Device: Dream Chip - ATOM One Mini

ATOM one Mini are small POV cameras controller over serial. Via an ethernet to serial converter you can color control this camera using SKAARHOJ controllers.

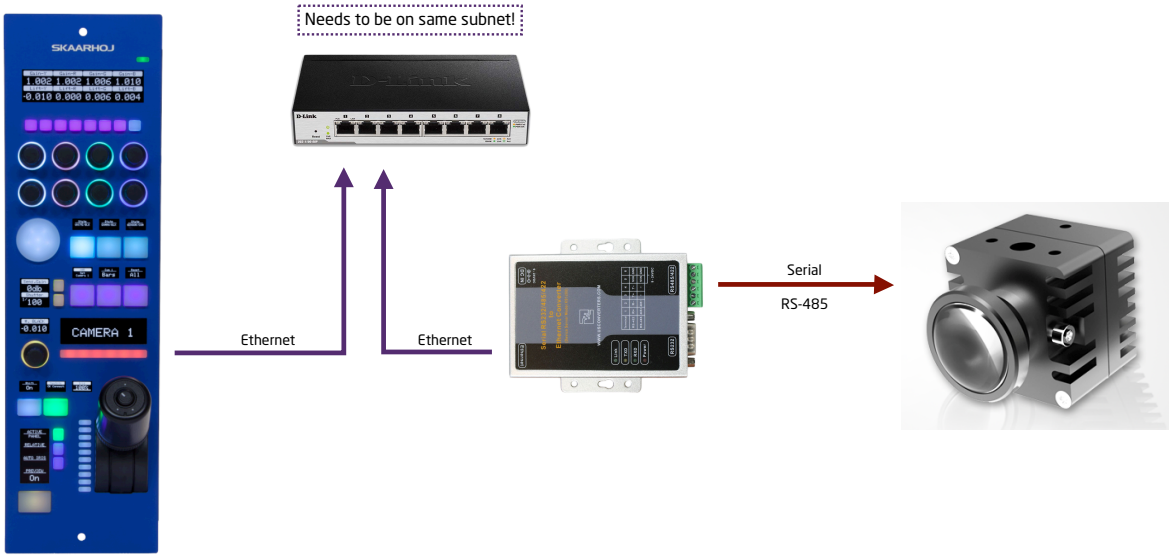
For more information on the camera, please go to https://www.dreamchip.de/products/atom-one-family/atom-one-mini.html

Please use the instructions in this manual to make connection between a SKAARHOJ controller and the ATOM One Mini Dream Chip camera.

As a extra resource please also watch this video https://vimeo.com/328643703 from Dream Chip on how to prepare the camera

