

## Connection Verification Aid



### Connection Verification Aid (CVA)

Original instruction manual  
Issue 01/18/2021

### Instruction Manual

Item no. 08904882  
Oetiker NY

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## 1 Introduction

### 1.1 Validity

These Operating Instructions apply to the Connection Verification Aid (CVA).

The CVA must only be used with Oetiker Quick Connects and tubes that have end forms that are manufactured per Oetiker Standard 905.012.011.

### 1.2 Introduction

These Operating Instructions are part of the scope of supply. They must always be near the CVA and accessible and must be passed on to the new owner if the CVA is sold. These Operating Instructions are not included in a revision service.

Please follow the instructions given below.

Read the Operating Instructions attentively before putting the CVA into service. Ensure that you are thoroughly familiar with the whole equipment, features and their functions.

Service and repair work must only be carried out by Oetiker factories. Please contact your local Power Tool Center PTC. ([www.oetiker.com](http://www.oetiker.com))







The CVA must only be used by people who have been instructed about the proper use and dangers associated with it. Improper use or handling of the CVA can lead to incorrect tube connection indication or personal injury.

## 1.2.1 Symbols and means of representation

Safety notices are used in this manual to warn of the risk of personal injury or property damage.

- Always read and follow these safety notices.
- Check all notices that are flagged with a safety alert symbol and text.

The following symbols are used in this instruction manual:

	<b>DANGER</b>
<b>Hazardous situation.</b> Failure to observe this notice will lead to death or serious injury.	
	<b>WARNING</b>
<b>Hazardous situation.</b> Failure to observe this notice will lead to death or serious injury.	
	<b>CAUTION</b>
<b>Hazardous situation.</b> Failure to observe this notice will lead to death or serious injury.	
	<b>Equipment protected throughout by Double or Reinforced insulation</b>
	<b>CAUTION</b>
Possibility of electric shock present (supply mains voltages present)	
	<b>CAUTION</b>
<b>Hazardous situation.</b> Consult accompanying documentation	
<b>NOTICE</b>	
Information relating to the understanding or optimization of working practices. Information indicating technical requirements for optimum performance and efficiency.	
<b>Symbol</b>	<b>Meaning</b>
> ...	One-step instruction
1 ... 2 ... 3 ...	Multi-step instruction > Carry out the steps in the order shown.
✓ ...	Requirement • Necessary or labor-saving steps for the successful execution of an action

### 1.3 Scope

This operating instruction applies to the Connection Verification Aid (CVA)

Part	Abbreviation	Part number
Connection Verification Aid	CVA	
Base Station - Normally Open, Micro Controlled		13300046
Base Station - Normally Open, Not Micro controlled		13300047
Base Station - Normally high output, active low output, Not Micro Controlled		13300048
Base Station - Normally high output, active low output, Micro Controlled		13300049
Power Cord (North America)		13300001
3/8" Head Unit and Cable Assembly		13300003
1/2" Head Unit and Cable Assembly		13300004
M10 Extension Cable		13300002
3/8" Go/No-Go Dud		13300010
1/2" Go/No-Go Dud		13300015

## 1.4 General technical information

### 1.4.1 Kit parts



Figure 1

Figure 1 Complete Connection Verification Aid Kit

- 1** Base Station
- 2** Power Cable
- 3** Head Unit and Cable Assembly
- 4** M10 Extension Cable
- 5** Dud

## 2 Safety instructions

### 2.1 Using the instruction manual

Make sure that this instruction manual is always kept close at hand ready for use.

- Pass on this operating manual to the next owner.
- Please read through the instruction manual carefully before operating the CVA. Familiarize yourself with all settings and their functions. Anyone involved in setting up, commissioning, maintaining or repairing the unit must have read and understood the instruction manual and in particular the safety instructions.

### 2.2 Use for the intended purpose

The unit may only be used for the intended purpose and under technically safe and fault-free conditions. The CVA is intended solely to verify that End Forms manufactured per Oetiker Standard 905.012.011 are connected properly to Oetiker Metallic Quick Connects. For detailed information also consult the drawing regarding Oetiker Quick Connects, and the work instruction 08905017. Any use outside the scope of that description is considered as “improper use”.

Use for the intended purpose also covers observance of this instruction manual.

Any use not in accordance with the intended purpose is regarded as “improper use.”

“Improper use” includes, for example:

- Verification of Quick Connects for which the CVA is not approved, and/or those that are not Oetiker products.
- Use other than for the intended purpose

The CVA has been developed in accordance with the best available technology and is safe for use. Residual dangers remain if it is used incorrectly or by untrained personnel. The operator of the CVA, not the manufacturer, shall be held responsible for any personal injury or property damage arising from improper usage.

