

Crusher Control Unit



FOR CONE CRUSHERS WITH THREAD ADJUSTMENT SYSTEMS
FOR CONE CRUSHERS AND GYRATORY CRUSHERS WITH HYDRAULIC ADJUSTMENT SYSTEMS





CCU Base

- The platform for crusher control

The product name CCU is the same as that of its predecessor, but other than that the new CCU is completely newly developed to accommodate the future's crushing needs. It holds a modular design to provide you with possibility to make use of the control system that best suits your process, and only select functionality you need.

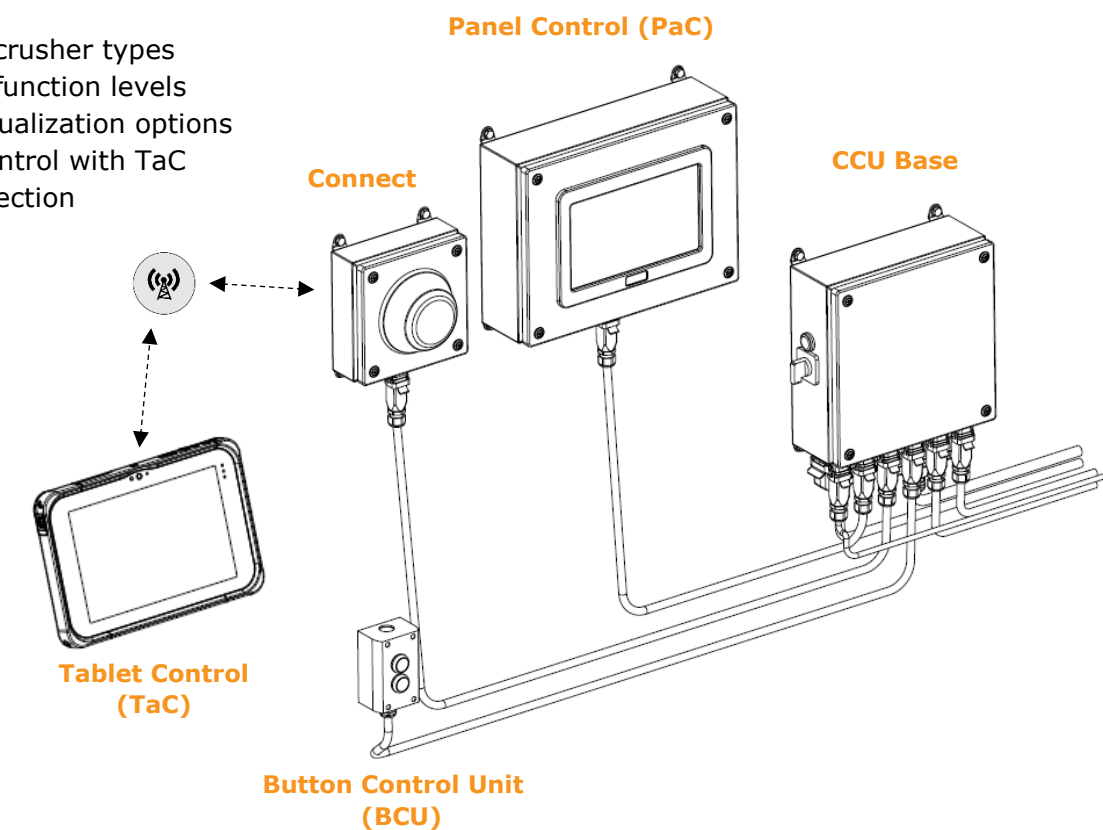
- ✓ Supports cone crushers and gyratory crushers where the CSS is controlled by adjusting the main shaft with hydraulic fluid
- ✓ Supports cone crushers where the CSS is controlled by turning the bowl connected to the concave
- ✓ Control from Industrial panel, PC or wirelessly from tablet
- ✓ Pay only for what you need – modular design
- ✓ Integrated feeder control
- ✓ Store, view and analyse all data in the cloud
- ✓ Fast and easy commissioning



The benefits of CCU Base's modularity

The same hardware, CCU Base, can be used for all crusher types. CCU Base is the core of the CCU and holds the control unit and software. It is developed to be flexible and adapted to today's and tomorrow's technology. It is therefore easily connected to other systems via a network port. Whether it suits you better to use the TaC wireless controller or the PaC industrial panel, you receive a shock, water and dust proof control and visualization unit. Starting from the CCU Base, you only add the devices you want. The result? A customized product that is cost-efficient.

