PRODUCT SPECIFICATION

XENERQI KSUART Driver XEL-xxxTCU-UUA12PP \ Eaton: ELX-PCD-UNV-A-0xx-yyyy-AMB-SAUX-01

Revision	1.3	Date	10/10/19	Firmware 0.58			
Customer:	Eaton						

SPECIFICATION	Test Condition / Notes		Minimum	Nominal	Maximum	Units
VARIANT ORDERED	VOLTAGE TEST RANGE					
Universal PHASE - 1	Nominal - All specifications met (*1)		120		277	VAC
	Extended - All specs except PF/THD (*1)		108		305	VAC
	Operational - Derated specifications		95		305	VAC
SPECIFICATION	**Test Condition / Notes**		**MIN**		**MAX**	**Units**
OUTPUT POWER RATING (FULL)	(*1) Power supplies will meet PF and THD specifications over the full nominal voltage range as specified above. **MAXIMUM rated output Power.**					
XEL-040TCU-UUA12PP \ EATON ReadySense™: ELX-PCD-UNV-A-040-1200-AMB-SAUX-01			20.00		40.00	W
XEL-050TCU-UUA12PP\ EATON ReadySense™: ELX-PCD-UNV-A-050-1200-AMB-SAUX-01			25.00		50.00	W
Power Factor	** Measured at 120 & 277V		0.9			
THD	- Measured at >=50% of full power for (A)				20	%
Input Frequency	AC Line Frequency		47		63	Hz
MAXIMUM OUTPUT CURRENT	* Output current represents the current programming range					
ELX-PCD-UNV-A-040-1200-AMB-SAUX-01			0.50		1.20	A
ELX-PCD-UNV-A-050-1200-AMB-SAUX-01			0.50		1.20	
OUTPUT VOLTAGE FULL POWER	Output voltage range at which specifications	DIMMED	Minimum	Nominal	Maximum	
ELX-PCD-UNV-A-040-1200-AMB-SAUX-01	will be met. Nominal represents most common	25.0	30.0	42.00	54.0	V
ELX-PCD-UNV-A-050-1200-AMB-SAUX-01	usage voltage of customer base. DIM/DERATE	25.0	30.0	42.00	54.0	V
SPECIFICATION	**Test Condition / Notes**		**Minimum**	**Nominal**	**Maximum**	**Units**
EFFICIENCY FULL POWER						
ELX-PCD-UNV-A-040-1200-AMB-SAUX-01	- Measured at 277V		85.0	87.0		%
ELX-PCD-UNV-A-050-1200-AMB-SAUX-01	- Measured at 75% full power (Max current, max voltage)		85.0	87.0		%
						%

SPECIFICATION	DIMMING/CONTROL FEATURES		Minimum	Nominal	Maximum	Units
DIMMING	TRIAC	Forward phase triac dimming. Reverse phase compatible. (REQUIRED at 120V Only)	0-10V	DALI	OTHER	%
	☐	☐	☐	☐	☑	UART 1% - 100% + OFF
			Minimum	**Nominal**	**Maximum**	**Units**
0-10V CONTROL RANGE	Maximum voltage for full output / Mininim for fully dimmed		N/A	N/A	N/A	Volts
0-10V Source Voltage	Source voltage range for 0-10V		N/A		N/A	Volts
OUTPUT SET POINT CONTROL	RSET (Imax)	Programmed (Imax) / Programmed (Vmax)	DALI	FIXED	JUMPER SELECT	Programmed via command over UART interface.
	☐	☑ / ☐	[ ]	[ ]	[ ]	
OUTPUT SET POINT ACCURACY	Measured as percentage of target output current		-5%		5%	% of Programmed current
			Minimum	**Nominal**	**Maximum**	**Units**
Start-up Delay (Fully Dimmed)	Worst case - 5% Dimming @Full load - To 10%				1000	ms (From receipt of Relay-On
	Worst case - 5% Dimming @Full load - To 90%				1500	ms (From receipt of Relay-On
Start-up Delay (10-100%)	Worst case - 10% Dimming @Full load - To 10%				750	ms (From receipt of Relay-On
	Worst case - 10% Dimming @Full load - To 90%				1000	ms (From receipt of Relay-On
Low Frequency Flicker (<60Hz)	Maximum Deviation measured over 30 seconds (Total deviation)				1	%
Turn on Overshoot (Dimmed)	Measured at all Dimming Levels				0	%
Sag	Worst case - No Dimming @Full load				N/A	%
Inrush Current	Per NEMA 410				74	A^2*T
Repetitive Peak Current					N/A	
SPECIFICATION	**Test Condition / Notes**		**Minimum**	**Nominal**	**Maximum**	**Units**
Line Regulation	Min-max input voltage				5	%
Load Regulation	Min-max load				5	%
Ripple & Noise	Peak-peak 2KHz Bandwidth ***** Measured with the resistor values listed on the "LOAD-SPEC" tab. Measured at full power output.***				30	%
	Peak-peak 20MHz Bandwidth				40	%
Flicker Percentage	Measured with supplied LED Load and XenerQi Flicker Tester. For description see load-spec page. Measured from 1% - 100% dimming using UART To set current.				50	%
Start-up Delay (100% output)	Worst case - No Dimming @Full load - To 10%				500	ms (Note, driver prevents turn-on for period as specified in Eaton specification).
	Worst case - No Dimming @Full load - To 90%				750	ms
Turn-on Overshoot	Overshoot in Output Current @Full load				0	%
Turn OFF Delay	Time until Iout <= 0 % of nominal current setting (NO DIE GLOW)				500	ms