### 2.3 General safety instructions

- To ensure safe operation, the measurement equipment must only be used in accordance with these operating and maintenance instructions. In addition, when using it, the relevant legal and safety regulations must be observed.
- Maintenance and repair work should always be carried out by qualified specialists.
- The CVA unit may only be used by people who are familiar with its use and have been informed of the risks.
- The manufacturer shall not be held liable for damage resulting from unauthorized modifications to the CVA.



## 2.4 Environmental Conditions

- Location: indoor use
- Altitude: up to 2 000 m;
- Temperature: 5 °C to 40 °C;
- Maximum relative humidity: 80 % for temperatures up to 31 °C decreasing linearly to 50 % relative humidity at 40 °C;
- Mains supply voltage fluctuations: up to  $\pm 10$  % of the nominal voltage;
- Overvoltage Category: II.
- Pollution Degree: 2
- Ingress Protection: IPX0

## 2.5 Proper use

The CVA is intended exclusively to verify that End Forms manufactured per Oetiker Standard 905.012.011 are connected properly to Oetiker Metallic Quick Connects. For detailed information also consult the drawing regarding Oetiker Quick Connects, and the work instruction 08905017. Any use outside the scope of that description is considered as “improper use”.

“Improper use” includes, for example:

- > Verification on Quick Connects for which the CVA is not approved and/or those that are not Oetiker products.

## 2.6 Safety working practices

- > Before starting to use the CVA, check for visible damage and ensure that it is in perfect operating condition.
- > Report any defects found to your supervisor immediately and stop using the CVA
- > The power cord is to be used as the disconnect device from mains supply.

## 2.7 Changes and modifications

The CVA must not be changed in any way affecting its construction or safety without written permission by Oetiker. Any change will have the effect of canceling our liability for resultant damage. It is forbidden to carry out any extension of cables, changes to the cables, and repairs.

## 2.8 Qualified personnel

This unit must only be used by qualified personnel and exclusively in accordance with the technical data and safety advice given in these Operating Instructions. In addition, while it is being used, the legal and safety regulations that are valid for this application must be observed.

Qualified people are people who are familiar with installation and operation of the measure equipment, and who have qualifications appropriate to their function.

## 2.9 General dangers resulting from failure to observe safety instructions

The CVA conforms to the ‘state of the art’ technology and is safe. The unit can nevertheless give rise to residual dangers if it is used by untrained personnel or for inappropriate tasks. For any injury or damage to persons or property that are caused by improper use, the operating authority is responsible, not the manufacturer of the CVA.

### 3 Application

The CVA consists of a hand-held unit for verifying an Oetiker End Form that is fully and properly installed into an Oetiker Metallic Quick Connect (QC). The CVA will provide a vibratory feedback to indicate that a tube is present, and the flare of the tube is seated under the retaining ring of the QC.



Figure 2 - Head Unit with Quick Connect



Figure 3 - Haptic

## 4 Design

The following is an explanation of the Base Station.

### 4.1 Ports and connections

#### 110/220V Power In

This is for connecting the Base Station to the power source.



Figure 4

#### I/O Connector

This will allow the signal to transmit between the Base Station and an interface.

The Base Station will require a 24V signal to be sourced from an interface.

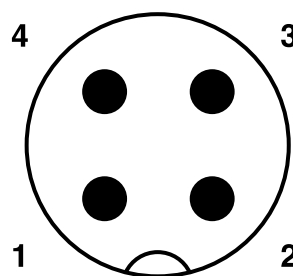


Figure 5

Customer Interface Cable Pinout					
Circuit Name	Wire Color	Panel Mount Connector Pin Number	Phoenix Cable Pin Number	Voltage Range	Current Range
Signal	BLACK	4	4	12V – 26V	0.3A
24V	BROWN	1	1	12V – 26V	0.3A
Ground	BLUE	3	3	0 – 1V	0.3A
Cycle Start	WHITE	2	2	12V – 26V	2.6mA

Figure 6

For Base Stations 13300046 and 13300049, the white wire will require a cycle start input.

For Base Stations 13300047 and 13300048, the white wire will be unused.

## Head Unit In

This is the connection from the Base Station to the Verification Head Unit.



Figure 7

## 4.2 Base Station indicators

The Base Station contains the following LED indicators



Figure 8 Base Station

	Label	Description
1	Power On	The unit is powered and ready for use.
2	Haptic Power	The Haptic is powered and ready to send a passing signal
3	Pass	The Head Unit indicated a tube to QC connection, and communicates a passing signal

## 5 Equipment setup

Optional: Mount Base Station to secure location.

