LQT40A

DIN rail, fully programmable, high accuracy, Tillquist's LQT40A multi-transducer, can be used with 50, 60 or 16⅔ Hz rated frequencies with a wide range of AC and DC auxiliary supply. This transducer can measure active and reactive powers, power factors, and all other electrical quantities including voltage and current for any 3-phase system. LQT40A can be easily programmed through its USB micro standard port and Tillquist's ConfigLQT free software.

Technical Data		Details
Input	Voltage range (Un)	100 – 400 V (L-L) main voltage (nominal)
	Measuring range	1 – 520 V TRMS L-L 50/60 Hz 1 - 520 V TRMS L-L 16⅔ Hz
	Configurable measuring range	0 - 500 V L-L / 0 - 300 V L-N
	Frequency	50/60 Hz (10…40….70…120 Hz) 16⅔ Hz (10…15….18…120 Hz)
	Overload voltage	1.5 x Un – continuously 2 x Un – 10 s
	Consumption	≤U² / 1.32 MΩ
	Impedance	1.32 MΩ per phase
	Current (In)	1 – 5 A
	Measuring range	5 mA – 10 A TRMS
	Configurable measuring range	0 – 10 A
	Overload current	2 x In continuously, 10 x In 15 s, 40 x In 1 s
	Consumption	<0.05 VA / phase
	Auxiliary power supply	24 – 230 VDC / 90 – 230 V AC ±10 %
	Burden	max 7.2 W / 15 VA
Output	Analog outputs	4 or 2
	Programmable range	±20 mA, ±5 mA, ±10 V (settings within the range)
	External resistance load	Current output: max 750 Ω (15 V) Voltage output: min 750 Ω
	Response time	<100 msec
	Digital outputs	2 (Energy pulse output)
	Analogue output ripple	≤0.2%
	Communication	Modbus RS485 (RTU)
Measured Quantities	F, U12, U23, U31, U, I, P, S, IS, LF, PF, QF, PA (see matrix on page 3)	
General Data	Accuracy	0.2 (Ref. temp. 23 °C)
	Galvanic isolation	Supply, in- and output are galvanically isolated
	Connection terminals/Torque	Input & auxiliary: 6 mm² / 0.8 Nm Output: 2.5 mm² / 0.5 Nm
	Humidity	95% non-condensing
	USB	USB Micro-B, port for configuration
	Temperature	-10…+55 °C (operation) -40…+70 °C (storage) Temperature coefficient < 0.1 % / 10 °C
	Inputs	overvoltage cat. III
	Pollution degree	2
	Dimension (W x H x D)	70 x 132 x 101 mm
	Weight	330 gr
	Protection	IP40 (housing), IP20 (terminals)
	Standards	SS-EN IEC 60688:2021 Transducers SS-EN 61010-1 Safety EN 61000-6-2 / -6-4 / -6-5

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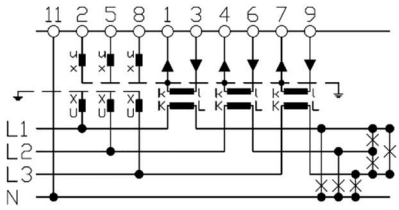
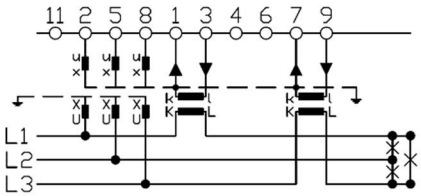
Configurable System Connection

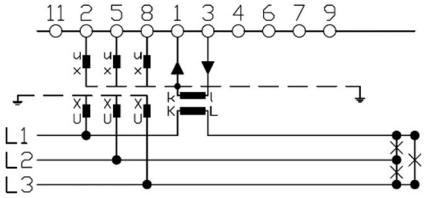
Code	Application	I1	I2	I3	N	U1	U2	U3	U12	U23	U31
00	4wire, 3 phase symmetric load	X	-	-	X	X	-	-	-	-	-
01	1-wire, 1 phase	X	-	-	X	X	-	-	-	-	-
02	3-wire, 3 phase symmetric load	X	-	-	-	-	-	-	X	-	-
03	3-wire, 3 phase symmetric load	X	-	-	-	-	-	-	-	X	-
04	3-wire, 3 phase symmetric load	X	-	-	-	-	-	-	-	-	X
05	3-wire, 3 phase symmetric load	X	-	-	-	X	X	X	X	X	X
09	3-wire, 3 phase asymmetric load	X	-	X	-	X	X	X	X	X	X
11	4-wire, 3 phase asymmetric load	X	X	X	X	X	X	X	X	X	X
11	4-wire, 3 phase asymmetric load Open Delta	X	X	X	-	X	X	X	X	X	X



Connection -11



Connection -09



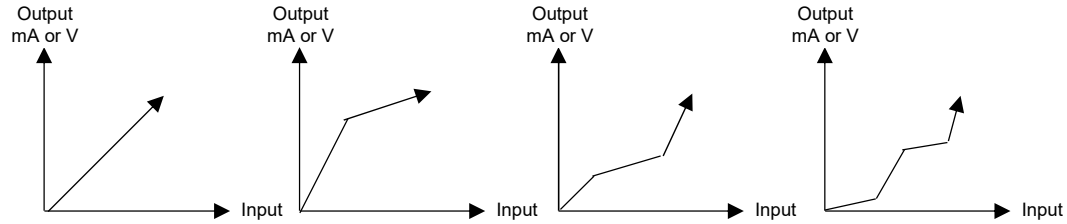
Connection -05

Configuration Software - ConfigLQT

ConfigLQT, free configuration software, downloadable from our webpage, www.tillquist.com, configures all Tillquist's programmable transducers. The software connects to live transducers, changes the configuration, and visualizes live readings.

