AT416 High-Voltage Module with fibre-optic input for triggering a single thyristor

The AT 416 EZYTrigger converts high-voltage thyristors (up to 8KV) into optically controlled devices The unit triggers with only 10mA into a fibre-optic transmitter diode Required gate current is derived from the anode of the thyristor via a controlled current source of 2.5A There is no need for an additional isolated power source for gate drive

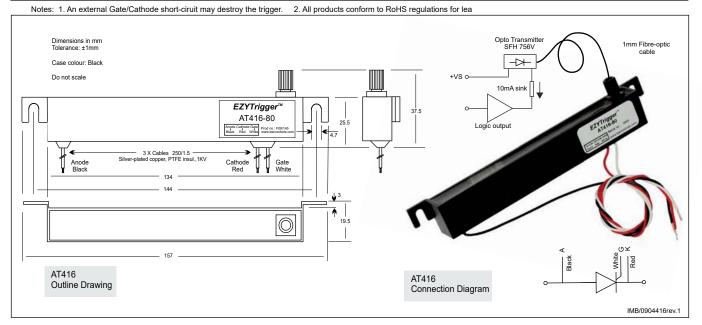
APPLICATION INFORMATION

The unit should be mounted in close proximity to the thyristor with leads as short as possible. If the unit is mounted directly on the heatsink, it is recommended that it be positioned on the heatsink with the same potential as the cathode of the thyristor. This minimizes interference from fast-rising high-voltage spikes from the mains. For the same reason, other leads should be kept away from the body of the trigger unit.

Although the unit will operate successfully with the minimum control current of 5mA, it is recommended that the control current be increased to 10mA to allow for ageing of the optical components. If simultaneous triggering is required for a number of series-connected thyristors, it is advisable to use pulse shaping for the transmitter input. An RC network with a time constant of 10µs can be used to create an initial current of 20mA, decaying to 10mA. It is also advisable to maintain the control signal during the required conduction period of the thyristor.

Parameter	Symbol	AT416-40	AT416-80	Unit
Peak voltage - positive and negative	Vp	4000	8000	V
Nominal operating mains voltage	Vm	1250	2500	Vrms
Continuous DC voltage	V=	1250	2500	Vdc
Thyristor turn-on time (tgd+tr)	ton	6	6	μs
Anode-Cathode transient immunity	(dV/dt)c	5000	5000	V/μs
Ambient operating temperature	Ta	-20 to +85	-20 to +85	°C
TECHNICAL DATA at 25°C				
	Vatl	40	60	V
00mA Gate current threshold	Vgtl Vath	40 90	60 140	V V
00mA Gate current threshold .5A Gate current threshold	Vgth	40 90 3		V
00mA Gate current threshold .5A Gate current threshold ate current rise time at anode voltage 80	Vgth 0V (di/dt)g	90	140	
00mA Gate current threshold .5A Gate current threshold ate current rise time at anode voltage 80 eak gate current node-cathode current at Vp at Ig = 0	Vgth	90 3	140 2.5	V A/µs
00mA Gate current threshold .5A Gate current threshold ate current rise time at anode voltage 80 eak gate current node-cathode current at Vp at Ig = 0	Vgth 0V (di/dt)g Ip	90 3 2.5	140 2.5 2.5	V A/µs A
00mA Gate current threshold 5A Gate current threshold ate current rise time at anode voltage 80 eak gate current node-cathode current at Vp at Ig = 0 laximum off-state gate current linimum control current***	Vgth 0V (di/dt)g Ip In	90 3 2.5 4	140 2.5 2.5 4.6 2 5	V A/µs A mA
00mA Gate current threshold .5A Gate current threshold ate current rise time at anode voltage 80 eak gate current node-cathode current at Vp at Ig = 0 laximum off-state gate current limimum control current*** ecommended control current***	Vgth 0V (di/dt)g Ip In Io Icm Ic	90 3 2.5 4 2 5 10	140 2.5 2.5 4.6 2 5 10	V A/µs A mA µA mA mA
TECHNICAL DATA at 25°C 00mA Gate current threshold .5A Gate current threshold .5A Gate current threshold ate current rise time at anode voltage 80 'eak gate current node-cathode current at Vp at Ig = 0 faximum off-state gate current dinimum control current*** Recommended control current*** Control input voltage drop @ 10mA faximum reverse control input voltage	Vgth 0V (di/dt)g Ip In Io Icm	90 3 2.5 4 2 5	140 2.5 2.5 4.6 2 5	V A/µs A mA µA mA

***Current into SFH756 opto-transmitter with 1m cable.



All components and parts used in these units have been certified by their manufacturers as RoHS Compliant | Epoxy filler is RoHS Compliant (2011/65/EU) and UL Approval meets UL94 V-0 | The Optocoupler is approved for UL1577 File No. E52744 System Code H or J, Double Protection and DIN EN 60747-5-2 (VDE0884), RoHS 2002/96/EC and WEEE (2002/96/EC) | No warranty is given for the accuracy of information stated by the respective manufacturers.