VICON

Vicon Lock Lab

Quick Start Guide

Connect. Integrate. Synchronize.

Introducing Lock Lab

Lock Lab is a connectivity device from Vicon, offering a cost-effective and silent solution for providing synchronization and analog to your Vicon Vero and Vicon Vantage systems (Vicon Bonita and MX T-Series systems are also supported). Lock Lab features:

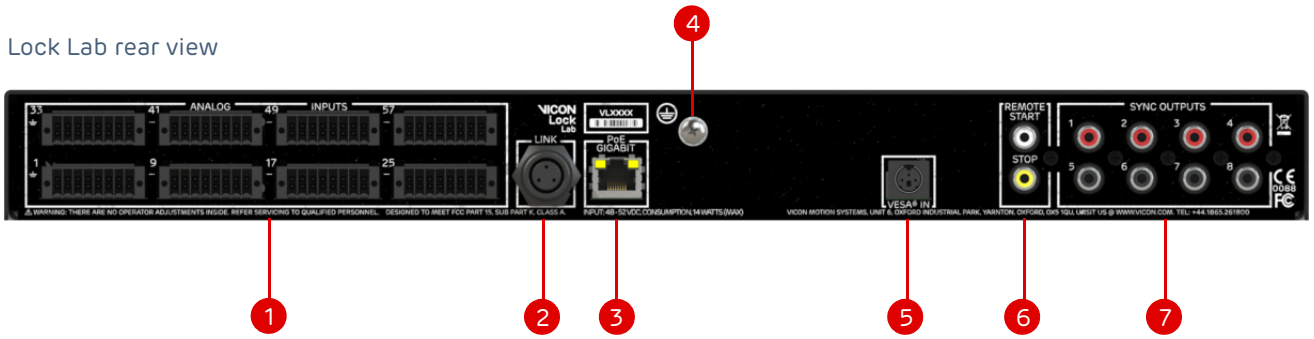
- Support of VESA standards
- Connection to third-party analog devices
- Remotely triggered start and stop
- General Purpose Input and Output (GPIO) sockets for synchronizing external devices

Lock Lab front view

Vicon logo illuminates to indicate status:

Color	Status
Red	Booting
Green	Booted but not connected
Blue	Communicating with software
Cyan	Lock Lab selected in software

Lock Lab rear view



Connections

1. Analog inputs:
8 x connectors, 64 channels
2. Link input/output (I/O)
3. PoE
4. Earthing (grounding) point
5. VESA sync input
6. Remote Control input start and stop
7. GPO sync outputs (x8)

Connection details

The rear panel contains the following sockets for capture and synchronization (from left to right of the unit):

1. Analog inputs. Require the supplied Weidmüller connectors, with total analog sample rate of 192 KHz. Enables you to connect supported third-party analog devices. For instructions on using the connectors, see Connecting analog devices on page 4.

Lock Lab provides 64 channels for generating 16-bit offset binary conversions from analog sources. The input impedance is 1 MΩ. The data sampling frequency is common to all channels; you can set the sampling rate to be a multiple of the camera base rate up to 192,000 samples/second (192 KHz).

The capture frequency you can specify depends on the total number of channels to be sampled, as shown in the following table:

Number of channels	Max frequency (KHz)
1	192
2	96
4	48
8	24
16	12
32	6
64	3

2. Link I/O. For Lock-to-Lock synchronization. Also provides Lock Lab to legacy Giganet synchronization. Connect to Vicon equipment only.

3. PoE (conforms to IEEE 802.3af). Requires connection to a Gigabit (Ethernet 1000BASE-T) PoE switch.

4. Earthing point. Always ground the Lock Lab using this dedicated earthing point.

5. VESA sync input. 3-pin mini DIN socket. Current Vicon software supports 100Hz and 120Hz. After it is locked, Lock Lab can be phased with respect to this input signal in increments of 18 nS through a whole frame period.

