13. This is the internal temperature of the XID that will cause the XID to shut down its output. Once the XID has reached a shutdown state, the XID must drop below the Thermal Restore Temperature and be commanded off or power cycled to restore it to normal operation.

## WIRING HARNESS WIRING

### TE 2058943-2 • 3-PIN HARNESS

| | |
|---|---|
| Red | $V_{in}+$ ; 48VDC by default; 24VDC as programmed option |
| Black | $V_{in}-$ |
| Blue | 0-10V dim control; positive voltage referenced to $V_{in}-$ |

### TE 2058943-3 • 4-PIN HARNESS

| | |
|---|---|
| Red | LED+ |
| Black | LED- |
| Blue | NTC+ (optional) |
| Orange | NTC- (optional) |

## SUPPORTED EXTERNAL NTC THERMISTORS

The following off the shelf 47Kohm NTC thermistors have been verified to operate with the XID for remote temperature sensing. The default configuration of the XID has external NTC support disabled. NTC must be enabled and configured by the Xicato Configuration Tool.

| Manufacturer | Part Number |
|---|---|
| Murata | NCP15WB473F03RC |
| Vishay | NTCASCWE3473J |
| Vishay | NTCLE100E3473JB0 |

## CONNECTION TO XICATO CONFIGURATION TOOL

Requires XCT hardware running XID configuration tool.

Connect XCT to XID power input side. Wired connection is for power only. XCT configuration/programming connection to XID is via Bluetooth.

# WIRELESS SPECIFICATIONS

| Feature | Specification |
|---|---|
| Processor | Quad-core ARM A53, 64-bit, 1.4 GHz |
| Wireless Protocol | Bluetooth 5 |
| Wireless Spectrum | 2.4 GHz ISM band |
| Bandwidth | 1 Mbps (Bluetooth 4.x or 5.x)<br>2 Mbps (Bluetooth 5.x) |
| Channels | 40 |
| Transmit Power | Configurable -10dBm to +8 dBm (1 dBm increments) |
| Receive Sensitivity | -95 dBm (Bluetooth 4.x)<br>-93 dBm (Bluetooth 5.x) |
| RSSI Resolution | 1 dBm |

# FIRMWARE SPECIFICATIONS

## CONTROL PROGRAMMING

| Feature | Specification |
|---------|---------------|
| Site Scalability | Over 140 trillion individually addressable nodes ($2^{37}$) |
| Maximum # of Secure Network Zones | Over 4 billion ($2^{32}$). Secure networks cannot overlap. |
| Maximum devices per secure network | 32,767 ($2^{15}-1$). One secure network per node. |
| Max # of Groups per Secure Network | 16,383 ($2^{14}-1$). Groups can overlap. |
| Max # of Scenes per Secure Network | 65,535 ($2^{16}-1$). Scenes can overlap. Scenes can span groups. |
| Max # of Groups per Device | 16 |
| Max # of Scenes per Device | 32 |
| Protocol Security | AES-128 (128-bit encryption), other mechanisms |

## DIMMING INFORMATION: BLUETOOTH

| | |
|---|---|
| Dimming Profile | Logarithmic (default) or linear, configurable |
| Minimum Dim Setting | 0.1% of maximum intensity |
| Dimming Granularity | 0.01% resolution (10,000 steps from 100% to 0.01%) |

## DIMMING INFORMATION: 1-10V / 0-10V (IEC 60929 ANNEX E)

XID is a 1-10V (0-10V) source.

| Dimming Profile | < 0.5V | 0% (off) (> 0.75V to turn back on) |
|---|---|---|
| | ≥ 0.5V and < 1.0V | 1% of max current |
| | ≥ 1.0V and < 9.0V | $12.375\% \times (V_{1-10V} - 1) + 1\%$ |
| | ≥ 9.0V | 100% of max current |
| Dimming Compatibility | XID is compatible with a wide range of 1-10V sink dimming systems. Refer to dimming compatibility documentation at www.xicato.com. | |
| Potentiometer Compatibility | 100kOhm typical | |

