

Keemin Electrical

Load Shedding Device

Operation Manual

V1.1

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Basic controls

The Keemin load-shedding device is based on a Mitsubishi Alpha2 programmable controller. Most navigation is done via the four arrow keys on the bottom of the screen. ← ↑ ↓ →

Pressing the red Escape (ESC) at the top will return you to the default information screen.

The ↑ ↓ up and down keys scroll through the various screens used to set-up the load shedding controller.

The + and - keys are used to alter settings. All settings are password protected and after pressing the green OK key you will be prompted to enter a password. Use the left and right arrow keys to select the digit / digits to be changed and then use the + or - keys to scroll to the correct value. Once the correct password is displayed press the OK again. If the password is correct the display will show "Writing" momentarily as the new value is written to the memory.



Mitsubishi Alpha2 Programmable Controller

Default Screen

K	E	E	M	I	N		E	L	E	C	T
U	S	E	D			x	x	x	x		A
L	E	F	T			x	x	x	x		A
C	I	R	C	U	I	T	S				x

This screen displays information only, no adjustments are made here.

Top Row:

The top row of the default screen is a revolving banner displaying our company name and contact details.

Second Row:

This value is the amperage in the conductor being monitored.

Third Row:

This value is how many amps are left before load shedding begins. It is the difference between the maximum amps setting (page 9) and the amps used values.

Fourth Row:

This value is how many circuits are on. There are 6 channels; therefore if 6 is displayed there is no load shedding taking place as all outputs are on.

Add Circuit Value

A	D	D		C	I	R	C	U	I	T	
A	M	P	S		V	A	L	U	E		
S	E	T			x	x	x	x			A

This screen is for setting the amperage value before circuits are turned back on after having their loads shed. Circuits are turned back on when the difference between the *maximum amps* setting (page 9) and *amps used* (page 4) is greater than the add circuit amps value. i.e. If the add circuit amps value is set to 15A and the maximum amps is set to 100A the amps used must drop to less than 85A before loads are turned back on. (100A max - 15A add = 85A used).

(The add circuit value must be high enough that the load-shedder doesn't end up continually cycling a load because when the load is reconnected it causes the monitored current draw to immediately exceed the maximum amps setting. It must be low enough that the load-shedding unit can reconnect loads as soon as practical as the monitored current drops.)

Top Row:

Description only.

Second Row:

Description only.

Third Row:

Blank.

Fourth Row:

This is the current value before loads are turned back on. Pressing the + or - keys will alter the value. To use the new value press the OK key and you will be prompted to enter the password. Enter the password and then press the OK key again to write the new value to memory. Pressing the Escape (ESC) key at anytime aborts the procedure.

System Information

	0	0	:	0	0		S	u	n		/
I	:	.	.	.	.	.	.	.	.	.	.
O	:	x	x	x	x	x	x				

This screen displays some basic system information.

Top Row:

The time and day set in the internal real time clock. The time and day has no effect on the operation of the load-shedder. The rotating bar means the unit is running.

Second Row:

Digital input states. The load-shedder uses one analogue input, all digital inputs will be displayed as being off.

Third Row:

Blank.

Fourth Row:

Digital output states. This row show which outputs are turned on by the load-shedder. The number of the output will be displayed when it is on.

Shed Circuit Time

S	H	E	D		C	I	R	C	U	I	T
A	D	J	U	S	T		T	I	M	E	R
S	E	T				X	X	X	X		S

This screen is for setting the time in seconds before the unit sheds a load once the *maximum amps* value has been reached or exceeded (page 9). It needs to be short enough to prevent any supply capacity control devices from operating but long enough that a temporary load doesn't cause unnecessary load-shedding (example an electric motor starting).

Top Row:

Description only.

Second Row:

Description only.

Third Row:

Blank.

Fourth Row:

This is the current timer set value before loads are shed once the *maximum amps* value (page 9) is exceeded. Pressing the + or - keys will alter the value. To use the new value press the OK key and you will be prompted to enter the password. Enter the password and then press the OK key again to write the new value to memory. Pressing the Escape (ESC) key at anytime aborts the procedure.

Load Circuit Time

L	O	A	D		C	I	R	C	U	I	T
A	D	J	U	S	T		T	I	M	E	R
S	E	T				X	X	X	X		S

This screen is for setting the time in seconds before the unit adds a load once the *add circuit amperage* (page 5) has been reached or exceeded. It should be short enough to prevent any unnecessary load-shedding but long enough that a load isn't reconnected prematurely. (i.e. In a domestic situation where a welder is being used, you wouldn't want a load temporarily reconnected during a pause while changing a rod etc).

