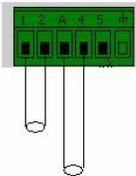
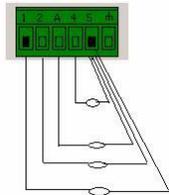


# OM-SQ2040 4F16 channel inputs

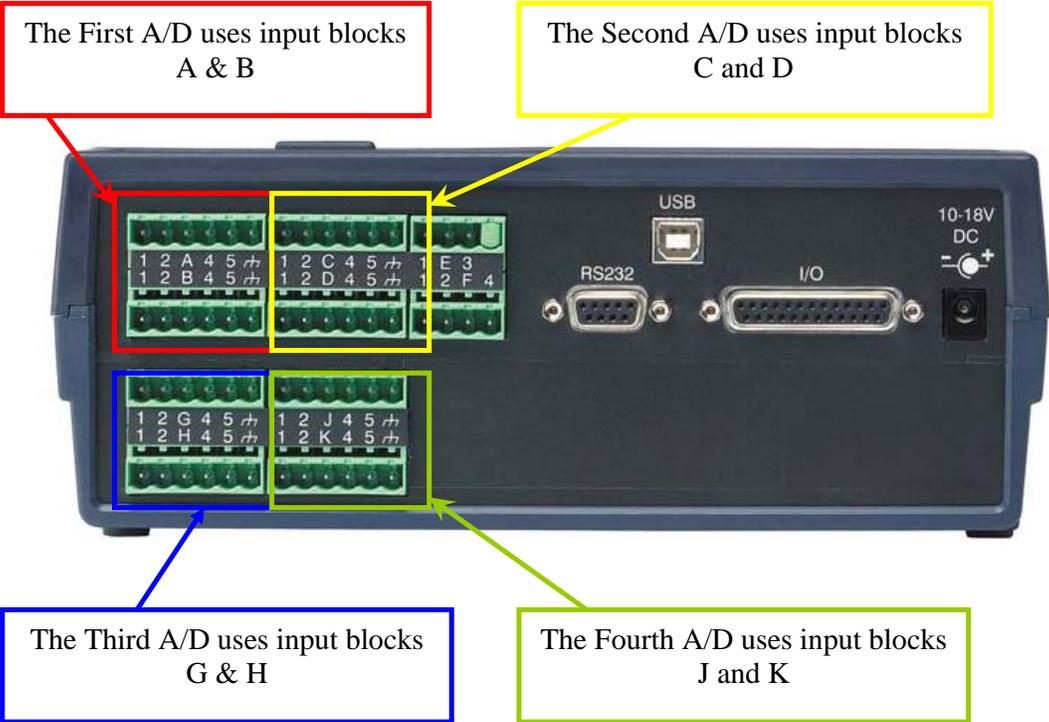
The OM-SQ2040 4F16 data logger has four analogue to digital converters (A/D's) which increases logging flexibility over the other OM-SQ2020 and OM-SQ2040 models. The first corresponds to inputs on blocks A and B, the second corresponds to inputs on blocks C and D, the third corresponds to inputs on blocks G and H and the fourth corresponds to inputs on blocks J and K (see below). Each connection block will accept up to 2 differential inputs or up to 4 single ended inputs (it is **not** possible to mix single ended and differential inputs on a block).



Differential Inputs



Single Ended Inputs



## Mains rejection – what is it?

With mains rejection activated, the data logger compensates for any interference from the local mains electricity supply (at either 50 or 60 Hz). This can be set in the logger setup screen in OMEGALOG®.

For higher logging speeds, the mains rejection can be turned off. However, this will have the effect of reducing the reading accuracy dependant upon the level of interference then experienced by the data logger

### With Mains Rejection turned on (default setting)

The OM-SQ2040 4F16 can take up to 10 readings per second on blocks A and B, 10 readings per second on blocks C and D, 10 readings per second on blocks G and H and 10 readings per second on blocks J and K. This can be 10 readings on a single channel or 10 readings spread across multiple channels across blocks A and B, 10 readings on a single channel or 10 readings spread across multiple channels across blocks B and C, 10 readings on a single channel or 10 readings spread across multiple channels across blocks G and H and 10 readings on a single channel or 10 readings spread across multiple channels across blocks J and K.

When wanting to log once a second or faster with mains rejection turned on the OM-SQ2040 4F16 can have any **ONE** of the following configurations across blocks A and B, **ONE** of the following configurations across blocks C and D, **ONE** of the following configurations across blocks G and H and **ONE** of the following configurations across blocks J and K.

Per A/D	Samples per Second			
	10	5	2	1
Configuration 1	1			
Configuration 2		2		
Configuration 3			5	
Configuration 4				8
Configuration 5		1	2	1
Configuration 6		1	1	3
Configuration 7		1		5
Configuration 8			4	2
Configuration 9			3	4
Configuration 10			2	6

**Note:** Each configuration refers to the maximum number of inputs possible with the selected sample speed.

For example: Configuration 5 has 1 input at 5 samples per second, 2 inputs at 2 samples per second and 1 input at 1 sample per second. Therefore the maximum number of channels that can be logging on a single A/D in this configuration is 4.