PROTECTION OPERATION	OPERATION METHOD
Output Over Voltage Protection Methods	Shut down, auto recovery (Hiccup)
Over Current Protection Methods	Limit maximum current to ISET, shutdown on short circuit with auto-recovery (** 2 A - Maximum)
Over Temperature Protection Methods (Internal / External)	Internal - linear output current foldback

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PROTECTION SPECIFICATIONS	Test Condition / Notes	Minimum	Nominal	Maximum	Units
Over Voltage Protection Tolerance (Over Vmax)	Vmax > 60V		N/A		
	Vout <= 60V (Class-2)			59.9	V
Over Power Protection Tolerance	Maximum steady state power that the driver will deliver. Driver unit is self limiting and will reduce output current to bring output power below limit.				W
XEL-040TCU-UUA12PP				42.0	W
XEL-050TCU-UUA12PP				52.5	W
Over Current Protection Tolerance (Over Imax)	Limit to Iset			A	A
	Limit on Vout < Vmin		N/A		A
Over Temperature Protection (Internal Temperature)	Linear Foldback	92	98	104	°C
Over Temperature Protection (External NTC)	N/A		N/A		°C

AUXILLIARY OUTPUT

AUXILLIARY OUTPUT SETPOINT	OUTPUT VOLTAGE			OUTPUT CURRENT			100mA Continuous\Average 200mA peak, t < 5msec
	12.0V	24.0V	OTHER	25mA	75mA	OTHER	
	☑	☐	☐	☐	☐	☑	

SPECIFICATION	Test Condition / Notes	Minimum	Nominal	Maximum	Units
Line Regulation	Min-max input voltage	-5%		20%	%
Load Regulation	Min Load / Full Load	-5%		20%	%
Ripple & Noise	20Mhz Bandwidth			1%	%
Start-up Delay	Worst Case			300	ms
Turn-on Overshoot	Overshoot in output voltage.			5	%
SPECIFICATION	**Test Condition / Notes**	**Minimum**	**Nominal**	**Maximum**	**Units**
Over Voltage Protection Tolerance	Limit to Auxilliary Vout		N/A		Limited by Design.* Class-2 Compliant
Over Current Protection Tolerance	Hiccup Current Protection			150%	%

Safety & Safety Approvals	REQUIRED	TEST STANDARD	Description	Comments
Safety Standards - North America	☑	UL8750\CSA 22.2 250.13	UL\CSA standard for LED Drivers/Components	UL1310/C22.2 No. 223 are tested as part of the UL8750 testing regimen.
	☐	UL1310	UL standard for Class-2 power supplies	
	☐	CSA C22.2 223	CSA standard for Class-2 power supplies	
	☐	-	0	
	☐	-	0	
	☐	-	0	
	☐			
Safety Standards - International	☑	CE		
	☐	IEC 61347		
	☐	EN60950		
	☐	ENEC		
	☐			
Sound Rating	☑	Class A Sound Rating	22 dB maximum at 1 foot, Class A weighted.	Measured on 6 axis, unit at full load, unit suspended in free space.
Hazardous substance restrictions	RoHS compliant			

