

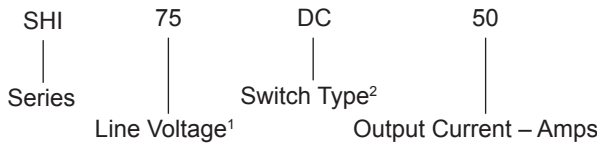
FEATURES/BENEFITS

- Latest generation of High Voltage IGBT Technology
- Ultra low drop out voltage
- Built-in protection against overvoltage and fast transient bursts
- Built-in protection against overload and short-circuits for load
- Built-in over-temperature protection
- Pluggable control connector with spring terminals



Part Number	Description
SHI75DC50-6	50A, 750 Vdc, 24/48 Vdc Control
SHI75DC50-9	50A, 750 Vdc, 72/96/110 Vdc Control

Part Number Explanation



NOTES
1) Line Voltage (peak): 75 = 750 Vdc
2) Switch Type: DC = DC

ELECTRICAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

INPUT (CONTROL) SPECIFICATIONS

	Min	Max	Units
Marking	X4/3	X4/4	
Control Range (Nominal)			
SHI75DC50-6	24	48	Vdc
SHI75DC50-9	72	110	Vdc
Typical Turn-On Voltage			
SHI75DC50-6	14.4		V
SHI75DC50-9	43.2		V
Must Turn-Off Voltage	4		Vdc
Input Voltage			
SHI75DC50-6		60	Vdc
SHI75DC50-9		137.5	Vdc
Reverse Voltage			
SHI75DC50-6		60	Vdc
SHI75DC50-9		137.5	Vdc
Current Consumption		6	mA
Reverse Current		1	µA

INTERNAL DIAGRAM

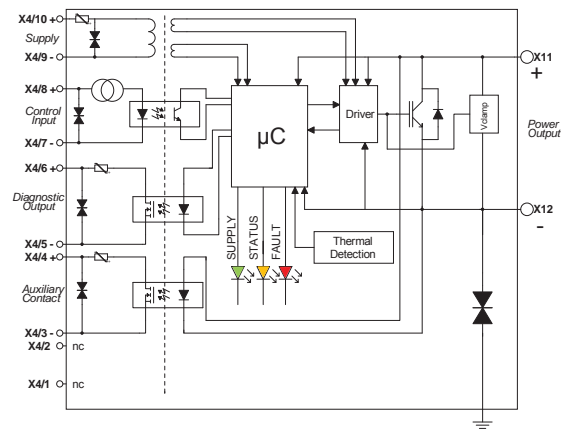


Figure 1

CONTROL CHARACTERISTIC

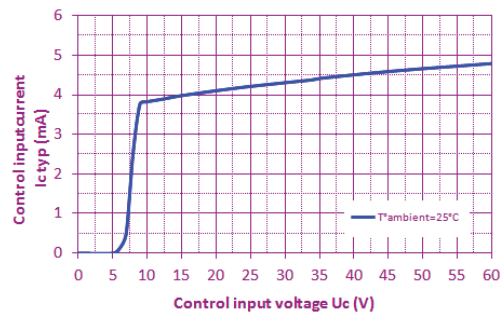


Figure 2 (SHI75DC50-6)

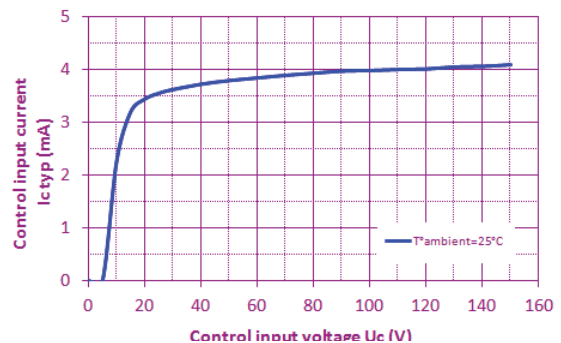


Figure 3 (SHI75DC50-9)

ELECTRICAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

INPUT (SUPPLY) SPECIFICATIONS

	Min	Max	Units
Marking	X4/1	X4/2	
Supply Control Voltage (Nominal)			
SHI75DC50-6	16.8	60	Vdc
SHI75DC50-9	50.4	137.5	Vdc
Supply Peak Voltage			
SHI75DC50-6		67.2	Vdc
SHI75DC50-9		154	Vdc
Supply Operating Current			
SHI75DC50-6		100	mA
SHI75DC50-9		40	mA
Overvoltage protection	Transient Voltage Suppressor		
Current and Short-circuit Protection	Yes (Thyristor)		
Reverse Polarity Protection	Yes		
Under Voltage Lockout Protection	Yes		

OUTPUT (LOAD) SPECIFICATIONS

	Min	Max	Units
Operating Range	12	940	Vdc
Peak Voltage (Pulse <5min)		1000	Vpeak
Peak Voltage (Pulse <20ms)		1270	Vpeak
Reverse Voltage (Internal Diode)		1.12	V
Maximum Peak Current Rating (Non-Repetitive) (ON-State)		300	A
Maximum Nominal Current (Resistive)		50	A
Leakage Current		15	µA
Max On-State Voltage Drop		1.08	V
IGBT Junction-Case Thermal Resistance		0.054	K/W

* Recommended a min. load current of 2A for diagnostics.

TIME DIAGRAMS

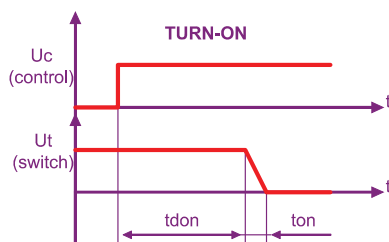


Figure 3a

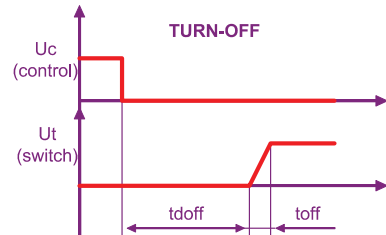


Figure 3b

ELECTRICAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

OUTPUT (LOAD) SPECIFICATIONS

	Min	Max	Units
Overvoltage Protection	Active Clamp Protection		
Short-Circuit/ Overload Protection	Auto Desaturation Detection		
Output Capacitance (Typical)		1.65	nF
Max Inductive load		5	mH
Desaturation Current		225	A
Desaturation Detection Time	7		µs
Single Pulse Avalanche Energy		20	J
Repetitive Puls Avalanche Energy		5	J
Built-In Heat Sink Thermal Resistance (Vertically Mounted)		2.4	K/W
Heat Sink Thermal Time Constant		30	min
Control Inputs/Power Outputs			
Impulse Voltage		8	kV
Control Inputs/Power Outputs			
Insulation Voltage		0.9	kV
Turn-On Time		1	ms
Turn-On Delay		1.5	ms
Turn-Off Time		300	µs
Turn-Off Delay		1.5	ms
On-Off Frequency		1	Hz

GENERAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

ENVIRONMENTAL SPECIFICATIONS

	Min	Max	Units
Operating Temperature	-40	+70	°C
Storage Temperature	-40	+85	°C
Junction Temperature		105	°C

DIAGNOSTIC & STATUS OUTPUTS

	Min	Max	Units
Switching Voltage (Nominal)			
SHI75DC50-6	24	48	Vdc
SHI75DC50-9	72	110	Vdc
Switching Voltage			
SHI75DC50-6	16.8	60	Vdc
SHI75DC50-9	16.8	137.5	Vdc
Switching Current	0.1	50	mA
ON-state Resistance		35	Ω
Marking	X4/5 & X4/6 (Diagnostic Output) X4/3 & X4/4 (Status Output)		
Type of Contact	Semiconductor (Photo-MOS) NO Contact ("Closed" when fault detected)		
Overvoltage Protection	Transient voltage suppressor		
Overload and Short-Circuit Protection	Thermistor		
Reverse Polarity Protection	Yes		

GENERAL

Standards	EN50155
Temperature Class	TX
Protection Level	IP00
CE marking	Yes
Protection Against Direct Touch	None
CE Marking	Yes

E.M.C. EMISSION

 Radiated & Conducted Disturbances
 NFEN5011

GENERAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

CONNECTIONS

	Power	Control
Screwdriver	Phillips NR2	Phillips NR1
Tightening Torque	3.75 N.m	Push with DIN 5264 Screwdriver
Insulated crimp terminals (Round Tabs, Eyelet Type)	M6	1x1.5mm ²

