



CJC® CMU, Condition Monitoring Unit
for
CJC® HDU 27/- series

Installation Guide

Table of Content

1. MECHANICAL INTERFACE	2
3.1 CJC® CMU INLET	2
3.2 CJC® CMU OUTLET.....	3
3.3 HOSE DIMENSIONS	4
2. ELECTRICAL INTERFACE	5
3.4 POWER SUPPLY.....	5
3.5 FILTER RUN SIGNAL	6
3.6 EQUIPMENT RUN SIGNAL.....	6
3.7 EQUIPMENT LOAD SIGNAL	6
3. DATA CONNECTION	6
3.8 LAN/TCP(IP) CONNECTION.....	6
3.9 3G GSM CONNECTION	7
4. VERIFYING INSTALLATION	8



This document is to be used as a guidance to how to install the Condition Monitoring Unit (CJC® CMU) on a CJC® Offline Filter Unit. The CJC® CMU MUST be installed in connection to a CJC® offline filter unit.

The CJC® CMU is based on model No. 7617194. Please refer to the CJC® CMU manual in case of need for specific CJC® CMU information.

1. Mechanical interface

3.1 CJC® CMU inlet

The inlet for the CJC® CMU is point A (BSP 3/4") on figure 1.

The inlet must be connected with a hydraulic hose to the Drain position on the offline filter unit, see example in below figure 2 & 3.

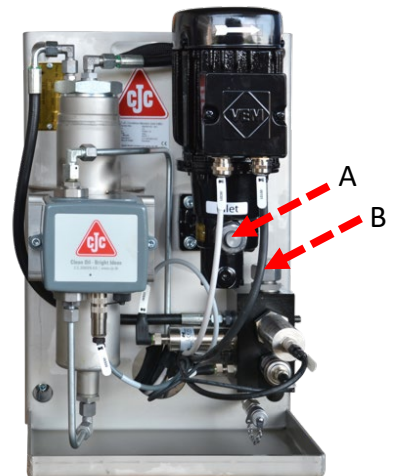


Figure 1: Condition Monitoring Unit (CMU)

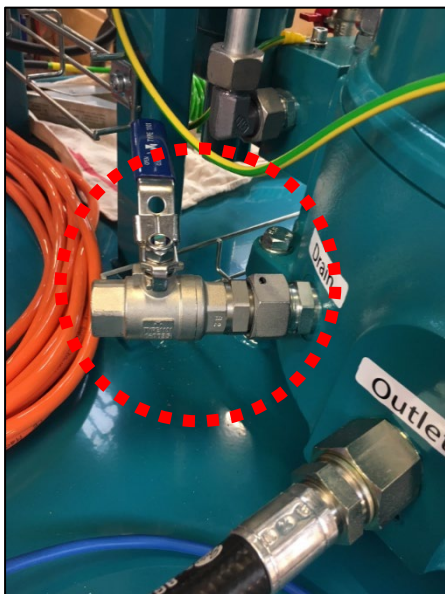


Figure 2: Example of a Drain position on a 27/- series HDU

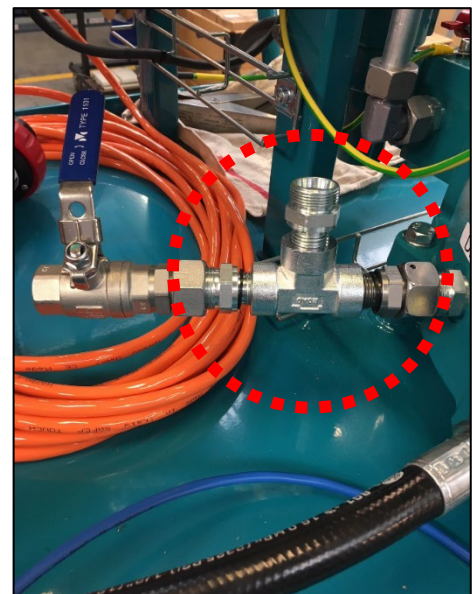


Figure 3: Example of inserting a T-connection on the Drain position to mount the hydraulic hose for the CMU inlet



3.2 CJC® CMU outlet

The outlet from the CJC® CMU is point B (BSP 3/4") on the photo.

The outlet must be connected with a hydraulic hose to the pressure gauge position on the offline filter unit, see example below. For sizing the hose dimensions, please refer to the CJC® CMU installation manual.