## DIMMING AND FLICKER

| Reference | Luminous Intensity | Modulation Frequency | Risk Level |
|-----------|--------------------|-----------------------|------------|
| Reference IEEE Std 1789-2015: "IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers" | 100% - 1.25% of max | ≥ 3,000 Hz | No Effect |
| | 1.25% - 0.5% of max | ≥ 1,250 Hz | Low Risk |
| | 0.5% - 0.1% of max | > 250 Hz | Medium Risk |

# INTERNAL SENSOR DATA COLLECTION & STORAGE

Real-time reporting      Current Intensity level
Current Temperature of electronics printed circuit board (PCB).
Current Input power, voltage and ripple
Current Group membership (provisioned)
Current Scene membership (provisioned)

Stored operating history      Total operating hours (at > 0% intensity)
Power cycles (power on/off)
LED cycles (LEDs turned on/off, unit still powered)
Histogram of time spent in 9 temp ranges: < 50℃, 50-54℃, 55-59℃, …, 90-94℃, ≥ 95℃
Histogram of time spent in 12 intensity ranges: 0%, 0.1-1.0%, 1-10%, 11-20%, …, 91-100%

Stored module Information      XID part number
GTIN
Serial number
XID hardware revision
XID firmware revision
Bluetooth firmware revision
Maximum current
Programmed current

Stored OEM programming      OEM serial number (12 bytes)
36 bytes optional free text data

BOTTOM

Tc MAX = 75C

SIDE

3-PIN INPUT

PRODUCT HEIGHT

SCREW HEAD CLEARANCE

TOP

Ø35 MOUNTING HOLE PITCH CIRCLE

Ø46 PRODUCT OD

2X Ø3.3 M3 SCREW MOUNTING HOLE

43°

SIDE

4-PIN OUTPUT

NOTES: UNLESS OTHERWISE SPECIFIED:

1. PRODUCT IP RATING IP20

2. SUGGESTED ASSEMBLY TORQUE = .31 NM (2.75 IN-LB)

3. ASSEMBLE WITH M3X16MM SCREWS

| ZONE | REV | DESCRIPTION | ECN | DATE | APVD |
|---|---|---|---|---|---|
| | 1 | INITIAL RELEASE | | 8/3/17 | |
| | 2 | ADDED Tc NOTE | | 8/29/17 | |
| | 3 | REVISED TORQUE SPECIFICATION | | 1/8/18 | |

XICATO INC

TITLE ASSY, XID 46MM 700mA

PART NUMBER

DWG SIZE C    SCALE: 3.000

REV. 3
SHEET 1 OF 2

| DATE: | XX |
| DSR: | XX |
| REL.: | XX |
| PROD.: | XX |
| ENGR. | XX |
| CHKD: | XX |
| CHKD: | XX |

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**XSA-333**

| PIN # | FUNCTION | RATING | COLOR |
|-------|----------|--------|-------|
| 1 | LED+ | 24AWG, UL1061 | RED |
| 2 | LED- | 24AWG, UL1061 | BLACK |
| 3 | NTC+ (OPTIONAL) | 24AWG, UL1061 | BLUE |
| 4 | NTC- (OPTIONAL) | 24AWG, UL1061 | ORANGE |



**XSA-332**

| PIN # | FUNCTION | RATING | COLOR |
|-------|----------|--------|-------|
| 1 | Vin+ | 24AWG, UL1061 | RED |
| 2 | Vin- | 24AWG, UL1061 | BLACK |
| 3 | 0-10V DIM CONTROL, POSITIVE VOLTAGE REFERENCED TO Vin- | 24AWG, UL1061 | BLUE |



5.3
TO BASE OF
MATING CONNECTOR

21.4

21.7

6.35

| ZONE | REV | DESCRIPTION | ECN | DATE | APVD |
|------|-----|-------------|-----|------|------|
| | | SEE SHEET 1 | | | |