- ✓ Same hardware for all crusher types
- ✓ Same hardware for all function levels
- ✓ Multiple control and visualization options
- ✓ Connect for wireless control with TaC
- ✓ Connect for cloud connection





Integrated Feeder Control

The crusher control unit has been developed to also have integrated control of the feeder. You can select between setting a manual feeding speed or to use the automatic feeding regulation that strives to maintain a user-set crusher material level.

Simply choose a desired material level in the crusher and the feeder speed will adjust accordingly to hold that material level. Thus, your crusher will be properly choked which also reduces wear and damage to wear parts.

Let the CCU do the work

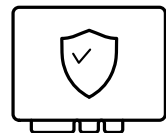
Roctim's overload protection is always active in every operational mode. Your crusher is therefore provided with the best possible protection against overloading that actively enables the crusher to maintain the highest possible load level without risking fatigue or crusher breakdown.

- ✓ Overload protection
- ✓ Maximize production without risk for breakdowns
- ✓ Frees time to use for other work
- ✓ Choose between CSS, Load Control or Pre-defined programs



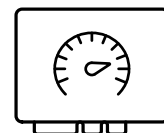
A fit to every situation – Functions for all needs

To make the control unit even more flexible the CCU software comes in three functionality levels. Select between CCU Protect, CCU Produce or CCU Perform based on your crushing need. Thus, you are provided a cost-efficient solution and only pay for what you use. Regardless of the choice, you receive a high performing crushing control system that protects the crusher from overloading and ensures the production of high quality material.



Protect

- ✓ Overload protection
- ✓ CSS control
- ✓ Load control
- ✓ Wear compensation
- ✓ Alarms and alarm history
- ✓ Modes and operational mode history
- ✓ Crushing parameter graphs
- ✓ Remote control via Wifi with Connect



Produce

- ✓ All features of CCU Protect
- ✓ Integrated feeder control
- ✓ Crushing programs
- ✓ Level control
- ✓ Auto calibration
- ✓ Tonnage diagram for up to 3 belt scales
- ✓ Calibration history
- ✓ Mantle change history



Perform

- ✓ All features of CCU Produce
- ✓ Real time end product optimization
- ✓ Maximize production of end product

Control and visualization



PaC – Roctim's robust industrial Panel Control for control and visualization of user interface from CCU Base. 10.1" TFT screen with 1024 x 600 pixel resolution. High resistance to shock, weather and vibrations.