6. Remote Control input start and stop. RCA phono sockets for connecting a remote third-party device that triggers the Vicon system to capture data based on input signals. Start and stop are activated on next frame boundary. Requires connection to GND (ground).

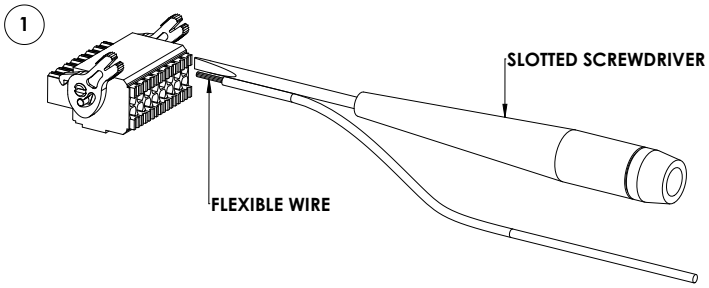
7. GPO sync outputs. Eight programmable phono (RCA) sockets for synchronizing external devices using General Purpose Output (GPO) signals. To manage synchronization of external devices, or to trigger them from Vicon system events, identify an appropriate GPO configuration file supplied with your Vicon software or create your own (see the **Vicon Vantage Reference Guide**). In your Vicon software, specify the GPO file for your device.

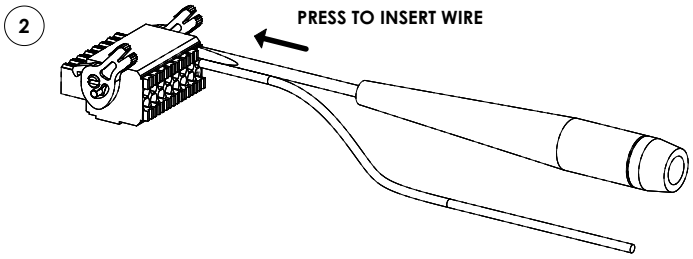
Connecting analog devices

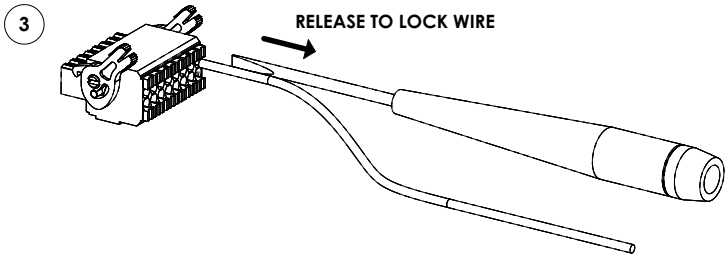
The Weidmüller connectors enable you to connect third-party devices for capturing analog data, such as force plates and accelerometers to a Lock Lab.

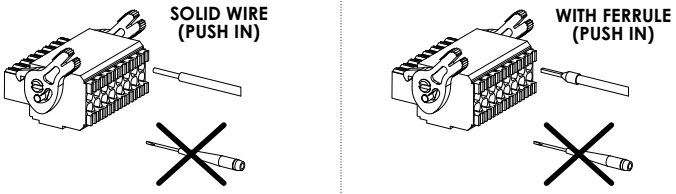
When inserting flexible wire cables into a connector or extracting them from a connector, use a slotted screwdriver as shown in the illustration (right).

If your cables are rigid (solid wire or ferrule), you do not need to use a screwdriver and can push the ends of the cables into the required connector.



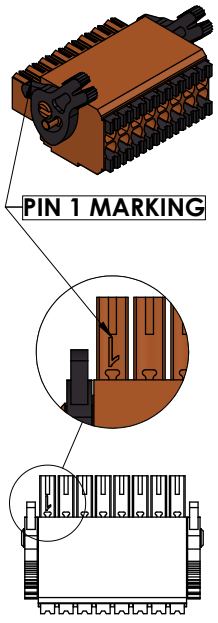




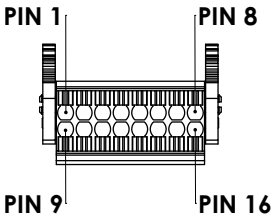


Pin assignment

The following illustration shows the pin assignment of the Weidmüller connectors.



