



Cat[®] PMC-D/PMC-D20

DRIVE CONTROL UNIT

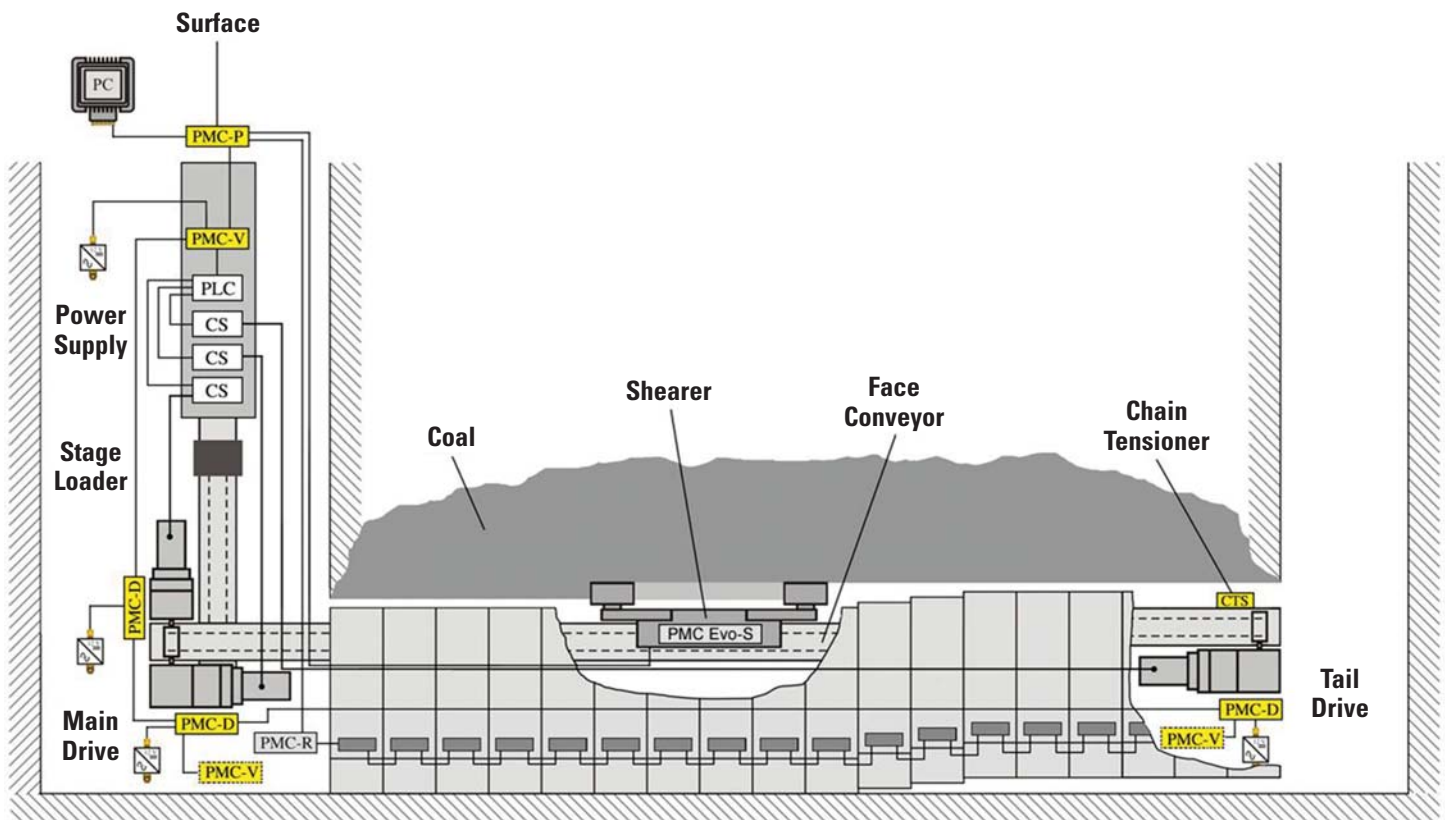
The intrinsically safe Cat[®] PMC-D control is used on shearer or plow faces to provide high level AFC (armed face conveyor) and plow automation. Each Drive unit needs to be equipped with one PMC-D control unit and equivalent I/O to operate the CST drives or UEL gearbox functions.

In such a system a Cat PMC-V provides the Human Machine Interface (HMI) to interfere with the PMC-D controls to operate manual mode, visualize and change parameters and show actual process values. Within a PMC-D system minimum one and typically up to 3 PMC-Vs are in equal operation. The PMC-D system can control extremely sensitive the speed and torque of highly powered AFC CST drive. Using Profibus network all PMC-Ds and PMC-Vs in a system could exchange process data over long distances with high frequency.