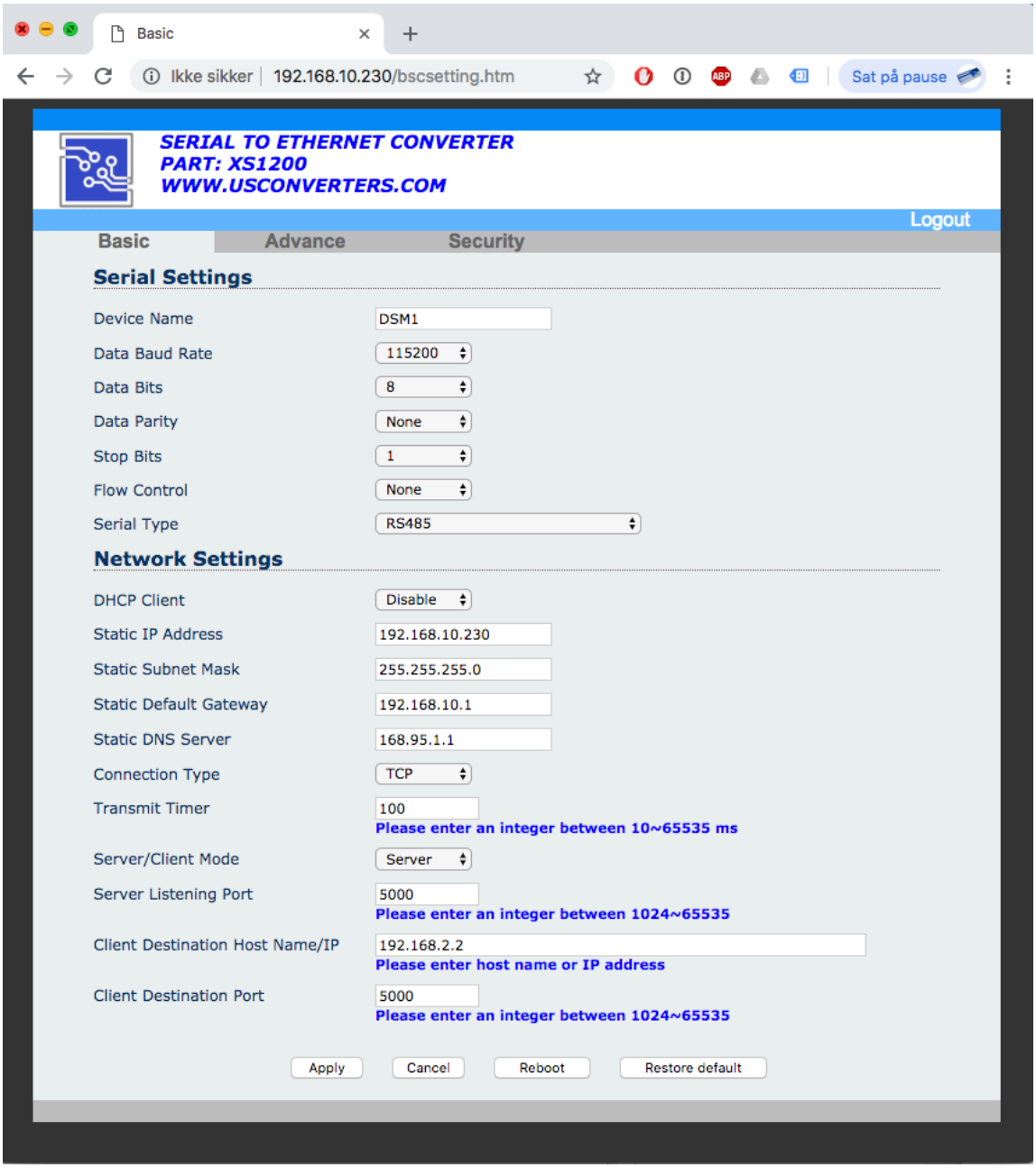
Ethernet to Serial connection

To communicate via serial (RS-485) to the Dream Chip camera you need an Ethernet-Serial converter. We suggest you get a XS1200 from US Converters - http://www.usconverters.com/serial-rs232-device-server



There is a quirk you should know about: The XS1200 only accepts a single TCP connection at a time and it will take some time to realise if a client disconnected silently before it allows a new connection. In essence this means if the SKAARHOJ controller was connected and is rebooted without disconnecting, the XS1200 Server may not realise this before after some time. Therefore you may need to powercycle it along with the SKAARHOJ controller to make sure it will accept a connection.