XICATO INC

ASSY, XID 46MM 700mA

| DATE: | XX |
| DSR: | XX |
| REL.: | XX |
| PROD. | XX |
| ENGR. | XX |
| CHKD: | XX |
| CHKD: | XX |

TITLE
DWG SIZE  PART NUMBER  REV.
C
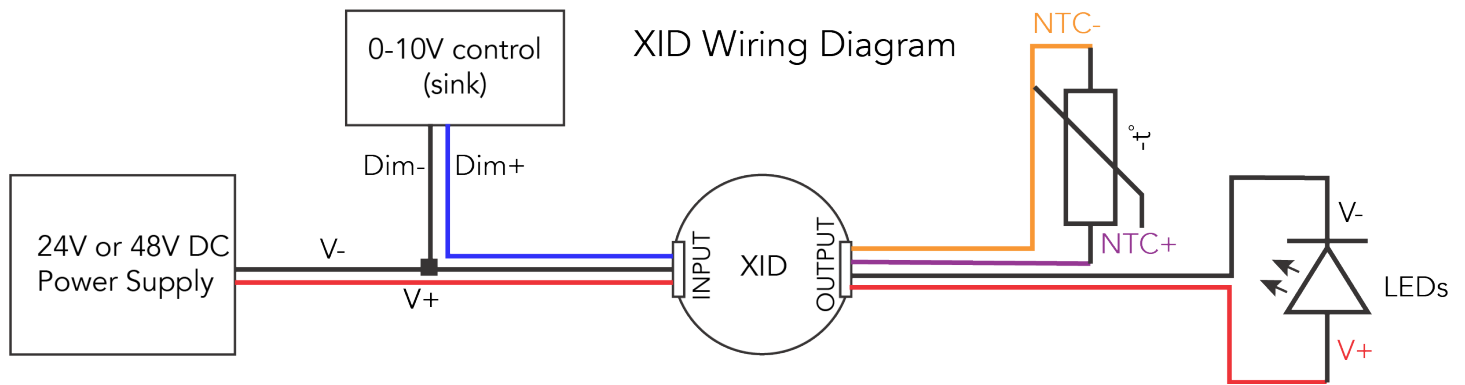SCALE: 3,000  SHEET 2 OF 2

Figure 2: XID wiring diagram

# XID PERFORMANCE VS. INTENSITY AND VF

## EXAMPLE XID EFFICIENCY BASED ON DIE CONFIGURATION AND INTENSITY

Efficiency is calculated as power delivered to LED light source(s), divided by power into XID. All data is for 48V input to XID01-50C1D6P14-A6. Maximum Vf must remain -3Vdc below input voltage.