- 1** Connect the M10 extension cable to the “Head Unit In” port. The maximum number of extension cables that can be used is one. The Head Unit will not communicate properly if more than one cable is used.
- 2** Connect the Head Unit and Cable Assembly to the M10 Extension Cable
- 3** Connect the power cord to the Base Station

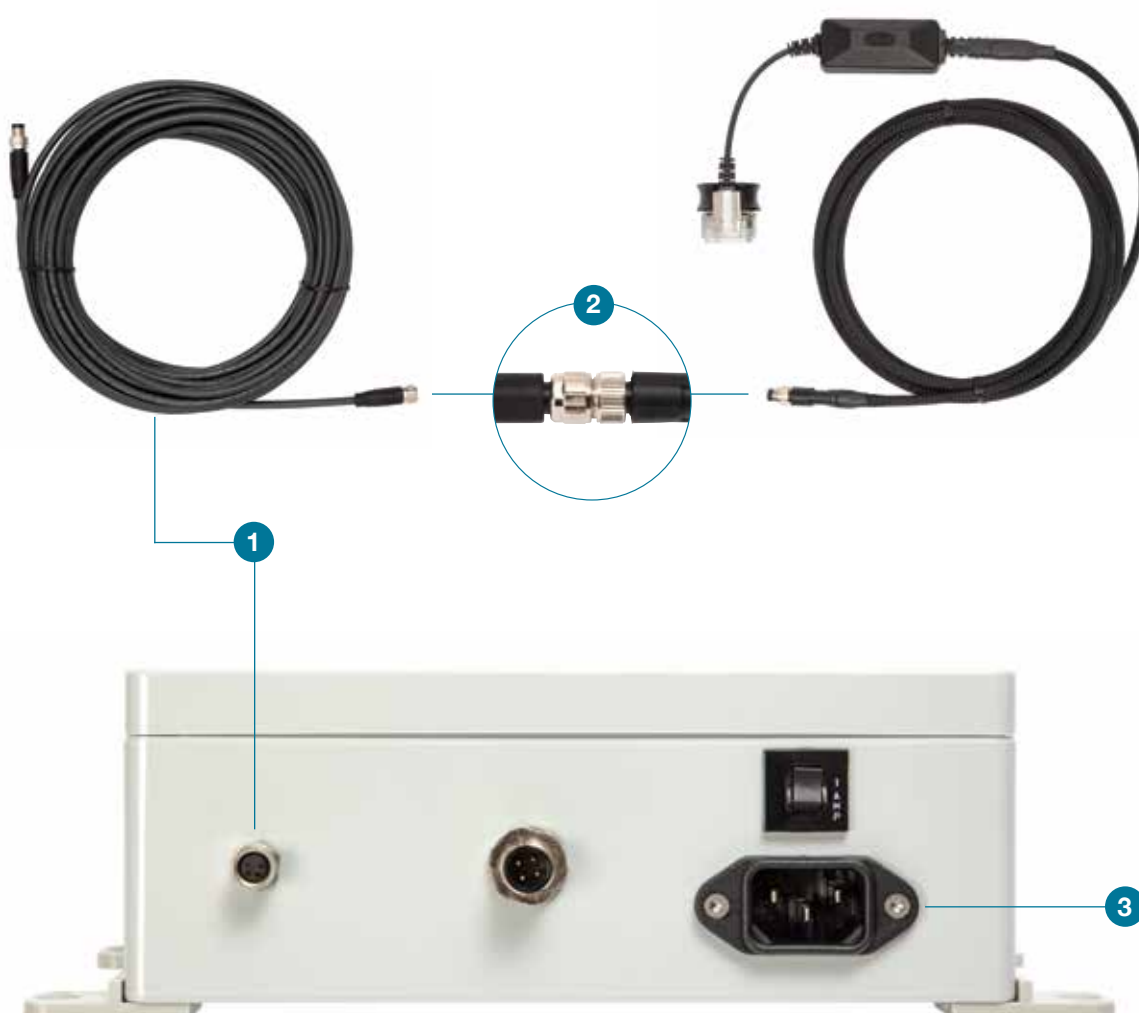


Figure 10

- 4 Connect Power Cord to mains power supply. The LED will illuminate to indicate there is power to the Base Station. Ensure to install the device so that disconnection of supply mains (power cord) is not hindered. Do not use Mains Power Cord with inadequate power rating to power device.



Figure 11

If the Base Station does not have power, reset the Breaker.



Figure 12

- 5 Optional: The base station includes a port that will allow a signal to be transmitted to a customer interface.
  - a. Connect a M12 4 pin cable to the customer interface Communication Connector (Cable not provided by Oetiker).