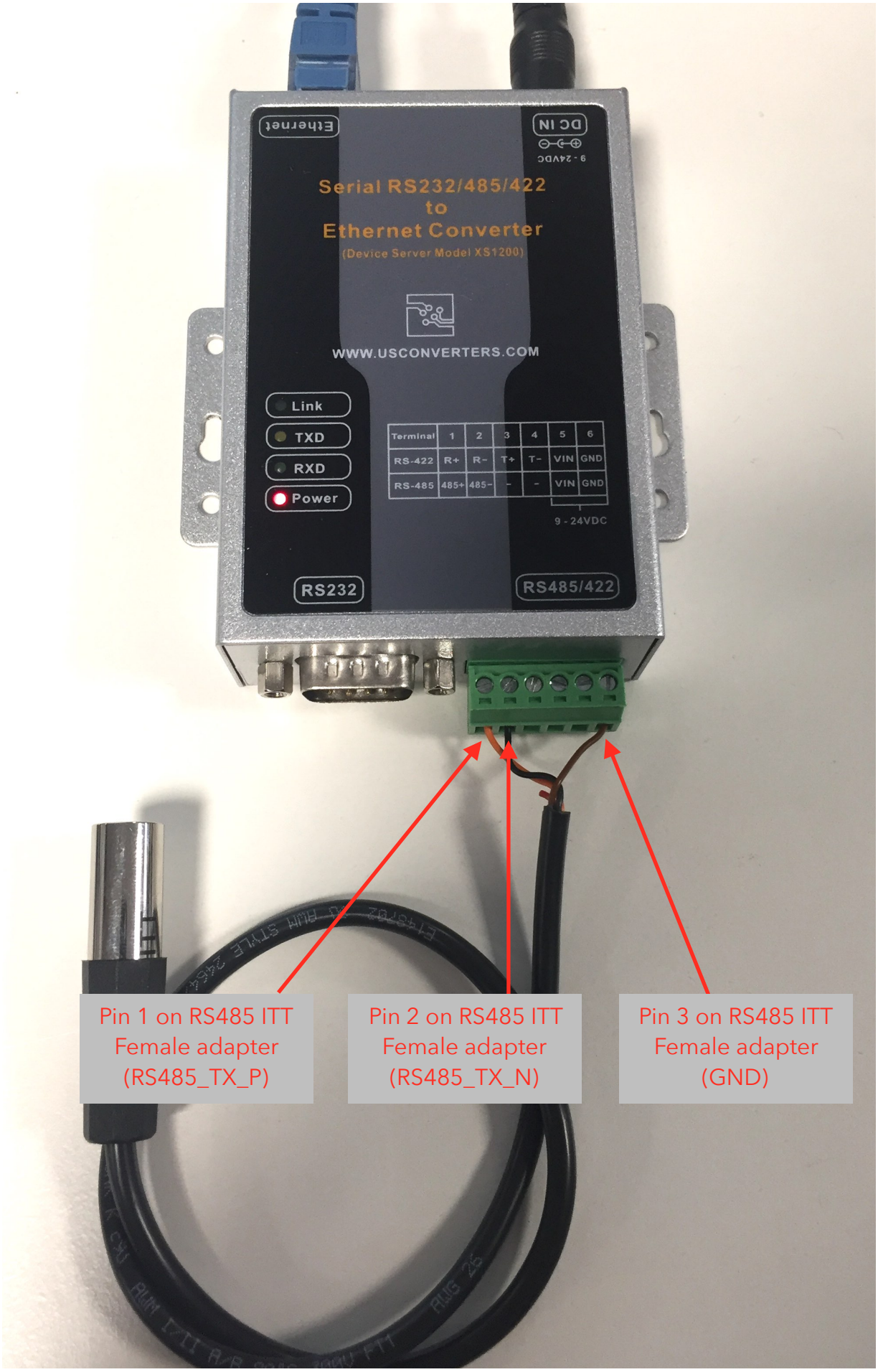
Below you will find screenshots of how to configure the XS1200 converter (found of the web interface of the XS1200).



Make sure to set up an IP address in your range here. This is the IP address you must also set up inside the SKAARHOJ controller for the Device Core! Here it is set to 192.168.10.230 and corresponding subnet mask. Please see section “Transmit Timer on XS1200” for adjustments to this value.

For serial commands the default for the ATOM one mini is 115200 8N1 (from their manual).

Cabling to the XS1200 is via the RS-485 connector. 3 wires are necessary. GND and then 485+ and 485-.



Look in the ATOM one mini manual for cabling instructions. For the RS485 ITT Female M-XL-3-11L connector the 3 wires are indicated as GND, RS485_TX_N and RS485_TX_P.

The coloration between these and the XS1200 is the following:

RS485_TX_N = 485- | In the ATOM One manual this is referred as RS485_B
RS485_TX_P = 485+ | In the ATOM One manual this is referred as RS485_A