| Intensity (dim level): | 100% | | | | 75% | | | | 50% | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Die Configuration | Vf | Total | Adder | Efficiency | Vf | Total | Adder | Efficiency | Vf | Total | Adder | Efficiency |
| 1x1 | 3.05 | 6.29 | 2.02 | 67.9% | 2.99 | 4.64 | 1.50 | 67.7% | 2.91 | 3.11 | 1.07 | 65.4% |
| 2x1 | 6.12 | 10.85 | 2.28 | 79.0% | 5.98 | 8.02 | 1.74 | 78.3% | 5.84 | 5.37 | 1.28 | 76.1% |
| 4x2 | 12.12 | 19.50 | 2.48 | 87.2% | 11.83 | 14.40 | 2.00 | 86.1% | 11.50 | 9.60 | 1.55 | 83.8% |
| 5x2 | 15.08 | 24.06 | 2.95 | 87.7% | 14.79 | 17.76 | 2.23 | 87.4% | 14.43 | 11.75 | 1.65 | 86.0% |
| 6x2 | 17.78 | 27.70 | 2.81 | 89.9% | 17.42 | 20.49 | 2.20 | 89.3% | 17.03 | 13.59 | 1.67 | 87.7% |
| 7x3 | 20.76 | 32.10 | 3.04 | 90.5% | 20.42 | 23.75 | 2.31 | 90.3% | 19.99 | 15.70 | 1.71 | 89.1% |
| 8x2 | 23.80 | 36.30 | 2.96 | 91.9% | 23.30 | 26.70 | 2.22 | 91.7% | 22.7 | 17.50 | 1.65 | 90.6% |
| 9x3 | 26.50 | 39.80 | 2.72 | 93.2% | 26.00 | 29.50 | 2.15 | 92.7% | 25.5 | 19.40 | 1.58 | 91.9% |
| 10x3 | 30.00 | 44.80 | 2.81 | 93.7% | 29.40 | 33.00 | 2.11 | 93.6% | 28.7 | 21.60 | 1.52 | 93.0% |
| 11x4 | 31.01 | 46.20 | 2.74 | 94.1% | 30.69 | 34.20 | 1.98 | 94.2% | 30.37 | 22.60 | 1.33 | 94.1% |
| 12x4 | 34.22 | 50.70 | 2.82 | 94.4% | 33.86 | 37.50 | 1.91 | 94.9% | 33.4 | 24.60 | 1.22 | 95.0% |