Electro-Magnetic Compatibility	REQUIRED	TEST STANDARD	Description	Comments
Conducted EMI	☑	FCC Part 15\ICES-005 Rev4+ Class A	US\Canadian standard for conducted/radiated emissions	
	☐	EN61000-3-4 (Cispr 15)	EU standard for conducted emissions	
Radiated EMI	☑	FCC Part 15\ICES-005 Rev4+ Class A	US\Canadian standard for conducted/radiated emissions	
	☐	EN55015:2013 - (CISPR15)	EU Standard for Radiated Emissions	
Conducted RF Immunity	☑	EN61547:2009 / 61000-4-6	IEC Lighting Standard - Conducted RF Immunity (IEC6100	Levels as per 61547
Radiated Field	☑	EN61000-4-3	RFI/EM Immunity	3V / M
ESD	☑	EN61000-4-2	ESD Immunity	8KV Air, 4KV Contact no damage
Dips and Interruptions	☑	EN 61000-4-11	Voltage dips, short interruptions and voltage variations imn	
Line Voltage Fluctuation & Flicker	☐	EN61000-3-3		
Elect Fast Transient Immunity	☑	EN61000-4-4	Electrical fast transient immunity	2KV Power, 0.5KV Signal (No flicker/restart)
Electrical surge immunity	☑	EN61000-4-5	Surge immunity	+ 6KV:L/N-G, 6KV: L-N (12 Ohm) + 6.0KV ringwave(Ansi). Testing as per 61547 - note only 10 hits.
Magnetic Field Immunity	☐	EN61547:2009 / 61000-4-8	IEC Lighting Standard - Magnetic Field Immunity (IEC6100	Levels as per 61547
	☐			

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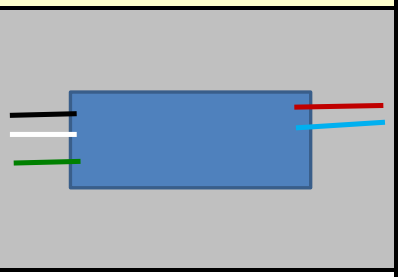
Environmental Specifications	Test Condition / Notes	Minimum	Nominal	Maximum	Units
Operating Temperature Range	Ambient	-20		50	°C
Case Temperature Range	Full Rated Specifications	-20		90	°C
	Derated Specifications (Maximum Case Temperature)		N/A		°C
Storage Temperature Range		-40		90	°C
Humidity		5		95	%
Vibration	3 - 50Hz 20 minutes		1		G
Lifetime					HOURS ** NOTE - Design would ensure close to 40C Ambient\Tcase to optimize
	* *TcMax - 75C* Max Current, Nominal Voltage, Extended input voltage range, < 5% failures	50,000			
Ingress Protection/UL Rating	UL Damp/ / Dry Rated		IP20		
		TL?	HL?	P?	UL RATING CLASS
DRIVER RATINGS	Specific added rating requirements	NO	NO	YES	

ADDITIONAL FEATURES

SPECIFICATION	Test Condition / Notes	Minimum	Nominal	Maximum	Units
POWER METERING	AC Power measured during operation over range	+/-8%, +/- 1W over full specification +/-5%, +/- 1W over 115-125/265-285V 0-70C case			% of actual power put value of actual power
ENERGY METERING	Cumulative AC Power measured during operation over range	Energy metering +/- 3.5% (oscillator drift w.r.t. temperature)			Watt-Hours (0.1wH resolution)
STANDBY POWER CONSUMPTION	Measured with relay-off, no load connected to auxilliary			1.00	Watt

AC Input Wires or Terminals

		TERMINAL COLORS	
Wire Gauge	N/A - Terminals		
Wire Length (mm)		Input (L)	Black
Number of strands		Input (N)	White
Insulation Diameter		Input(G)	Green
Insulation Color			
Insulation Type			
Strip Length (mm)			
UL Type			
Special Notes:		Terminal Details (If applicable)	



DC Output Wires or Terminals

		TERMINAL COLORS	
Wire Gauge	N/A - Terminals		
Wire Length (mm)		Output (+)	Red
Number of strands		Output (-)	Blue
Insulation Diameter		UART	RJ11
Insulation Color			
Insulation Type			
Strip Length (mm)			
UL Type			
Special Notes:		Terminal Details (If applicable)	