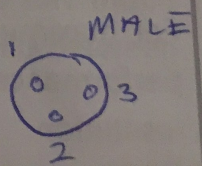
3.1 Power / RS485 Connector

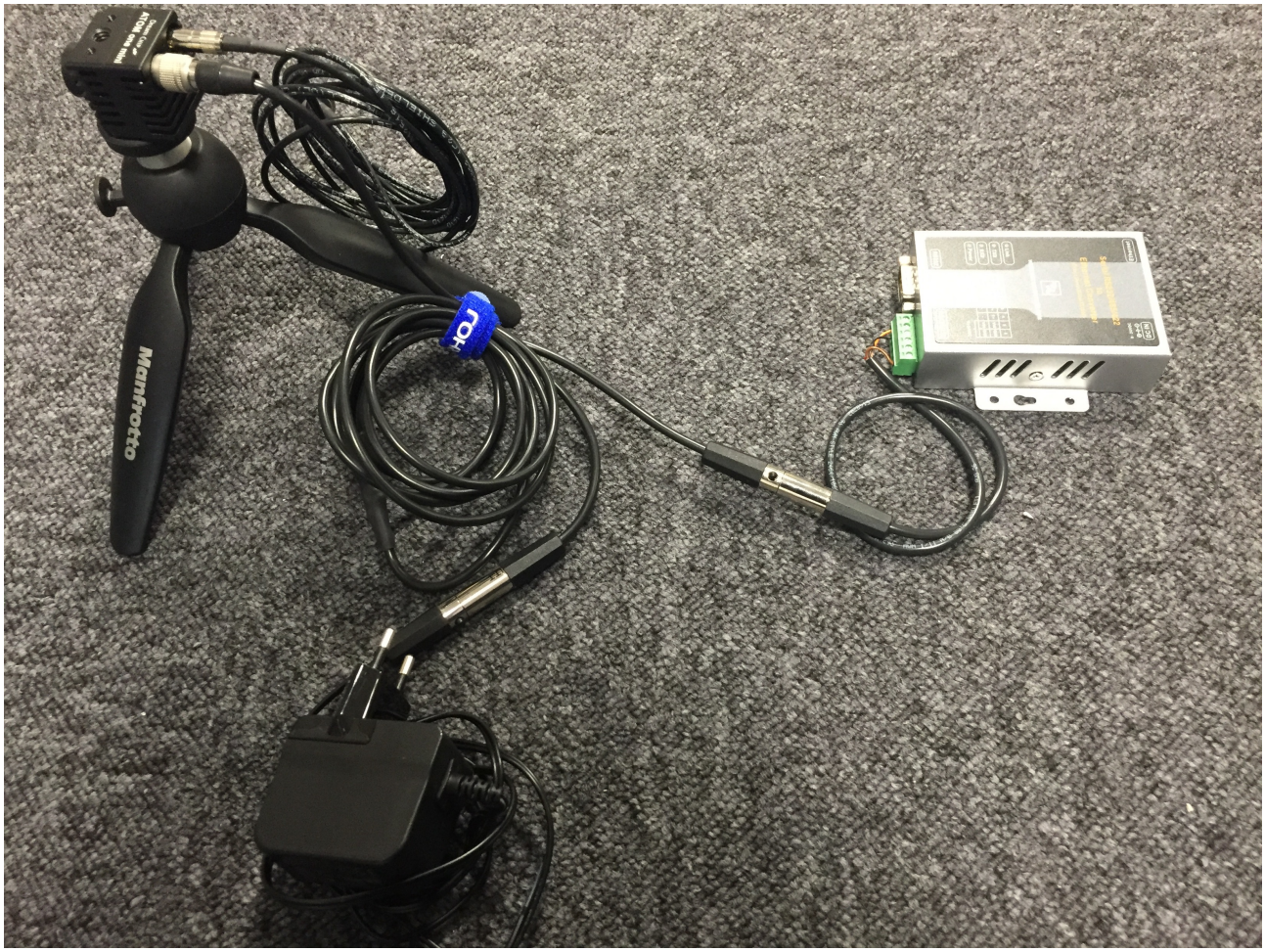
The power connector is a Hirose male HR10 6 pin connector. The following table shows required plugs. Dream Chip offers a mini XLR adapter.