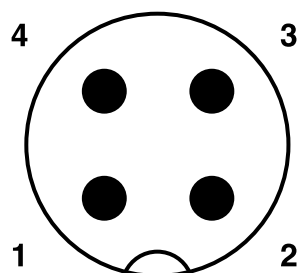
Figure 13

I/O Connector

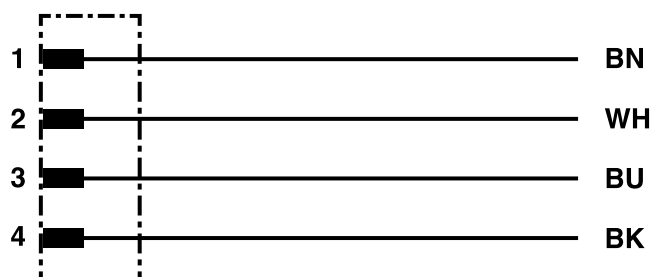
- b. Connect the M12 cable from the Base Station to the customer interface, using the schematic below:

Customer Interface Cable Pinout					
Circuit Name	Wire Color	Panel Mount Connector Pin Number	Phoenix Cable Pin Number	Voltage Range	Current Range
Signal	BLACK	4	4	12V – 26V	0.3A
24V	BROWN	1	1	12V – 26V	0.3A
Ground	BLUE	3	3	0 – 1V	0.3A
Cycle Start**	WHITE	2	2	12V – 26V	2.6mA

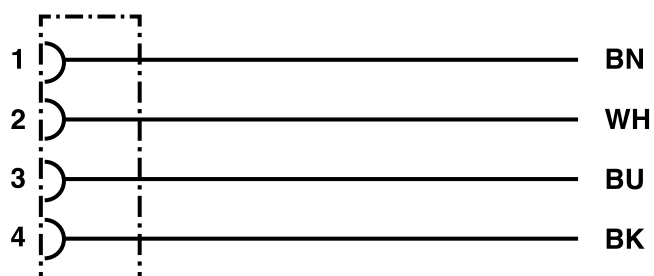
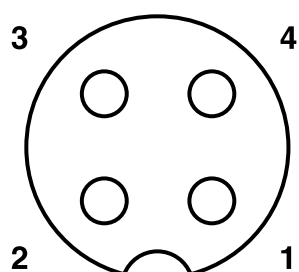
\*\*For Base Stations 13300046 and 13300049, the white wire will require a cycle start input.  
For Base Stations 13300047 and 13300048, the white wire will be unused.