## XID EFFICIENCY VS. INTENSITY AND FORWARD VOLTAGE

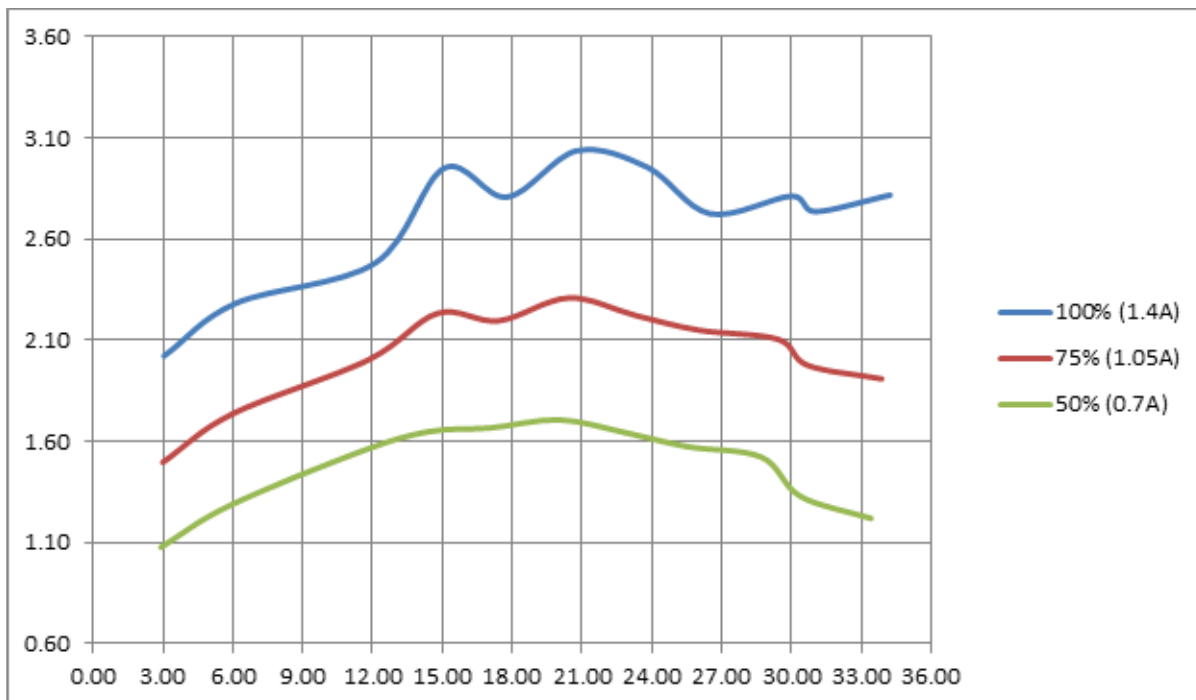y-axis is XID efficiency, x-axis is forward voltage.
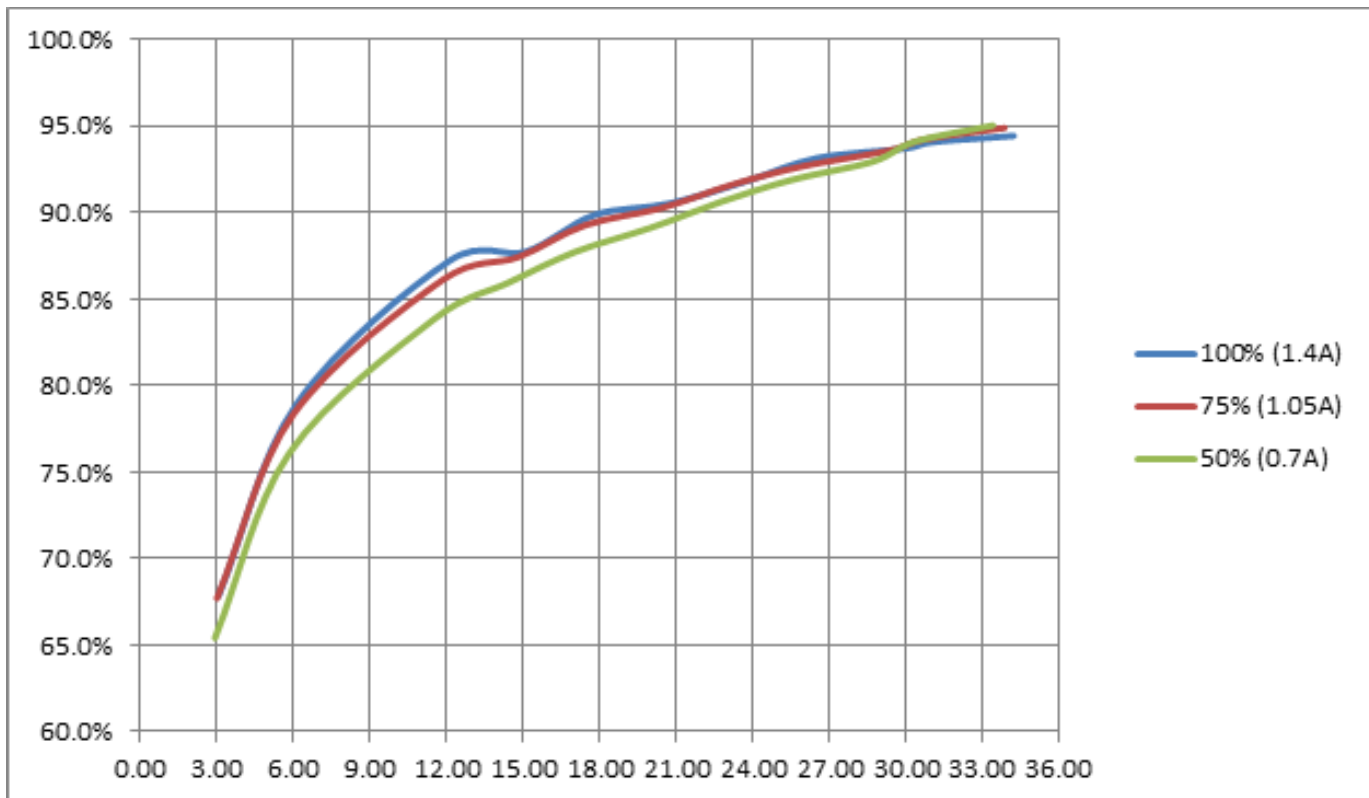
## XID EFFICIENCY VS. INTENSITY AT FIXED FORWARD VOLTAGES