Female HR10A-7P-6S(73)	*Signal*	Dream Chip 4-wire Power Cable	Power ITT Male M-XL-3-12L	RS485 ITT Female M-XL-3-11L
6	Power in	red	1	
5	GND	brown	3	3
4	RS485_TX_P			
3	RS485_TX_N			
2	RS485_TX_N	black		2 brown
1	RS485_TX_P	orange		1 white

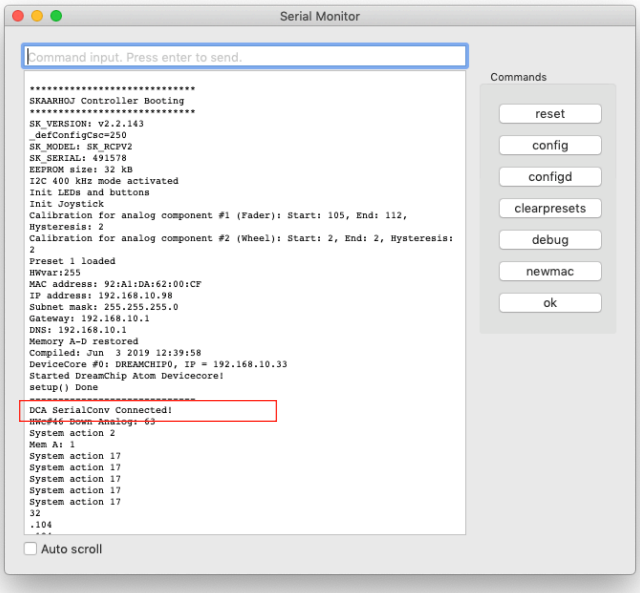
3.2 SDI Output

The HD-BNC output is SMPTE 292M / 424M complaint.





Connection to the XS1200 can be confirmed from the serial monitor with the message “DCA SerialConv Connected!”. This means connection between a SKAARHOJ unit and the XS1200 have been established, however it does not necessarily means that connection to the camera have also been established. This can be confirmed if you get feedback in the displays on a controller. A action such as the “CamTemperature C” can be used to monitor connection.



Connection Order

If the SKAARHOJ controller and the XS1200 have been powered prior to the cameras being turned on the XS1200 might not initialise properly and there will be no control of the camera(s). A reboot of the SKAARHOJ controller will typically solve this.

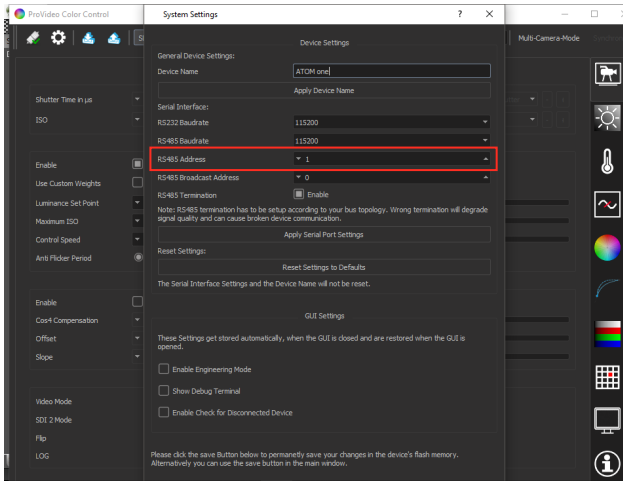
We recommend the Dream Chip cameras being powered prior to turning on SKAARHOJ controller/ XS1200.

Transmit Timer on XS1200

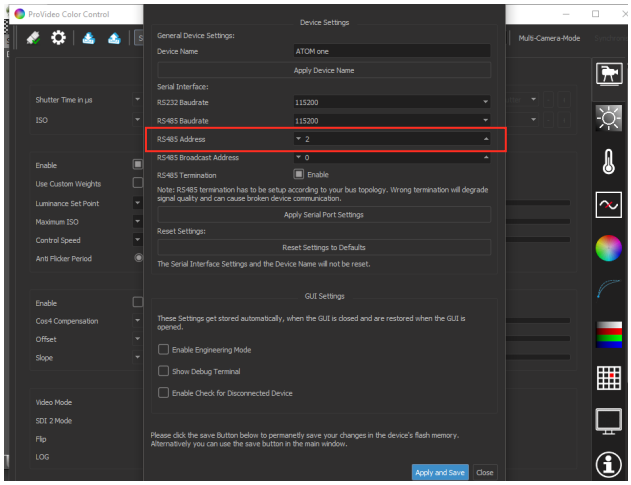
The transmitter timer value on a XS1200 will typically be 100 ms per default. We recommend lowering the value to 10 ms for obtaining a more smooth user experience. In particular brightness adjustment will be more fluent with the value set to 10 ms.