Circuit Diagram



### Female socket



Cable side

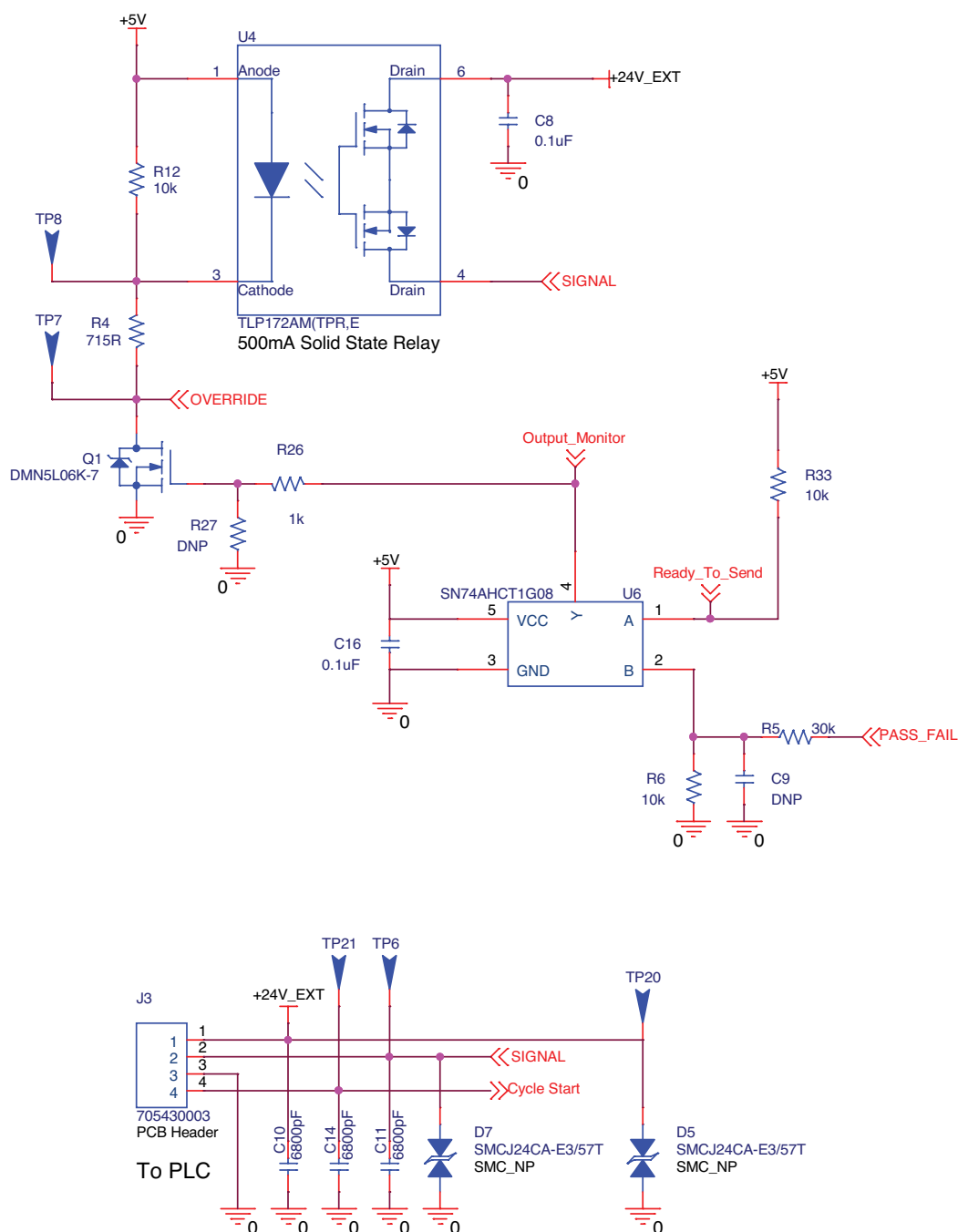




**b. For Base Station Part Number 13300047:**

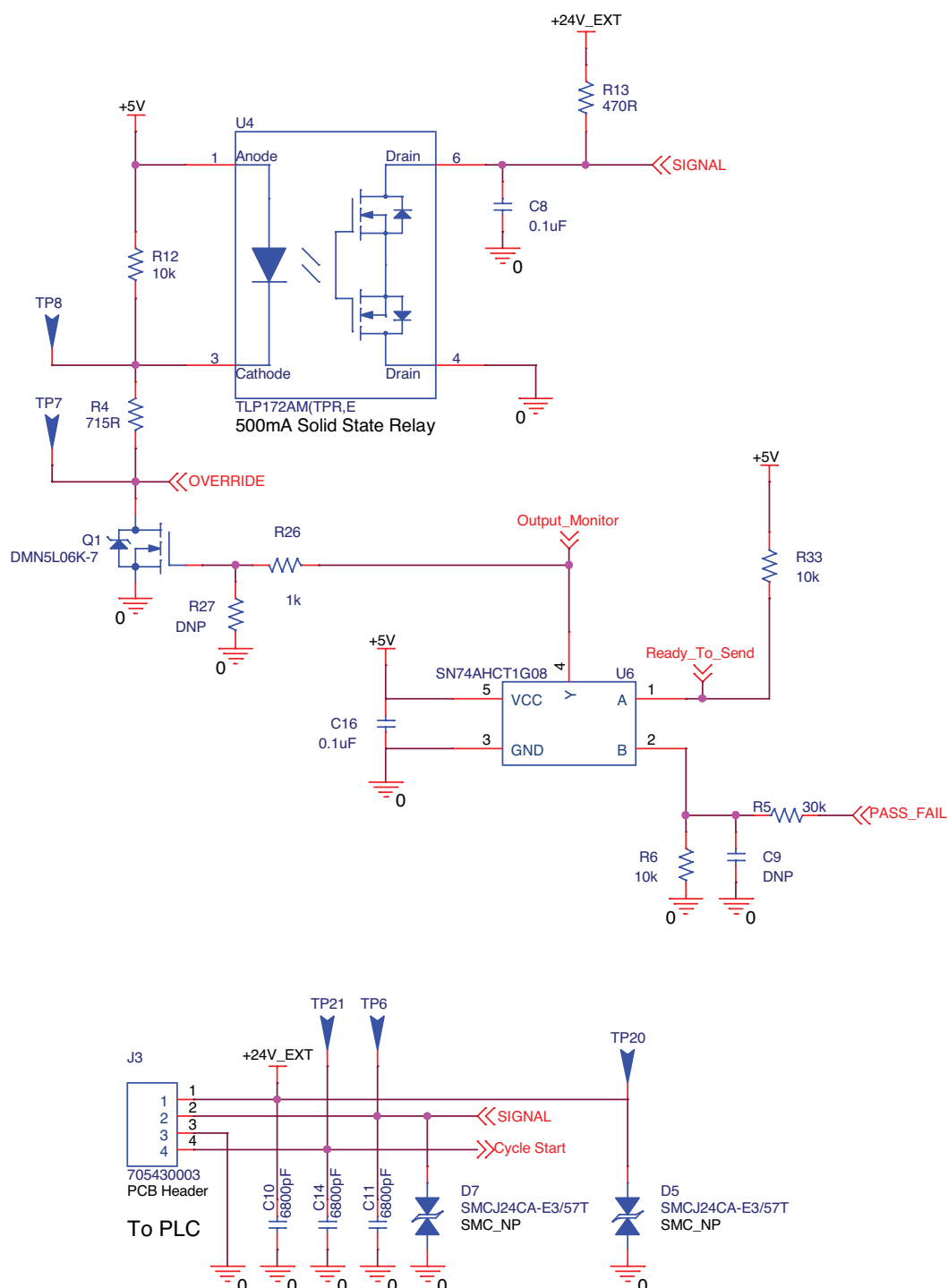
Uses a Normally Open solid state relay contact.