y-axis is XID efficiency; x-axis is intensity (% of maximum drive current of 1.4A)
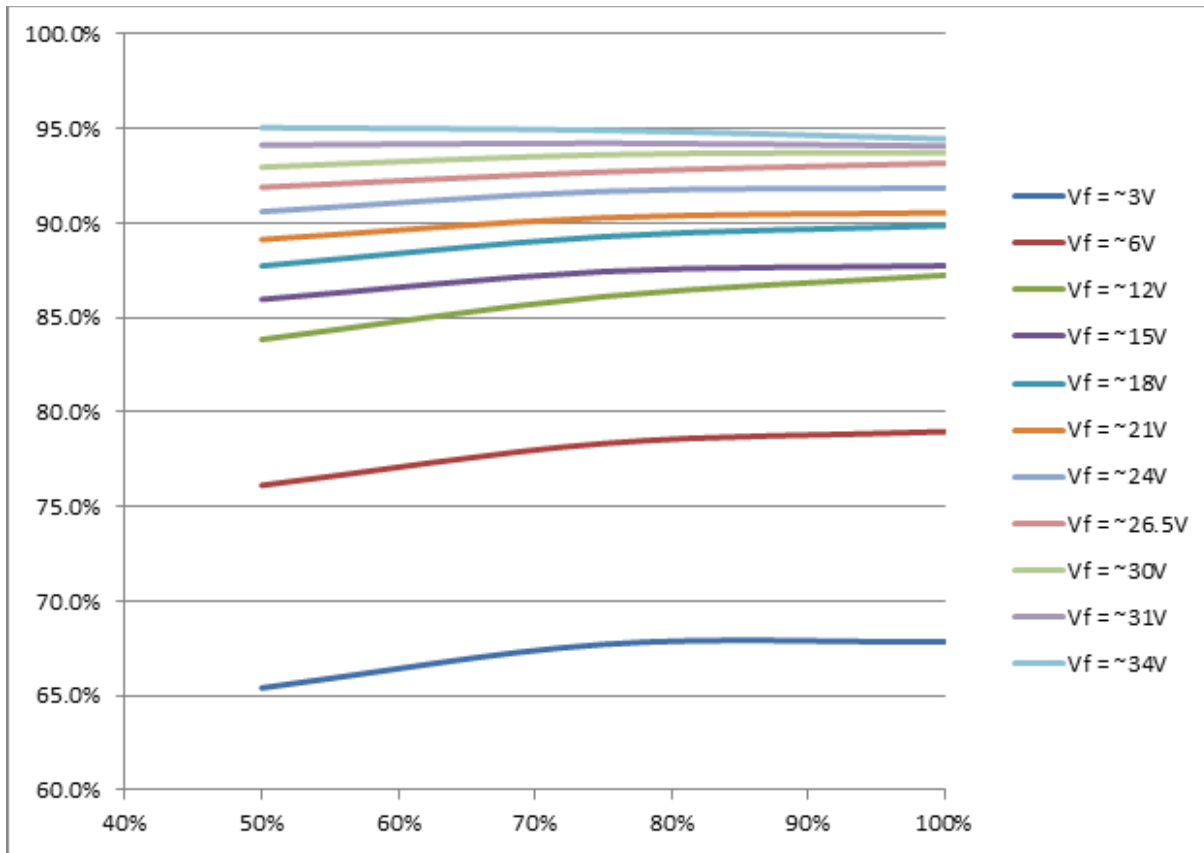


## XID POWER CONSUMPTION VS. FORWARD VOLTAGE AND DRIVE CURRENT

y-axis is power consumed by XID (not delivered to LED array); x-axis is forward voltage

## WARRANTY

| | |
|---|---|
| Warranty duration: | Verifiable 7 years or 50,000 hours of operation at LED intensity > 0%. Temperature and power parameters must be kept within recommended specifications. Verification based on actual operating data stored in each module. |
| Warranty coverage: | Covers electronics on EVERY module (B0). No failures. |
| Full warranty text at: | www.xicato.com/support/warranty |