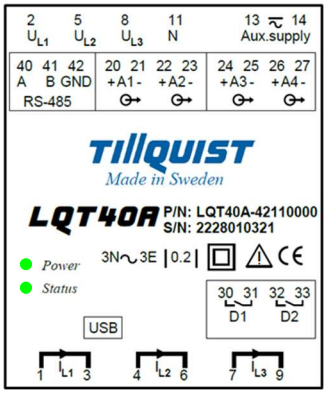
Configurable Characteristic Points (Analog Outputs)

Up to setting 5 points

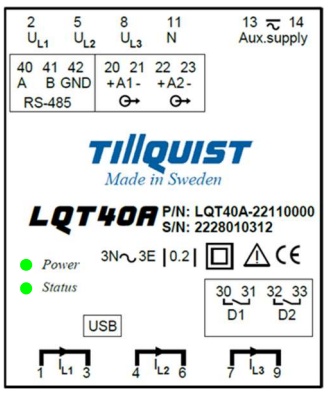


Connections

LQT40A-4



LQT40A-2



Dimensions

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Measured Quantities

Quantity	Unit	Description	Measured	Value	Quantity	Unit	Description	Measured	Value
F	Hz	Frequency	System	F	S2	VA	Apparent Power	L2	S2=U2 x I2
I	A	Current	System	I = (I1+I2+I3)/3	S3	VA	Apparent Power	L3	S3=U3 x I3
I1	A	Phase Current	L1	I1	PF	-	Active Power Factor Cos(ϕ)	System	PF= (1+2+3)/3
I2	A	Phase Current	L2	I2	PF1	-	Active Power Factor Cos(ϕ1)	L1	PF1
I3	A	Phase Current	L3	I3	PF2	-	Active Power Factor Cos(ϕ2)	L2	PF2
U	V	Voltage	System	U= (U1+U2+U3)/3	PF3	-	Active Power Factor Cos(ϕ3)	L3	PF3
U1	V	Phase Voltage	L1-N	U1	QF	-	Reactive Power Factor Sin(ϕ)	System	QF= (1+2+3)/3
U2	V	Phase Voltage	L2-N	U2	QF1	-	Reactive Power Factor Sin(ϕ1)	L1	QF1
U3	V	Phase Voltage	L3-N	U3	QF2	-	Reactive Power Factor Sin(ϕ2)	L2	QF2
U12	V	Phase-Phase Voltage	L1-L2	U12	QF3	-	Reactive Power Factor Sin(ϕ3)	L3	QF3
U23	V	Phase-Phase Voltage	L2-L3	U23	LF	-	LF Factor	System	LF=sign(Q) x (1-|PF|)
U31	V	Phase-Phase Voltage	L3-L1	U31	LF1	-	LF Factor	L1	LF1=sign(Q1) x (1-|PF1|)
P	W	Active Power	System	P= (P1+P2+P3)/3	LF2	-	LF Factor	L2	LF2=sign(Q2) x (1-|PF2|)
P1	W	Active Power	L1	P1	LF3	-	LF Factor	L3	LF3=sign(Q3) x (1-|PF3|)
P2	W	Active Power	L2	P2	PA	Deg	Phase Angle ϕ	System	PA= (1+2+3)/3
P3	W	Active Power	L3	P3	PA1	Deg	Phase Angle ϕ1	L1	PA1
Q	Var	Reactive Power	System	Q= (Q1+Q2+Q3)/3	PA2	Deg	Phase Angle ϕ2	L2	PA2
Q1	Var	Reactive Power	L1	Q1	PA3	Deg	Phase Angle ϕ3	L3	PA3
Q2	Var	Reactive Power	L2	Q2	IS	A	Bidirectional Current	System	IS= (1+2+3)/3
Q3	Var	Reactive Power	L3	Q3	IS1	A	Bidirectional Current	L1	IS1
S	VA	Apparent Power	System	S= (S1+S2+S3)/3	IS2	A	Bidirectional Current	L2	IS2
S1	VA	Apparent Power	L1	S1=U1 x I1	IS3	A	Bidirectional Current	L3	IS3

Ordering Codes

LQT40A Ordering Codes

LQT40A-	X	2	1	X	X	XXX
Number of Analog Outputs						
4	4					
2	2					
Number of Digital Outputs						
2		2				
RS 485						
with RS485			1			
Range of Analog Outputs						
± 20mA				1		
± 5mA				2		
± 10V				3		
Frequency						
50/60 Hz					0	
16⅔ Hz					1	
Special Requirements						
Standard configuration						000

Ordering Codes Examples

LQT40A-42110000: LQT40 with 4 analog outputs, 2 digital, RS485, ±20 mA, 50/60 Hz with standard configuration
LQT40A-22130000: LQT40 with 2 analog outputs, 2 digital, RS485, ±10 V, 50/60 Hz with standard configuration
LQT40A-22111000: LQT40 with 2 analog outputs, 2 digital, RS485, ±20 mA, 16⅔ Hz, with standard configuration

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