- Requires an external bias voltage to pass through to the signal output.
- No micro control is used to limit the pass signal output.



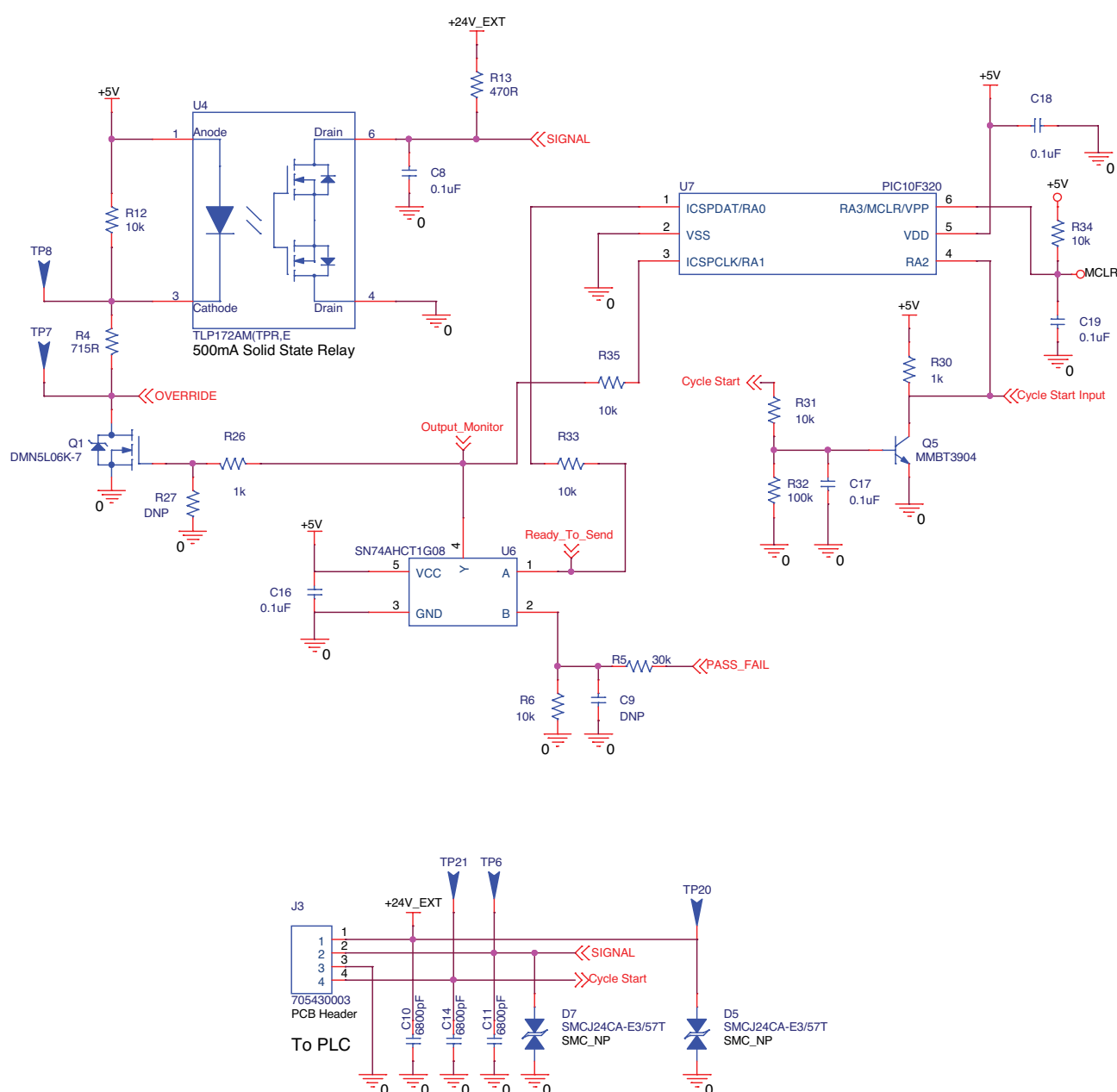
**c. For Base Station Part Number 13300048**