**With Mains Rejection turn off**

The OM-SQ2040 4F16 can take up to 100 readings per second on blocks A and B, up to 100 readings per second on blocks B and C, up to 100 readings per second on blocks G and H and up to 100 readings per second on blocks J and K. This can be 100 readings per second on a single channel or 20 readings per second spread across multiple channels across blocks A and B, 100 readings per second on a single channel or 20 readings per second spread across multiple channels across blocks C and D, 100 readings per second on a single channel or 20 readings per second spread across multiple channels across blocks G and H, and 100 readings per second on a single channel or 20 readings per second spread across multiple channels across blocks J and K.

**Note:** 100 readings per second is not available when reading thermocouple inputs.

When wanting to log once a second or faster with mains rejection turned off the OM-SQ2040 4F16 can have any **ONE** of the following configurations across blocks A and B, **ONE** of the following configurations across blocks C and D, **ONE** of the following configurations across blocks G and H and **ONE** of the following configurations across blocks J and K.

Per A/D	Samples per Second					
	100	20	10	5	2	1
Configuration 1	1					
Configuration 2		1				
Configuration 3			2			
Configuration 4				4		
Configuration 5					8	
Configuration 6						8
Configuration 7			1	2		
Configuration 8			1	1	2	1
Configuration 9			1	1		5
Configuration 10			1		5	
Configuration 11			1		4	2
Configuration 12			1		3	4
Configuration 13			1		2	5
Configuration 14			1		1	6
Configuration 15			1			7
Configuration 16				3	2	1
Configuration 17				3		5
Configuration 18				2	5	
Configuration 19				2	4	2
Configuration 20				2	3	3
Configuration 21				2	2	4
Configuration 22				2	1	5
Configuration 23				2		6
Configuration 24					7	1
Configuration 25					6	2
Configuration 26					5	3
Configuration 27					4	4
Configuration 28					3	5
Configuration 29					2	6
Configuration 30					1	7

**Note:** Each configuration refers to the number of inputs possible with the selected sample speed.

For example: Configuration 19 has 2 inputs at 5 samples per second, 4 inputs at 2 samples per second and 2 inputs at 1 sample per second. Therefore the maximum number of channels that can be logging on a single A/D in this configuration is 8.

### Setting up Channels

When setting the channels in OMEGALOG<sup>®</sup> where you are not able to use every channel because of the sample rates, you need to make sure the setup is correct. In the diagram below you can see the red lines denotes the divider between A/D's and in the case below there is one channel at 100 Hz on the first A/D, one channel at 20 Hz on the second A/D and two channels at 10 Hz on the third A/D.

The screenshot displays the OMEGALOG software interface for configuring loggers. The main window is titled "Logger Setup (Untitled) - For 4F16 Loggers". It features a menu bar (File, Data Logger, View, Options, Help) and a toolbar. The central area is a table with columns: Sensor Type, Description, Block, Connections, Log Method, Log, and Sensor Po. The table is divided into "Calculated Channels" and "Actual Channels".

Sensor Type	Description	Block	Connections	Log Method	Log	Sensor Po
Voltage - Single ended : -6 to 25 V	Channel 1	B	1(+ve) to 5(-ve)	Sample Interval: A (100 Readings Per Second) Logging Interval: (00:00:00.010) Mode: Interval	<input checked="" type="checkbox"/>	Not Used
Not Set	Not Set	B	Not Set	Not Set	<input type="checkbox"/>	Not Set
Not Set	Not Set	B	Not Set	Not Set	<input type="checkbox"/>	Not Set
Not Set	Not Set	B	Not Set	Not Set	<input type="checkbox"/>	Not Set
Not Set	Not Set	C	Not Set	Not Set	<input type="checkbox"/>	Not Set
Not Set	Not Set	C	Not Set	Not Set	<input type="checkbox"/>	Not Set
Not Set	Not Set	C	Not Set	Not Set	<input type="checkbox"/>	Not Set
Voltage - Single ended : -6 to 25 V	Channel 2	C	4(+ve) to 5(-ve)	Sample Interval: B (20 Readings Per Second) Logging Interval: (00:00:00.050) Mode: Interval	<input checked="" type="checkbox"/>	Not Used
Not Set	Not Set	D	Not Set	Not Set	<input type="checkbox"/>	Not Set
Not Set	Not Set	D	Not Set	Not Set	<input type="checkbox"/>	Not Set
Not Set	Not Set	D	Not Set	Not Set	<input type="checkbox"/>	Not Set
Voltage - Single ended : -6 to 25 V	Channel 3	G	1(+ve) to 5(-ve)	Sample Interval: C (10 Readings Per Second) Logging Interval: (00:00:00.100) Mode: Interval	<input checked="" type="checkbox"/>	Not Used
Voltage - Single ended : -6 to 25 V	Channel 4	G	2(+ve) to 5(-ve)	Sample Interval: C (10 Readings Per Second) Logging Interval: (00:00:00.100) Mode: Interval	<input checked="" type="checkbox"/>	Not Used

Below the table are control panels for "Logger Control", "Actions & Triggers", "Configuration", "Digital/State", and "Alarms". The "Logger Control" panel includes fields for Logger Date/Time, Logger Identification, Job Description, and Sensor Power Timers. The "Configuration" panel includes Memory Mode and Delayed Start options.