INSULATION

Standards	EN50124-1
Overvoltage categories	OV4
Pollution Degree	PD2
Rated Impulse Voltage between different signals of X4 connector	2.5kV
Rated Impulse Voltage between Power Output and ground	4kV

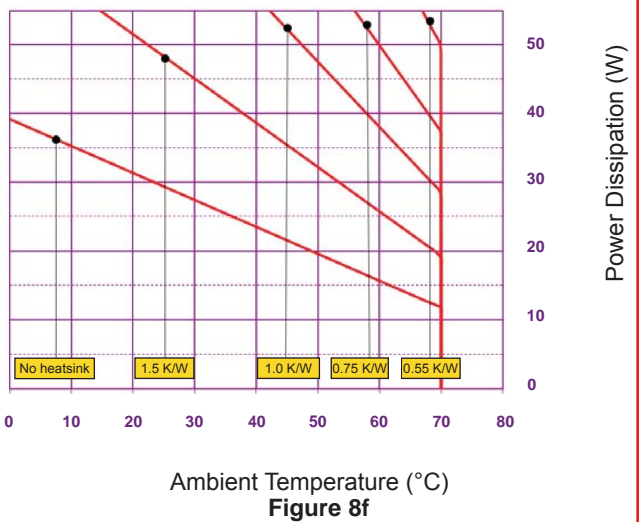
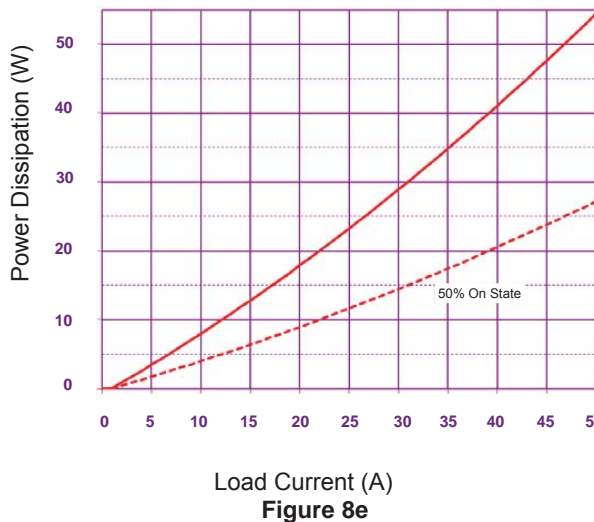
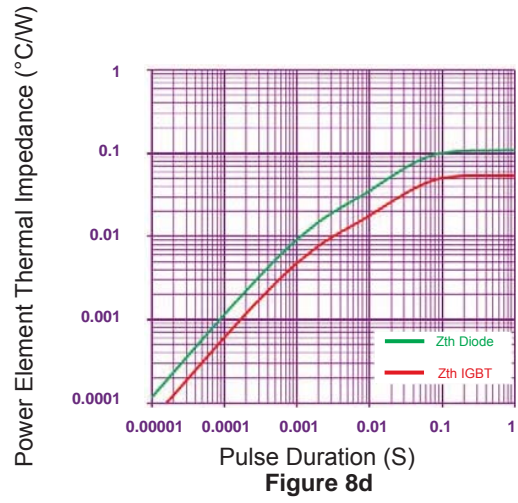
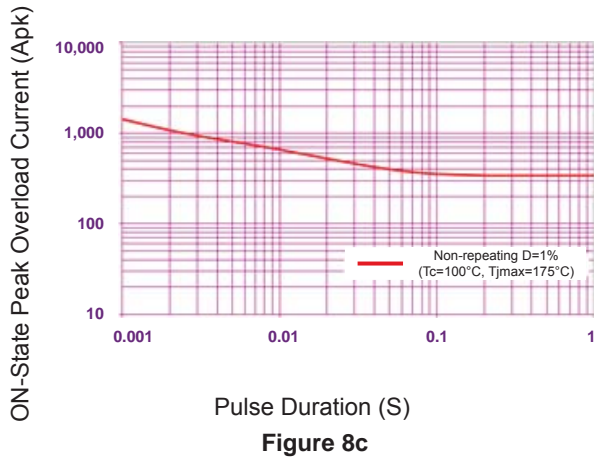
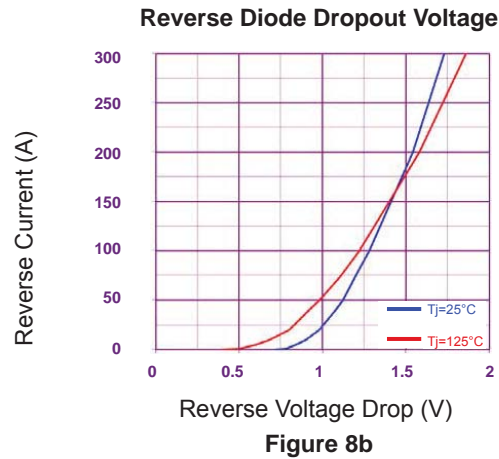
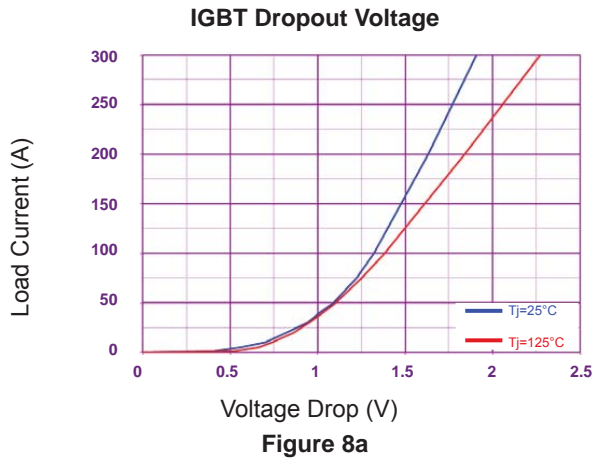
MISCELLANEOUS