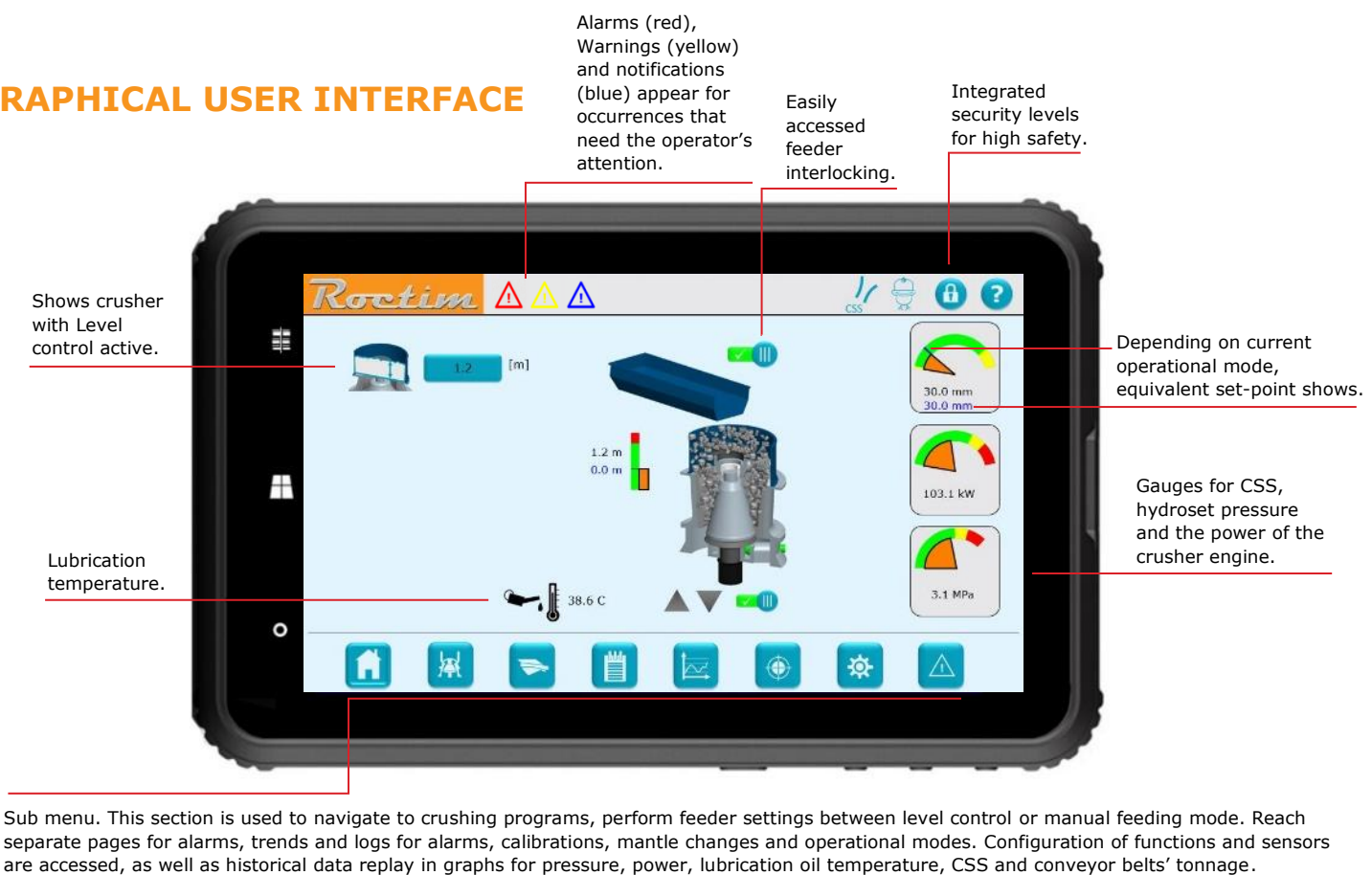


TaC – IP67 tablet with 1200 x 800 pixels developed for rough environments. Use for wireless control and visualization of the user interface from CCU Base with Connect. Easy to place in wheel loader/dumper.



FiC – The Flexible Interface Control is always included with CCU Base. Easily integrated to other systems via the CCU Base network contact for control and visualization via a web interface.

GRAPHICAL USER INTERFACE



Increase production? Use End product optimization

Roctim's unique real-time based crushing algorithm provides your process with the ability to maximize the production of the end product you currently want. By real-time analysis of the produced material, the CCU continuously calculates the optimal Closed Side Setting (CSS) and/or eccentric speed to maximize the sorting strived for. Utilizing the algorithm significantly reduces the need to calibrate the CSS and increases the mantle life time. Combined with the notion that the CCU can run wirelessly over Wifi and that all crusher data are accessible online in real time with CCU Cloud, the control unit is Roctim's most advanced product so far.

CCU Cloud gives you access to all data in the cloud – In real time

With our cloud service CCU Cloud and Connect you are given access to all crusher data on the web. Thus, you can observe your crusher performance and communicate someone to act based on the data without having to be physically present at site.

- ✓ Store, view and analyze all crusher data in the cloud
- ✓ Powerful analyse tools
- ✓ Works on all web browsers
- ✓ Works on smartphones, tablets and any computer
- ✓ No extra program is required to be installed
- ✓ Export data to CSV, XML, PDF, JPEG and more formats



The crusher’s data in viewed in the web application.



Commissioning

Due to the modular design, commissioning of the CCU is fast and efficient. Our application engineers help the process to run smoothly and ensure that you start producing correctly upon startup.

We configure basic settings according to your crusher’s specification and are with you at start-up to ensure your crusher to be performing the moment is starts producing.

As part of the commissioning we perform operator training to make sure that the control unit is properly used and ensure your production of high quality products.