- Signal line is normally pulled up to the external power input.
- Signal line is pulled low for a passing condition.
- No micro control is used to limit the pass signal output.



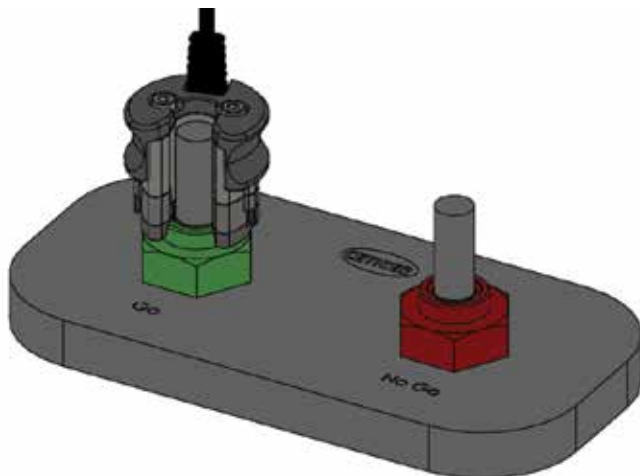
**d. For Base Station Part Number 13300049**

- Signal line is normally pulled up to the external power input.
- Signal line is pulled low for a passing condition.
- The PASS\_FAIL signal from the head unit cannot pass until a cycle start signal is registered on the microprocessor.
- The microprocessor will only allow one pass signal through. It will then disable the Ready\_to\_Send pin until the Cycle Start input goes low for at least 500ms and then high again.

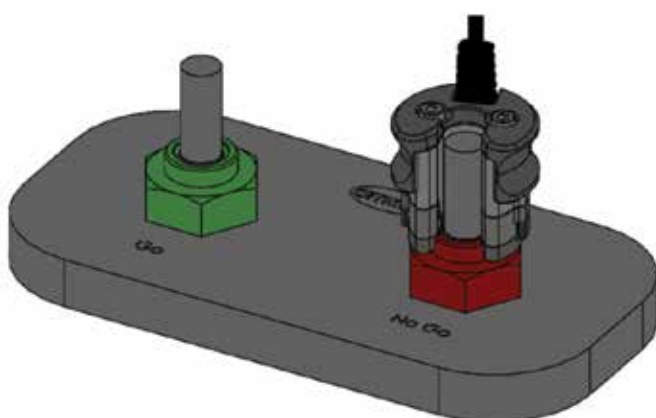


**7** Test the Head Unit on the Dud to verify that the system is working correctly.

- a. Test the Head Unit on the Go dud to verify that you receive a vibratory feedback in the Haptic, you will also see that the Pass light will illuminate on the Base Station. (this light signal only illuminates for 0.5 seconds).



- b. Test the Head Unit on the No-Go dud. You will not receive any vibratory feedback in the Haptic, and the Pass light will not illuminate on the base station.



**8** The CVA is ready for use

**9** Removal of power - The power cord is to be used as the disconnect device from mains supply.

## 6 Verification



- 1 Place the verification Head Unit around a tube assembly.



- 2 Move the Head Unit down onto the top of the Quick Connect

- 3 The Head Unit will verify that a tube is in place, and that it is fully installed into the Quick Connect. For confirmation, there will be a vibratory feedback in the Haptic, and the Pass light will illuminate on the Base Station. If the system is connected to a Interface, the pass signal will also feed back to the Interface.



- 4 If you do not receive confirmation that the tube is installed correctly, stop and install the tube per Quick Connect assembly instructions 08905017, and then repeat steps 1 through 3.  
NOTE: The CVA Head Unit is not intended to install an End Form into the Quick Connect.

## 7 Maintenance

### 7.1 Head Unit cleaning

Use a soft cloth slightly dampened with an ethyl alcohol-based product for cleaning. Do not use the following products: acetone, benzene, toluene and halogen hydrocarbons.