## REGULATORY & AGENCY APPROVALS

### ELECTRICAL SAFETY & HANDLING

| | |
|---|---|
| CE: | IEC61347-1 (Ed. 3), IEC 61347-2-13 (Ed. 2), IEC 61347-2-13 (Ed. 2);am1 |
| UL: | 8750 – Light Emitting Diode (LED) Equipment for Use in Lighting Products |
| | 1310 – Standard for Class 2 Power Units. |
| | File E494343 |
| Ingress Protection rating: | IP20, Suitable for dry and damp locations |
| CSA: | C22.2 No. 250.13-14. |

ESD Class 3B (HBM). No special ESD handling procedures required.

### CHEMICAL SAFETY

The following chemicals should be avoided, even in small quantities, within the module:

| | | |
|---|---|---|
| Hydrochloric Acid | MEK (Methyl Ethly Ketone) | Dichloromethane |
| Sulfuric Acid | MIBK (Methyl Isobutyl Ketone) | Rosin Flux Solder |
| Nitric Acid | Toluene | Castor Oil |
| Acetic Acid | Xylene | Lard Oil |
| Sodium Hydroxide | Benzene | Linseed Oil |
| Potassium Hydroxide | Gasoline | Petroleum Oil |
| Ammonia | Mineral Spirits | Silicone Oil |
| Sulfur (Used in Rubber Processing) | Tetracholoromethane (Carbon tetrachloride – $CCl_4$) | Halogenated Hydrocarbons (Containing F, Cl, or Br) |

### ENVIRONMENTAL SAFETY

RoHS compliant

| | |
|---|---|
| Lead content: | None |
| Mercury content: | None |
| UV or IRC Emissions: | None |

## WIRELESS COMPLIANCE

### UNITED STATES

FCC NOTICE: This device complies with Part 15 of the FCC Rules. The device meets the requirements for the modular transmitter approval as detailed in FCC public Notice DA00-1407. Transmitter Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

LABELING REQUIREMENTS: The Original Equipment Manufacturer (OEM) must ensure that FCC labelling requirements are met. This includes a clearly visible label on the outside of the OEM enclosure specifying the appropriate FCC identifier for this product as well as the FCC Notice above. The FCC identifier is FCC ID: WAP2006. In any case the end product must be labeled on the exterior with "FCC ID: WAP2006"

### CANADA

ISED NOTICE: The device complies with Canada RSS-GEN Rules. The device meets the requirements for modular transmitter approval as detailed in RSS-GEN. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

L'appareil est conforme aux Règles RSS-GEN de Canada. L'appareil répond aux exigences d'approbation de l'émetteur modulaire tel que décrit dans RSS-GEN. L'opération est soumise aux deux conditions suivantes: (1) Cet appareil ne doit pas causer d'interférences nuisibles, et (2) Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant entraîner un fonctionnement indésirable.

ISED INTERFERENCE STATEMENT FOR CANADA

This device complies with Innovation, Science and Economic Development (ISED) Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme à la norme sur l'innovation, la science et le développement économique (ISED) norme RSS exempte de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ISED RADIATION EXPOSURE STATEMENT FOR CANADA

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme aux limites d'exposition aux radiations ISED prévues pour un environnement incontrôlé.

LABELING REQUIREMENTS:

The Original Equipment Manufacturer (OEM) must ensure that ISED labelling requirements are met. This includes a clearly visible label on the outside of the OEM enclosure specifying the appropriate IC identifier for this product as well as the ISED Notice above. The IC identifier is 7922A-2006. In any case, the end product must be labeled in its exterior with "IC: 7922A-2006".

## EUROPE

Declaration of Conformity: Hereby, Xicato declares that the XIM series products comply with the essential requirements and other relevant provisions of RED 2014/53/EU.

## JAPAN

MIC Japan certificate 203-JN0599

## KOREA

KC Korea certificate MSIP-CRM-Cyp-2006