Top Row:

Description only.

Second Row:

Description only.

Third Row:

Blank.

Fourth Row:

This is the current timer set value before shed loads are reconnected once the *add circuit* amperage (page 5) value is exceeded. Pressing the + or - keys will alter the value. To use the new value press the OK key and you will be prompted to enter the password. Enter the password and then press the OK key again to write the new value to memory. Pressing the Escape (ESC) key at anytime aborts the procedure.

Maximum Amps

M	A	X	I	M	U	M		A	M	P	S
A	D	J	U	S	T		V	A	L	U	E
S	E	T				x	x	x	x		A

This screen is for setting the maximum amperage allowed before load-shedding begins. Once the monitored value exceeds this value the *shed circuit* timer starts and once it has timed out the first load is shed, if other non load shed loads keep or cause the monitored value to exceed the maximum amperage value the next load is shed after the *shed circuit* timer once again times out. The maximum value combine with the *shed circuit time* should be set to stop any maximum demand penalties being applied or to prevent the tripping of a supply capacity control device.

Top Row:

Description only.

Second Row:

Description only.

Third Row:

Blank.

Fourth Row:

This is the maximum allowable amperage value in amps. Pressing the + or - keys will alter the value. To use the new value press the OK key and you will be prompted to enter the password. Enter the password and then press the OK key again to write the new value to memory. Pressing the Escape (ESC) key at anytime aborts the procedure.

Load Shedding Counters

L	O	A	D	S	H	E	D					
O	U	T	P	U	T		#	x				
				x		T	I	M	E	S		

This screen is for viewing the number of times each circuit has been load-shed. Using the ← → left and right arrow keys each output can be checked.

Top Row:

Blank.

Second Row:

Description only.

Third Row:

Output number the counter is being displayed for.

Fourth Row:

This is the number of times the corresponding output has been turned off / load-shed. Pressing the Escape (ESC) key returns the display to the default screen.

Advanced Settings

Zero Offset

Z	E	R	O		A	N	A	L	O	G	
O	F	F	S	E	T		V	A	L	U	E
S	E	T					x	x			b

This screen is to set the zero value when there is no current flow through the current transformer or transducer. It is set when the unit is commissioned and should not need further adjustment unless the current transformer or transducer is replaced.

Top Row:

Description only.

Second Row:

Description only.

Third Row:

Blank.

Fourth Row:

This is a number needed by the controller to do its calculations. It off-sets the value for no load. Typical transducers output in the range of 4-20mA, the 4mA at no load needs to be off-set. Pressing the + or - keys will alter the value. To use the new value press the OK key and you will be prompted to enter the password. Enter the password and then press the OK key again to write the new value to memory. Pressing the Escape (ESC) key at anytime aborts the procedure.

Advanced Settings

Current Transformer Resolution

C	T		A	N	A	L	O	G	U	E	
R	E	S	O	L	U	T	I	O	N		
4	-	2	0	m	A		V	A	L	U	E
S	E	T				x	x	x	x		

This screen is to set the transducer resolution value at maximum current flow. It is set when the unit is commissioned and should not need further adjustment unless the current transformer or transducer is replaced.

Top Row:

Description only.

Second Row:

Description only.

Third Row:

Description only.

Fourth Row:

This is a number needed by the controller to do its calculations. It is the value for full scale of the transducer / current transformer. Typical transducers output in the range of 4-20mA, the display needs to show the maximum rated transducer amperage at 20mA so the amps drawn is accurate. Pressing the + or - keys will alter the value. To use the new value press the OK key and you will be prompted to enter the password. Enter the password and then press the OK key again to write the new value to memory. Pressing the Escape (ESC) key at anytime aborts the procedure.

Advanced Settings

Screen Viewing Time

S	E	T	U	P		S	C	R	E	E	N
V	I	E	W	I	N	G		T	I	M	E
S	E	T				x	x	x	x		s
A	C	T				x	x	x	x		s

This screen is to set the time it takes for the controller to return to the default screen after any of the screens are display transducer resolution value at maximum current flow. It is set when the unit is commissioned and should not need further adjustment unless the current transformer or transducer is replaced.

Top Row:

Description only.

Second Row:

Description only.

Third Row:

The set time in seconds before the controller returns to the default information screen after no key presses. Pressing the + or - keys will alter the value. To use the new value press the OK key and you will be prompted to enter the password. Enter the password and then press the OK key again to write the new value to memory. Pressing the Escape (ESC) key at anytime aborts the procedure.

Fourth Row:

This is a display of the inactivity timer's current value. It starts timing when an active key is released. When the actual (ACT) value reaches the set value the controller will return to the default screen.