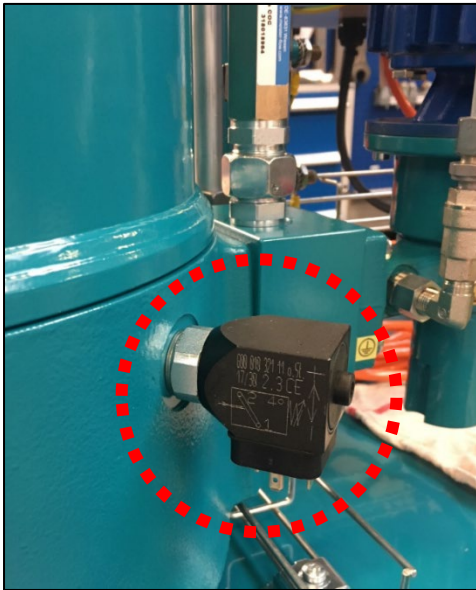


Figure 4: Example of the pressure gauge position on a 27/-series HDU

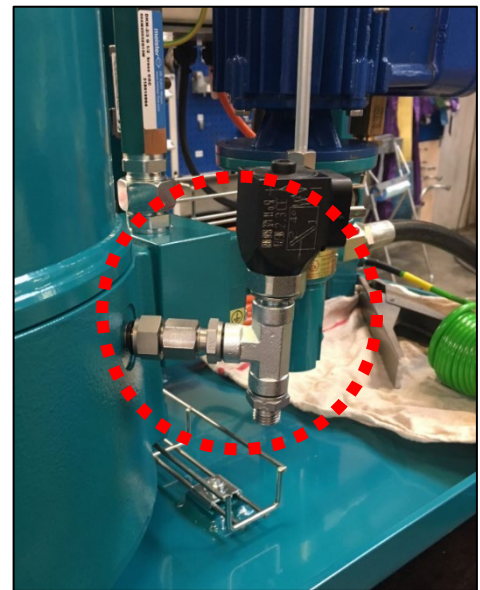


Figure 5: Example of inserting a T-connection on the pressure gauge position to mount the hydraulic hose for the CMU outlet

Alternatively, the CJC® CMU outlet can be connected to the air vent position of the filter housing. See example in below figures 6 & 7.



Figure 6: Air vent position of a 27/-series HDU filter



Figure 7: Example of inserting a T-connection on the air vent position to mount the hydraulic hose for the CMU outlet

In order to optimize the operating conditions for the sensors on the CJC® CMU, it is recommended to pressurize the filter unit (min. 0,5 bar and limited by the filter pump capability) and convert manual air bypass to continuous air bypass.

3.3 Hose Dimensions

Hoses suitable for use with the system fluid can be used instead of pipes. Recommended maximum length and size of hydraulic hoses is stated in below table.

ISO VG oil	Length of hydraulic hose (each)	
	2 m	4 m
32	3/8"	3/8"
68	3/8"	1/2"
150	1/2"	1/2"
320	1/2"	3/4"
460	3/4"	3/4"
Based on ISO VG oil type with temp down to 20°C		

If there is doubt about the size of the hose, it is recommended to go up a size.



It is important to use correct dimensioned hoses, to avoid high pressure losses or velocity becomes too low due to excess oil volume in the hoses. Low velocity will cause contaminants to settle in the hoses.

In order to avoid damage of the pump, make sure all hoses are free of metal particles and other contaminations before connecting to the Condition Monitoring Unit.

If the Condition Monitoring Unit is to be installed in a site where frequent low temperatures can influence fluid characteristics, we recommended insulation of piping / hoses.

2. Electrical Interface

All electrical installation work must be performed by an authorized electrician. Please refer to the electrical diagrams of the respective control boxes in order to perform the electrical connections. The electrical diagrams are enclosed in the respective manuals.

The CJC® CMU must have a run signal in order to start the pump for oil to flow through the CJC® CMU.

This run signal must be similar to the offline filter run signal. Meaning that when the offline filter is running, the CJC® CMU pump is running, and valid measurements of the oil system can be performed. When the offline filter stops, the CJC® CMU pump must stop.

See the section later for installation of the offline filter run signal.

Additionally, the CJC® CMU's are prepared to receive an equipment run signal, which is an on/off signal to indicate whether the equipment, to which the filter unit is attached, is running or not.

Finally, the CJC® CMU can be delivered in a variant with an equipment load signal input (4-20mA corresponding to 0-100%).

If these signals can be made available, they will improve the value of the data treatment.

3.4 Power Supply

Power is connected to the main switch (**F1**) in the control box. See figure 8 below. Current consumption is max. 1A.



