

# Cavitar Welding Camera

## Guide for external control via COM-port

This guide describes how to use external control together with Cavitar Welding Camera C200, C300 or C400 series via the COM-port of the computer. It is possible to utilize external control via COM-port for the following operations:

- Start/Stop image acquisition
- Start/Stop recording
- Trigger for two-part ring buffer recording mode

### **IMPORTANT SAFETY NOTICE:**

PLEASE READ AND UNDERSTAND THESE INSTRUCTIONS AS WELL AS THE ENTIRE OPERATION MANUAL OF CAVITAR WELDING CAMERA BEFORE MAKING ANY CONNECTIONS IN ORDER TO PREVENT RISK OF INJURY TO THE USER AND TO AVOID DAMAGE TO THE CAMERA.

DO NOT MAKE ANY ELECTRICAL CONNECTIONS TO THE COMPUTER WHEN THE COMPUTER IS ON. ONLY QUALIFIED PERSONS ARE ALLOWED TO MAKE ELECTRICAL CONNECTIONS IN ORDER TO AVOID RISK OF INJURY OR DAMAGE TO EQUIPMENT.

USE OF EXTERNAL CONTROL FEATURES CAN RESULT IN LASER EMISSION FROM THE CAMERA (LASER CLASS 3R). ENSURE THERE IS NO RISK OF UNINTENDED EYE EXPOSURE TO THE LASER OUTPUT AND DO NOT STARE AT THE LASER OUTPUT UNDER ANY CIRCUMSTANCES (SEE CHAPTER 2 OF THE OPERATION MANUAL FOR MORE DETAILS).

Cavitar Welding Camera, C200, C300 and C400 series  
Guide for external control via COM-port, Revision 1.0.2

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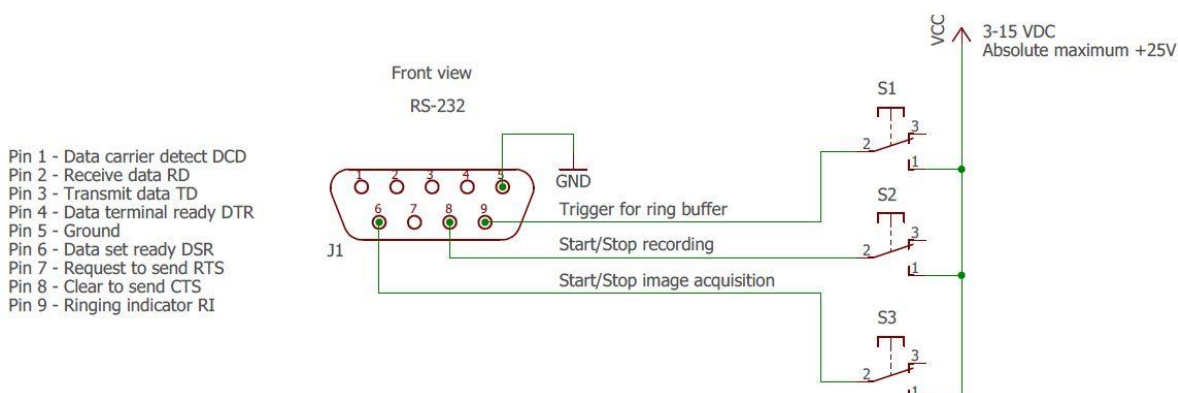
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## 1. Connections

Before external control via COM-port can be applied, appropriate connections need to be made at the COM-port of the computer (RS-232, D9-connector). If the computer doesn't have a COM-port, it is possible to use a USB to COM-port adapter.

Fig. 1 shows the pin chart of the COM-port D9-connector and the pins for each external control feature. The "High" voltage level of external control signals is +3...+15 VDC with an absolute maximum voltage of +25V. Voltages outside the specified range can damage the computer.



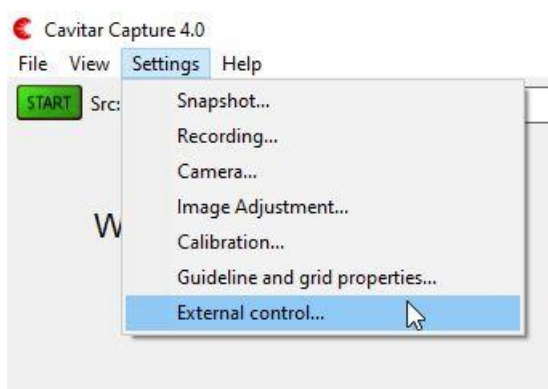
**Fig. 1. Pin chart of COM-port D9-connector.**