### 7.2 Inspection

Inspect all cables to ensure that they are in good condition and there is no damage. Replace any damaged cables.

## 8 Disposal

Dispose of packaging materials in accordance with local regulations.

Return the Base Station to Oetiker's Power Tool Center.

The Head Unit, all replacement parts and cables, or other environmentally polluting substances must be disposed of by specialist firms in accordance with applicable statutory regulations.

## 9 Troubleshooting

What to do, when.... ?

Type of Fault	Reason for Fault	Actions to Rectify Fault
No Power at Base Station	Power cord not fully connected	Connect power cord properly
No Power at Base Station	Breaker has been tripped	Reset breaker on the Base Station
No Power to Haptic	Breaker has been tripped	Reset breaker on the Base Station
Haptic does not provide feedback	Breaker has been tripped	Reset breaker on the Base Station, this this does not work replace the head unit
Haptic does not provide feedback	Head Unit sensor is not clean	Clean the IR sensor on the Head Unit, test unit on the Go-NoGo dud.

## 10 Spare parts

In case of service or malfunction, the CVA must be sent to Oetiker Power Tool Center (PTC) for maintenance and spare parts.

## 11 Capability

The measurement equipment capability of the CVA System refers to the delivery condition with the provided original equipment. The capability has been done with a Measurement System Analysis Type 1 (MSA 1) according to VDA 5 and ISO 22514-7.

Measurement Capability Index Cg: > TBD

Measurement Capability Index Cgk: > TBD

The MSA Type 2 to has to done in the real process. Oetiker cannot provide any MSA 2 certification.

## 12 Warranty conditions

### 12.1.1 Warranty period

Warranty for Head Unit

- > 12 months for manufacturing defects

Warranty for Base Station

- > The Base Station is a deposited element. Please return it to Oetiker's Power Tool Center for evaluation, a new Base Station will be provided if it is not functioning.

### 12.1.2 Conditions

- > The CVA must have been commissioned as described in the instruction manual.
- > The component must not have been opened or tampered with.
- > The component must not show signs of abuse.

### 12.1.3 Warranty claims

A defect or the absence of warranted properties, subject to the above conditions, constitutes grounds for a warranty claim.

### Return

We recommend returning the components in their original packaging.

If that is not possible, the components should be packed in protective packaging. If the component is damaged due to inadequate packaging, the customer shall bear the costs, notwithstanding any justified warranty claims.

### Claim report

The claim report (part of the instruction manual) must be completed and returned with the component. If no claim report is provided, all components will have to be tested in full. These costs shall be borne by the customer, notwithstanding any justified warranty claims.



#### 12.1.4 Consequential damage

We accept no liability for consequential damage arising indirectly or directly from the installation of our components.

#### 12.1.5 Costs

Where a warranty claim is justified, we will bear the costs subject to return in the correct manner and submission of a fully filled out claim report (section 11.1.6).

If there are no grounds for a claim, the customer will be billed for the costs incurred.

#### 12.1.6 Contact

- a.** CustomerSupport.us.lancaster@oetiker.com
- b.** 1 716 681 7200 - Option 2

## 12.1.7 Warranty Claim Report Form

Please fill out this form legibly in BLOCK CAPITALS. Thank you!

First name: \_\_\_\_\_

Last name: \_\_\_\_\_

Company name: \_\_\_\_\_

Email address: \_\_\_\_\_

Phone number: \_\_\_\_\_

Company ship-to address (customer tool return address): \_\_\_\_\_

Tool part number (include for all tools being returned): \_\_\_\_\_

Tool serial number: \_\_\_\_\_

(include for all tools being returned)

Number of tools being returned: \_\_\_\_\_

Description of Issue\*: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Attachments: \_\_\_\_\_

Department & Production Area: \_\_\_\_\_

Operating hours/day: \_\_\_\_\_

Last dud check: \_\_\_\_\_

**Note:** Please include this report with the return shipment

## 13 Declaration of conformity

### EC Declaration of Conformity

- in accordance with the Machinery Directive (2006/42/EC)
- in accordance with the EMC Directive (2004/108/EC)
- in accordance with the Low Voltage Directive (2006/95/EC)

The products listed below comply with the provisions of the above-mentioned directives:

Product designation

Connection Verification Aid (CVA).

Series/Model

Base station, item no.

13300046, 13300047, 13300048, 13300049 (120 – 240 V / 50 – 60 Hz / 1A)

Head Unit, item no.

3/8" – 133 000 0020

1/2" – 133 000 0022

The following harmonized standards apply

- EN ISO 12100
- EN 61010-1
- EN 61326-1