(TOP VIEW)



(REAR VIEW)

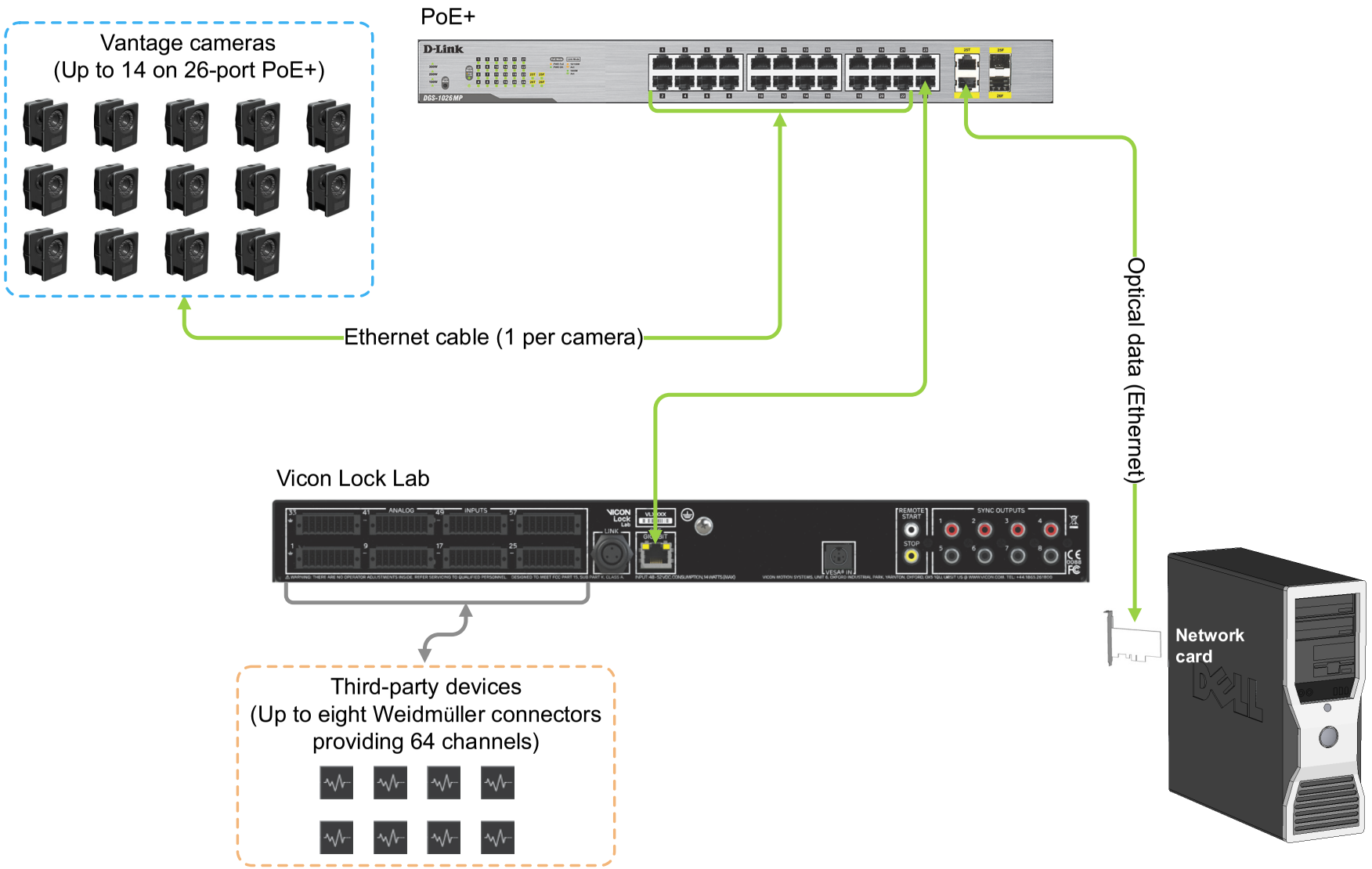
Note that the pins shown in the illustration (left) are assigned as follows:

- Pins 1–8 (top row): Ground
- Pins 9–16 (bottom row): Signal inputs

In this diagram, the bottom of the image represents the wire side of the connector.

Tip: For each socket, the duplicate pin numbers do not correlate with the analog channel input. That is, on connector one (leftmost), pin 9 is channel 1, pin 16 is channel 8. On connector four (rightmost), pin 9 is channel 25, pin 16 is channel 32.

Vicon Lock Lab in a Vicon Vantage system



Important: PC specification correct at time of publication, but may now be superseded. For the most up-to-date information, search for PC specification on the Vicon website.

Regulatory information

The following regulatory, safety, and warranty information is relevant to your use of Lock Lab.

For information on how to contact Vicon, see Contact Vicon on page 8.

Conformity information

Federal Communications Commission (FCC) Part 15 information for United States of America customers

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules (CFR 47:Part 15:B:2013). These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Vicon Motion Systems Ltd is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Interference-Causing Equipment Regulations for Canadian customers

Conformity to the Canadian Interference-Causing Equipment Regulations

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations ICES-003:2004.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada ICES-003:2004.

RoHS and RoHS2 information for European Union customers

Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment – RoHS and Recast (RoHS 2)

This equipment is fully RoHS (2002/95/EC provides that new electrical and electronic equipment put on the market for the first time from 1 July 2006) and RoHS 2-compliant. The European Union Directive 2011/65/EU provides that new electrical and electronic equipment put on the market for the first time from 3rd January 2014 shall not contain more than permitted levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB), or polybrominated diphenyl ethers (PBDE; PentaBDE, OctaBDE; DecaBDE), Mercury (Hg).

REACH Declaration of Conformity

Vicon Motion Systems Ltd is a manufacturer of electronic hardware. We are therefore considered a "downstream user" as far as the REACH document is concerned. Vicon Motion Systems Ltd is therefore not obligated to register with the European Agency for Chemicals 'ECHA'.

Products sold by Vicon Motion Systems Ltd are "articles" as defined in REACH (Article 3 Definitions). Moreover and under normal and reasonably foreseeable circumstances of application, the articles supplied shall not release any substance. For that reason, Vicon Motion Systems Ltd is neither obligatory for registration nor for the creation of material safety data sheets.

To assure our customers of the continual supply of reliable and safe products, we ensure that our suppliers fulfill all requirements regarding chemical substances and prepared materials.

Waste Electrical and Electronic Equipment (WEEE) (applicable in the European Union and other European countries with separate collection systems)

The use of the symbol as a marking on the equipment, accessories or literature indicates that this product and its electronic accessories (e.g. USB cable) may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

Household users should contact either their retailer where they purchased this device, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchasing contract. This device and its electronic accessories should not be mixed with other commercial waste for disposal.

EU Declaration of Conformity

CE 0088 Medical Devices Directive 93/42/EEC as amended by EU Council Directive 2007/47/EC of 5th September 2007 and Electromagnetic Compatibility to EMC Directive 2014/30/EU

We, Vicon Motion Systems Limited
Unit 6, Oxford Industrial Park,
Mead Road, Yarnton, Oxford, OX5 1QU
United Kingdom

declare that the VICON Lock Lab manufactured by VICON MOTION SYSTEMS LIMITED meets ANNEX V and VII Section 5 of the Medical Devices Directive 93/42/EEC in that the Quality Management System has been approved by Lloyd's Register Quality Assurance, a notified body of the European Union (Reg No. 0088) for the manufacture and support of the aforementioned CLASS 1(m) Medical device. The following Product configurations and software options detail the product configurations and software options that conform to the metrological requirements of the Directive.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