## 2. Cavitarcapture software

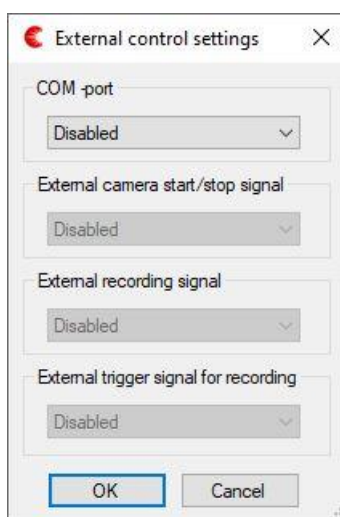
After the connections have been made, the details of external control via COM-port can be adjusted in Cavitarcapture software (see Cavitarcapture Welding Camera operation manual for more details).

The actual appearance of the following figures may vary depending on the software version in use and the hardware configuration of the computer. The activation of external control may disable some features and controls in the software.

External control settings can be accessed via selecting “External control...” under “Settings” menu (Fig. 2). This will open the External control settings window (Fig. 3).

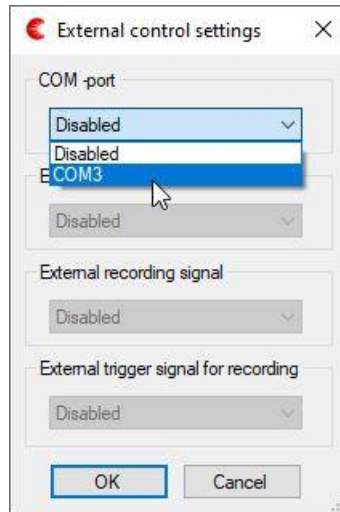


**Fig. 2. Accessing External control settings.**



**Fig. 3. External control settings window.**

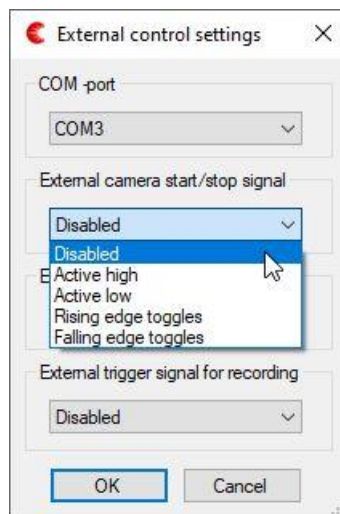
Cavitar Capture software automatically detects the existing COM-ports of the computer. Select the appropriate COM-port from the list (Fig. 4).



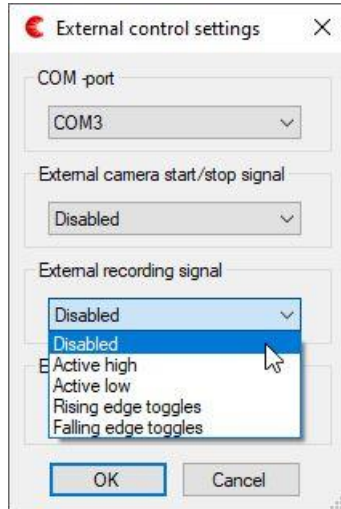
**Fig. 4. Select appropriate COM-port.**

After the appropriate COM-port has been selected, desired operation can be specified for the following features:

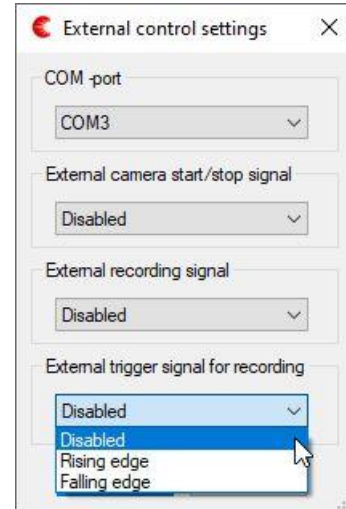
- External camera start/stop signal (Fig. 5)
- External recording signal (Fig. 6)
- External trigger signal for recording (Fig. 7)