Service and Support

Many times, when a problem occurs, it is not the factual time to fix the problem when actively working that is the issue.

Scheduling physical service appointments can be difficult and is time demanding. By using Roctim’s support package and Connect a remote connection is set-up so that Roctim’s application engineers can access your CCU remotely at any time, within minutes. A time and cost-efficient way to fix potential problems and minimize the downtime of any problem, or to upgrade between Protect, Produce and Perform if your crushing need changes.

CCU Base – HW Product Specification



Physical	
Weight	8 kg
Dimensions Cabinet	300 x 300 x 120 mm
Dimensions with contact and switch	335 x 425 x 120 mm
Electrical	
Rated supply voltage	110 – 240 VAC (50/60 Hz)
Max power consumption	100 W
Environment	
Ambient air temperature	-10...36° C
IP Degree of protection	IP65

CCU Accessories - HW



PaC: Industrial panel to show graphical user interface from CCU Base.



TaC: Tablet for use with Wifi to show graphical user interface from CCU Base.



Connect: Wifi and 3G router for enabling wireless control of CCU Base, CCU Cloud or set up remote connection to Roctim’s support engineers.



BCU: Button Cabinet Unit for manual control of liner movement.

Combi Cable: Integrated power supply and ethernet cable to connect to CCU Base and/or Connect.

XD8: Cable contact for Ethernet port and 50 m Ethernet cable to connect CCU Base to a network.

XD3 – Cable Contact: Contact for level sensor and feeder signal.

XD4 – Cable Contact: Contact for belt scale pulses.

The CCU now also supports thread adjustment style crushers.



CCU Base

Supports the following crusher types:



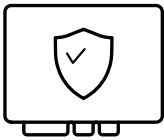
The Crusher Control Unit (CCU) is Roctim's most advanced crushing control system. It has been developed to foresee the vastly different crushing needs that exist – all using the same hardware core – CCU Base. Select between three levels of functionality and multiple control and visualization options. Make the most out of your crusher with our support and service package and online service and support deals with Connect.



- ✓ The core of the CCU
- ✓ Modular design
- ✓ Fast and easy to install
- ✓ Dust, shock and weatherproof
- ✓ Fast and reliable PLC hardware
- ✓ Robust design

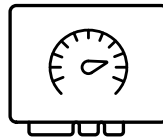
Functionality

Protect



- ✓ Overload protection
- ✓ CSS and Load control
- ✓ Wear compensation
- ✓ Alarms and crushing graphs
- ✓ Remote control via Wifi with Connect

Produce



- ✓ All features of CCU Protect
- ✓ Integrated feeder control
- ✓ Crushing programs
- ✓ Level control & auto calibration
- ✓ Tonnage graph for 3 belt scales

Perform



- ✓ All features of CCU Produce
- ✓ Real time end product optimization
- ✓ Maximize production of end product

Control and visualization options

PaC



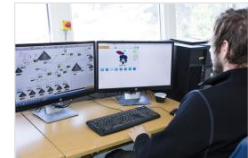
- ✓ Industrial panel
- ✓ Connect to CCU Base for control
- ✓ 10.1" 1024 x 600 pixel
- ✓ Designed for industry environment

TaC



- ✓ Rugged tablet (IP67)
- ✓ Wireless control with Connect
- ✓ 8" 1200 x 800 pixels
- ✓ Easy to mount in wheel loader

FiC



- ✓ Connect to any device using network connection with Connect
- ✓ Web interface for control and visualization

Connect



- ✓ Enables wireless communication for TaC, FiC and CCU Cloud and Service and Support
- ✓ Industrial hardware
- ✓ 3G modem

Services

CCU Cloud

- ✓ Monitor your crusher in real time on the web
- ✓ Store and analyse all data with powerful tools, with any smartphone, tablet or computer
- ✓ Possibility to receive remote service
- ✓ Powerful analyse tools

Service & Support

- ✓ Remote support and service from our application engineers will reduce your downtime
- ✓ Annual status analysis report of the CCU
- ✓ Program updates
- ✓ Remote upgrades possible to Produce and Perform

Commissioning

- ✓ Fast, efficient commissioning
- ✓ Initial setting of crusher parameters
- ✓ Function test
- ✓ Test run with material
- ✓ Introduce operators to the product and the operation manual



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