3.5 Filter run signal

For the CJC® CMU to run it must be connected to the offline filter unit run signal. The signal input on the CJC® CMU for the offline filter run signal must be a set of dry contacts (Normally Open) connected to position 2 (port .0) in figure 9 with position 1 (port L+) as reference (24Vdc).

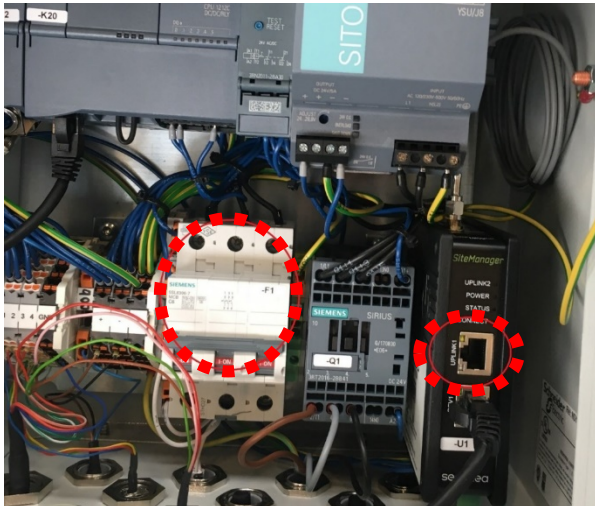


Figure 8: Snap shot of the CMU control box with focus on power and data connection



Figure 9: Snap shot of the CMU control box with focus on the external run connections

3.6 Equipment run signal

If the equipment run signal is available for the CJC® CMU (a set of dry contacts (Normally Open)) it must be connected to position 3 (port .2) in figure 9 (position 1 as reference (24Vdc)).

3.7 Equipment load signal

The CJC® CMU can be configured to receive an equipment load signal (4-20 mA corresponding to 0-100%). The 4-20 mA signal must be connected between the terminals X7.1 & X7.2, see the electrical diagram for the CJC® CMU control box.

3. Data Connection

3.8 LAN/TCP/IP connection

Network requirements for transferring data through an Ethernet port:

- RJ45 plug into the “Uplink1” port of the SiteManager Modem, see figure 8.

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Page 6/8
Version 1.4
14.10.2020



- The port to which the Site Manager Modem is connected must have the following characteristics:
 - DHCP Server present
 - Open port 123/80/443

The Uplink1 port on the SiteManager modem is DHCP enabled. Therefore, it requires an IP address, which is allocated by the company IT department.

The port 443 is for connecting the SiteManager to the GateManager, which is managing the SiteManager Modem.

The port 123 is for connecting to the NTP server, that every 5 min synchronizes the date/time in the PLC.

The port 80 is for connecting the data from the PLC to the IoT Gateway on the CJC® Cloud.

In case there is a need for more detailed information, please call for the Data Connection Specification.

Contact the IT administrator to ensure this connection.

3.9 3G/4G GSM/LTE Connection

By request CCJ can supply connectivity to the GSM/LTE network. CCJ has a Machine-2-Machine IoT SIM-solution, which is working with 700+ different networks in 180+ countries throughout the world.

To remove any doubt of connectivity issues at the installation site, it is necessary for CCJ at the point of order to receive information about the 3G/4G GSM/LTE providers at the intended location of the filter unit/CMU.

For further details regarding the data connection solution, please refer to the CJC® CMU Data Connection specification.

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Page 7/8
Version 1.4
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4. Verifying installation

In order to verify the installation, please run through the following check points:

- ✓ Turn on power to the CJC® CMU and check the CJC® OCM diode lights up green. The CJC® CMU motor will not run unless the filter unit motor runs.
- ✓ Start the filter unit (and thereby the CJC® CMU). Control the CMU motor runs
- ✓ After 5 min. measurements of ISO code 4/6/14, oil temperature and RH% will appear on the OCM display.
- ✓ Open the CMU control box and control the Site Manager Modem light indicators.
 - *Power* and *Status* must light Green constantly
 - In case the 3G GSM connection is utilized, *Uplink 2* must light green constantly as well.
- ✓ Verify no oil is leaking from the CJC® CMU and filter unit connection points.

When all above is verified, contact CJC® T²render Support on support@t2render.com to inform CJC® CMU installation is finalized.

Inform CJC® CMU serial number and the serial number of the filter unit to which the CJC® CMU is installed.

CJC® T²render Support will make sure to validate the incoming data and make them available on T²render Web Site.