Display	Green LED (ON)
Housing	WELLAMID 6600 PA66 HWV0CP
Mounting	4 screws (M5)
Noise Level	No audible noise
Weight	1050g

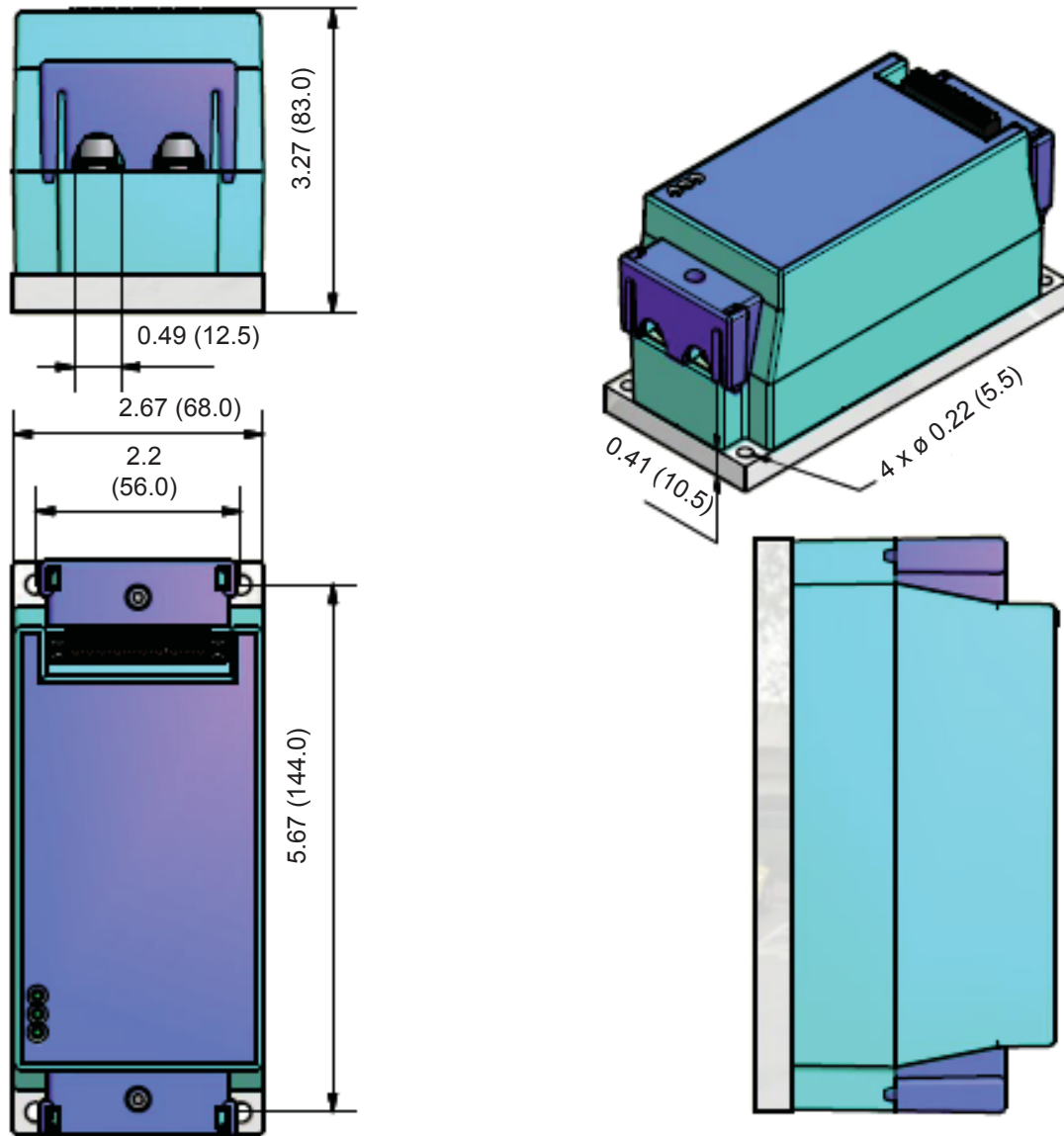
Diagnostic & Status Outputs

Supply Input	Control Input	Main Voltage	Load Current	Baseplate Temp.	Supply LED	Status LED	Fault LED	Diagnostic Output	Status Output
0	x	x	x	x				Open	Open
UVLO	x	x	x	x				Open	Open
1	0	YES	OK	<95°C				Open	Open
1	1	YES	OK	<95°C				Open	Closed
1	0	NO	OK	<95°C				Closed	Open
1	1	NO	OK	<95°C				Closed	Closed
1	0	YES	BREAKING	<95°C				Closed	Open
1	1	YES	BREAKING	<95°C				Closed	Closed
1	1	YES	OVERLOAD ^(*)	<95°C				Closed	Open
1	1	YES	SHORT-CIRCUIT ^(*)	<95°C				Closed	Open
1	0	x	≠0A	x				Closed	Closed
1	x	x	x	>95°C				Open	Closed
LEGEND:									