**Fig. 5. Alternatives for external image acquisition start/stop.**

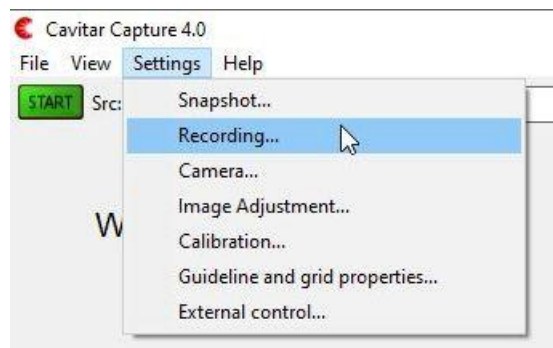


**Fig. 6. Alternatives for external recording start/stop.**

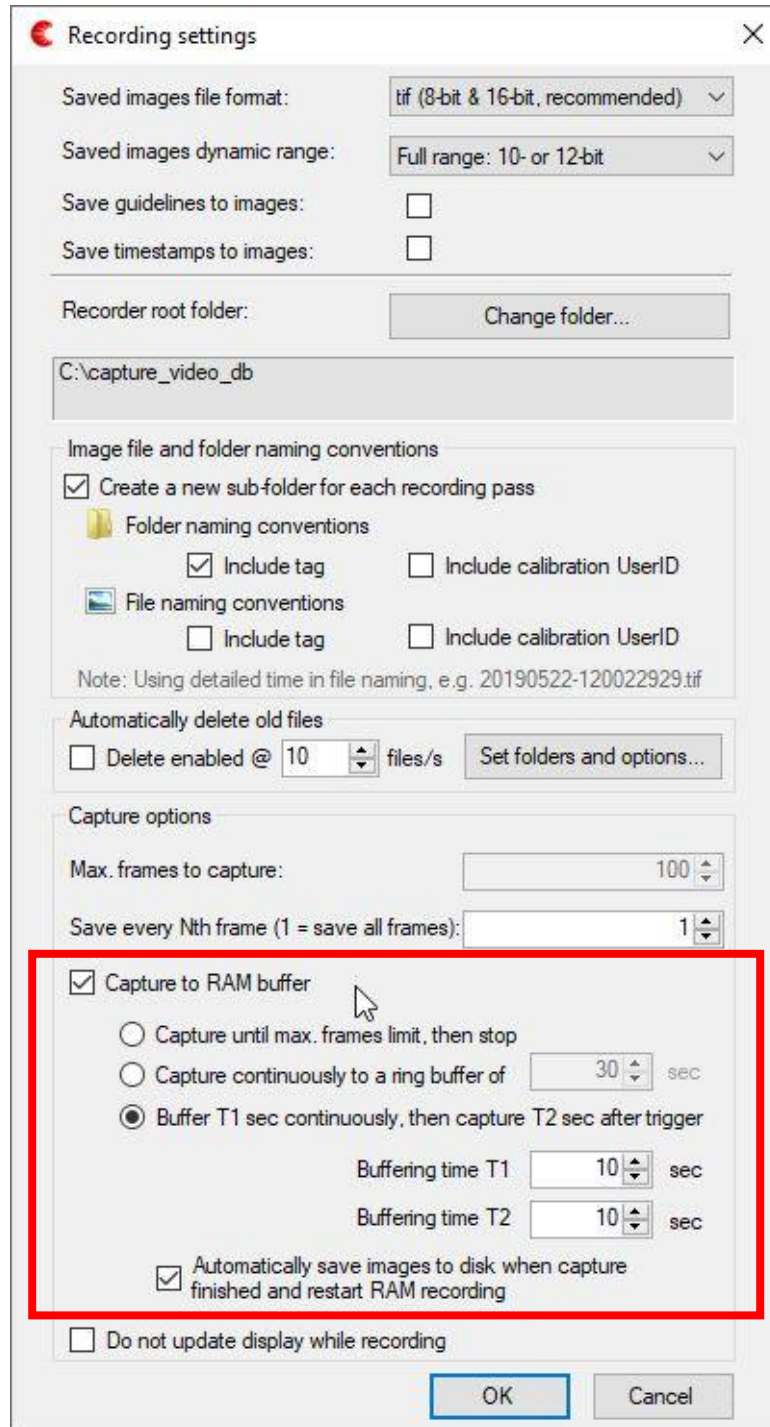


**Fig. 7. Alternatives for external trigger.**

External trigger only applies to the two-part ring buffer recording mode (manual trigger button is also available in Cavitar Capture user interface). This recording mode can be useful e.g. for post-process inspection of potential quality issues. Two-part ring buffer recording mode allows the operator to specify a first buffer of desired duration for images before trigger and a second buffer of desired duration for images after trigger. Trigger can be generated e.g. when the operator detects something untypical or when welding parameters go outside typical ranges. For configuring this recording mode, access Recording settings window (see Figs. 8 and 9).



**Fig. 8. Accessing Recording settings.**



**Fig. 9. Recording settings for two-part ring buffer recording.**

In Recording settings window (Fig 9), tick “Capture to RAM buffer” and “Buffer T1 sec continuously, then capture T2 sec after trigger”. It is possible to set desired durations for each buffer (10 sec in Fig. 9). Also the “Automatically save images to disk when capture finished and restart RAM recording” feature can be selected, if desirable. For more details, see the Cavitar Welding Camera operation manual.