Controlling Multiple Cameras

We have only tested controlling two ATOM One cameras in a daisy chain configuration. Our implementation allows for control of up to 10 cameras from the same Device Core, but this have never been tested. In order to control multiple cameras the RS485 address on the camera itself must be set by the software provided by Dream Chip. See example below.



RS485 Address: 1



RS485 Address: 2

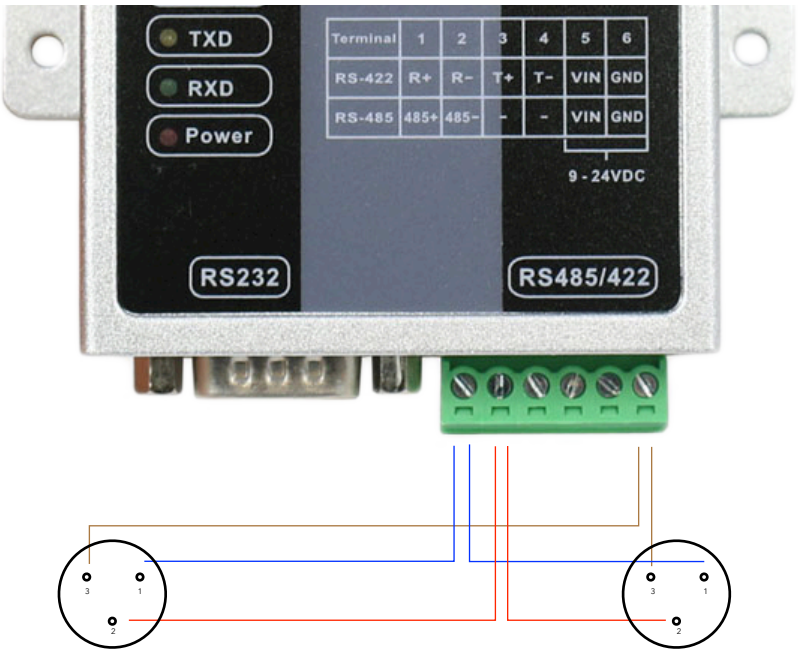
With the current integration then if connection is lost to a camera that have already been connected to the controller, performance for controlling the remaining cameras are severely degraded. We are working on optimising this.

Brightness Adjustment with a Analog Component such as a T-bar

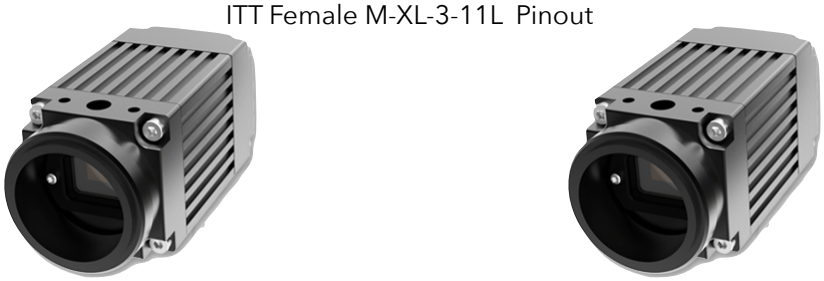
Controlling multiple cameras from a RCPv2 with a Joystick is possible however controlling a parameter such as brightness from a component such as a joystick with a fixed psychical position have a drawback. If one is setting brightness to 20% on CAM1 and changing the controller for CAM2 which currently have a brightness of 80%, then when a small adjustment is made on the joystick, the brightness value will jump from its current setting (80%) to ~20%.

For multiple camera control we recommend the RCPv2 with slider/wheel instead or if the RCPv2 with joystick is the preferred way, then assign the brightness action to another another component such as one of the encoders.