		Flashing ton=0,1s toff=0,1s							
		Flashing ton=0,1s toff=2s							
		Flashing ton=1s toff=1s							
		Flashing ton=0,1s toff=0,1s							
<p>^(*) After four Short-circuits and/or overload detection, the relay will be block for safety, this mode is indicated by a flashing chaser of leds, in this case the diagnostic output would be closed and the Status output would be open, to cancel this fault, you should reset the product with supply input (pin X41+ et X42-).</p>									

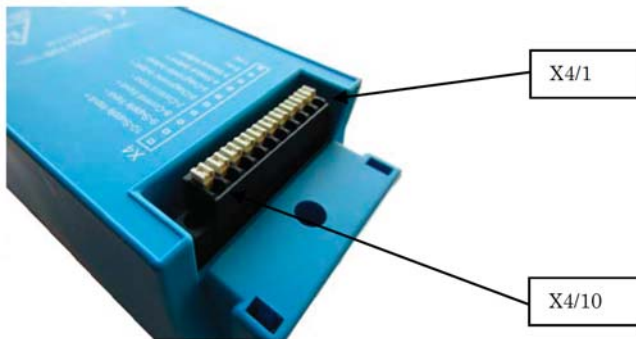
OUTPUT RELAY CHARACTERISTIC CURVES FOR SHI75DC50



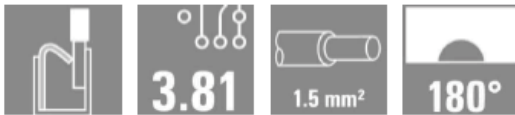
DIMENSIONS inches (mm) FOR SHI75DC50



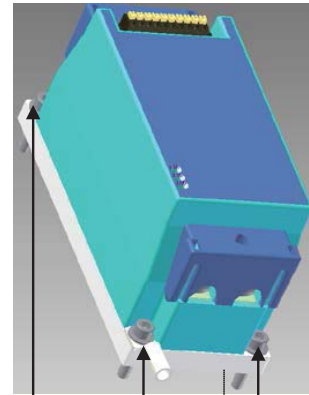
Control Connector



==>Spring connector
« PUSH IN »