VICON MOTION SYSTEMS LIMITED has tested and demonstrated that all products of its own manufacture meet 2014/30/EU:

Electromagnetic Compatibility to:
EN60601-1-2:2007

General Requirements for Safety to:
EN60601-1:2006 + A1:2013

Thomas Shannon TD PhD FIE (Aust)
CPEng (Biomed.)
Director of Compliance
19th December 2017

Not for use in an operating theatre, anaesthetic gas or oxygen-rich environments. Not for use where there is a risk of compromising the essential performance of medical electrical equipment. Not suitable for use in high magnetic flux, ionising radiation, sterile, or life- or safety-critical environments.

Product configurations and software options

Conformity of the Metrological Performance of CLASS 1 Products Manufactured in Accordance with Annex VII, Section 5 of the Medical Devices Directive 93/42/EEC of the 14th June 1993.

We, Vicon Motion Systems Limited
Unit 6, Oxford Industrial Park,
Mead Road, Yarnton, Oxford, OX5 1QU
United Kingdom
declare that the VICON Lock Lab manufactured by VICON MOTION SYSTEMS LIMITED has been tested prior to shipment and meets the following metrological performance:

Measurement Criteria
Supporting software: Nexus 2.7.1 or later, Tracker 3.6.1 or later.

Analogue Digital Conversion
Resolution to ± 10 mV mean and ± 10 mV (1 Standard Deviation).

Synchronization
Difference within one video frame.

Safety information

The following guidance helps you to ensure the safe operation of your Vicon system, including the use of Lock Lab.

To avoid introducing a safety hazard and possibly damaging the system, please ensure that an adequate and good-quality alternating current (AC) power source is available.

For guidance, see the ratings statement on the rear of the connected PoE or PoE+ unit. Also ensure that any computers and peripheral devices are set to be electrically rated to operate with the AC power available in your location.

When working with Vicon systems, observe the following safety precautions:

- To prevent electric shock, plug all system components into properly grounded power sources. These cables must be equipped with three-prong plugs to ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable.
- Ensure nothing rests on the system cables and that cables are not located where they can be stepped on or tripped over.
- Do not spill food or liquids onto any electrical component of the system. If any component gets wet, immediately contact Vicon Motion Systems or your nearest agent or distributor for advice.
- Do not push any objects into the slots of any unit of the system. Doing so can cause fire or electric shock by shorting out internal components.
- Keep all system components away from radiators and heat sources, and do not block cooling vents. Avoid placing loose papers underneath any components. Do not place any components on closed-in units or on a bed, chair, etc.
- Replace fuses with the same type and rating for continued fire protection.
- Do not use outside, near water, in an environment exposed to anesthetic or other explosive gases, or in mobile applications.

VICON | Lock Lab Quick Start Guide

Warranty information

The warranty for your Vicon system begins after installation. For full details on warranty scope and conditions, refer to the Vicon Terms and Conditions of Supply for your Vicon system.

Parts list

- Lock Lab
- Ethernet cable
- Earthing cable
- Weidmüller connectors x 8
- Rack mount lugs x 2

Contact Vicon

youtube.com/vicon
facebook.com/vicon
twitter.com/vicon
instagram.com/viconmocap
linkedin.com/company/vicon

vicon.com/products/vicon-devices/lock-sync-box

Denver, CO
T:303.799.8686

Los Angeles, CA
T:310.437.4499

support@vicon.com

Oxford, UK
T:+44.1865.261800

Quick Start Guide — Revision 2.0 September 2018
For use with Vicon Lock Lab 1.0

Email: support@vicon.com Web: www.vicon.com