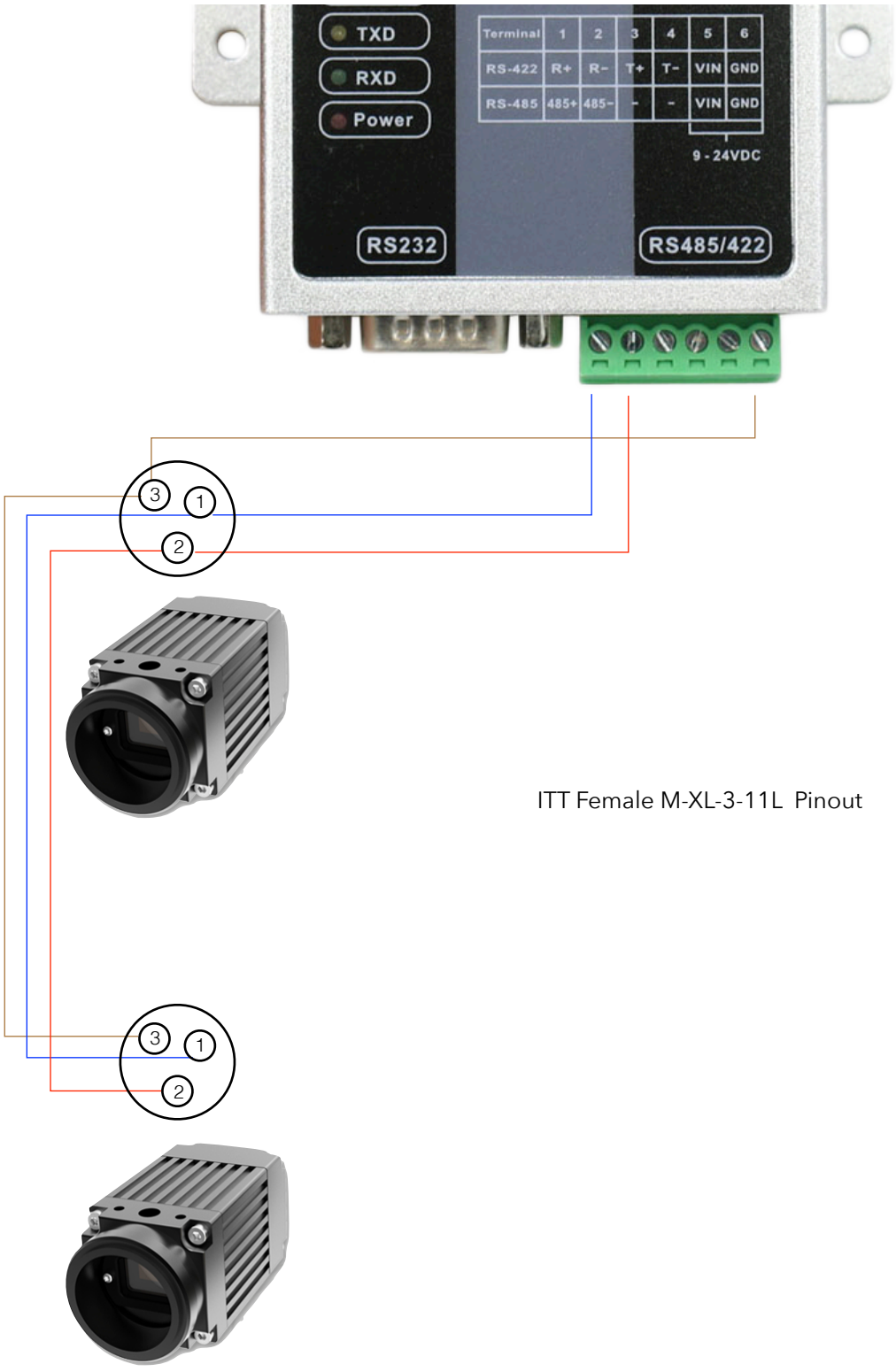
Setup for controlling two ATOM One cameras - star configuration from XS1200 Converter



ITT Female M-XL-3-11L Pinout



Setup for controlling two ATOM One cameras - daisy chain configuration from XS1200 Converter



ITT Female M-XL-3-11L Pinout

ATOM one Family

Currently we have tested our integration with the ATOM one Mini and the ATOM One. We are working on expanding control for the rest of the ATOM one family.

Actions

An excerpt of the list of the Dream Chip Device Core