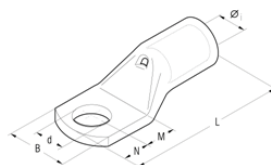
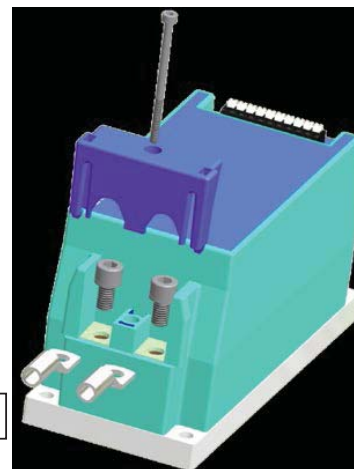
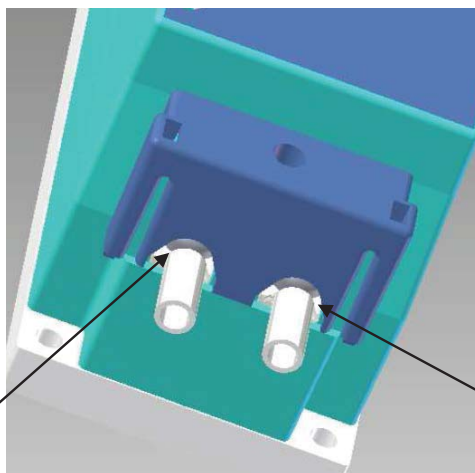


Ground Wiring



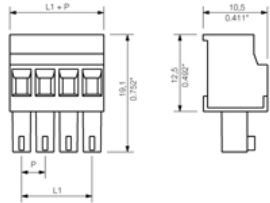
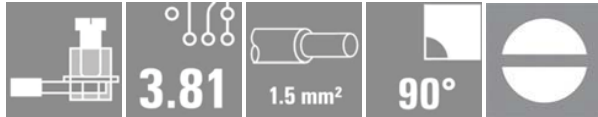
The Ground-wiring of the product with the rest of installation is made by screwing directly to the relay baseplate with one of the 4 holes (M5).
Fastening screws and round terminals (power, ground...) are not supplied with the product.

Power Wiring

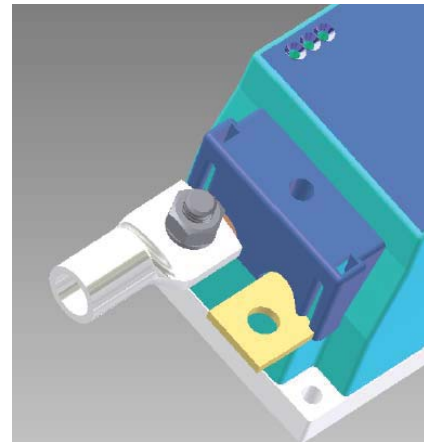
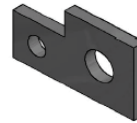


B max=12mm
d min=6.2mm
N max=7mm

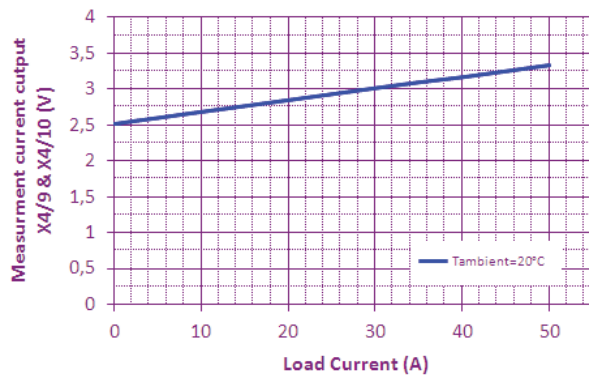
Control Connector with Screws



Connection kit for large cable ends



Control Connector with Screws



Please visit our website for other accessory references (Heatsink, mounting adaptors, thermal grease, etc.)