ATTRIBUTES OF PMC-D/PMC-D20 CONTROL UNIT:

- Robust stainless steel design
- Highly reliable OS37 plug technology for complete gear box control
- SKK24 hose cables for bus system and additional I/O connection
- IP 68 rating (48 hr @ 1 m [3.28 ft] under water)
- HMI with 24 multi feedback keys (pressure point, led light)
- 63.5 mm (2.5 in) graphical monochrome display
- Multi language support
- Maintainability (brass bar mounting)
- Optional eight (8) additional ports for acceleration sensors (PMC-D20)

Exemplarily System Layout of a PMC-D System (Shearer Face)



PMC-D/PMC-D20 Drive Control Unit

Features

Main Features PMC-D Drive Control System

- “Distributed controller Intelligence per drive”
- Synchronized heavy load start up
- Soft start up
- Load sharing between conveyor drives
- Overload protection
- Motor braking feature
- Further used in plow operations:
 - Precise position detection
 - Overload protection

Additional Features

- Usage of PMC-D for chain tensioning of AFC (front and rear conveyor) and Beam Stage Loader (BSL)
- In conjunction with Slacktronik direct BSL chain slack control and relating chain tensioning
- Usage of PMC-D for high accurate plow position control and monitoring
- Support VFD controlled drive applications
- Optional integration of “HEALTH for Longwall Vibration Analysis” function with PMC-D20 control unit:
 - Acceleration sensor interface for 8 sensor
 - Integrated communication for vibration analysis

Electrical Data

| Parameter | Typical Value | Maximum Ratings |
|----------------|---------------|-----------------|
| Supply Voltage | 12 V DC | 9.5 V – 13.2 V |
| Supply Current | 1 A | 1.5 A |

Environmental Data

| Parameter | Symbol | Typical Value | Maximum Ratings |
|-------------|------------------|---------------|-----------------------------------|
| Temperature | T _{amb} | 20° C (68° F) | -20° C – +40° C (-4° F – +104° F) |

Global Certifications

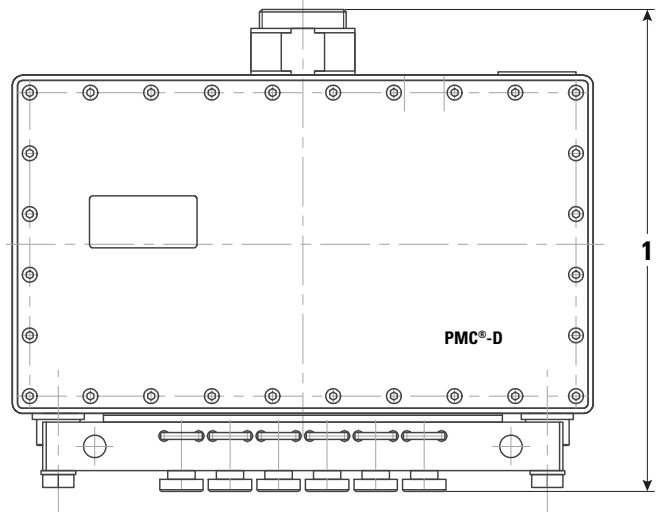
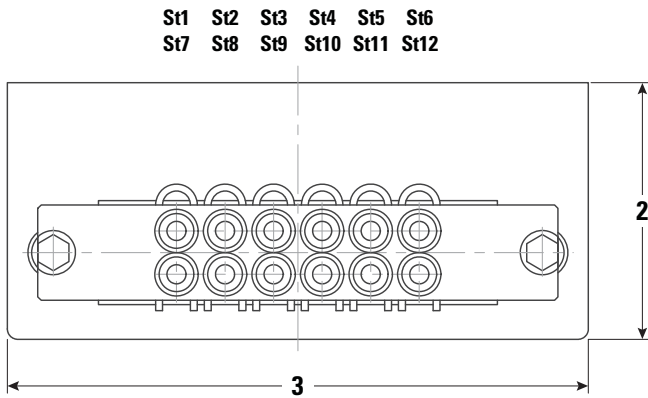
- Europe: ATEX
- U.S.: MSHA
- Russia: GOST
- Australia: IECEx, ANZEx
- China: MA
- More certifications on demand

Via a decentralized visualization and control unit at the face and/or the surface Cat MineStar™ capabilities are supported, especially HEALTH for Longwall.

HEALTH for Longwall Vibration Analysis

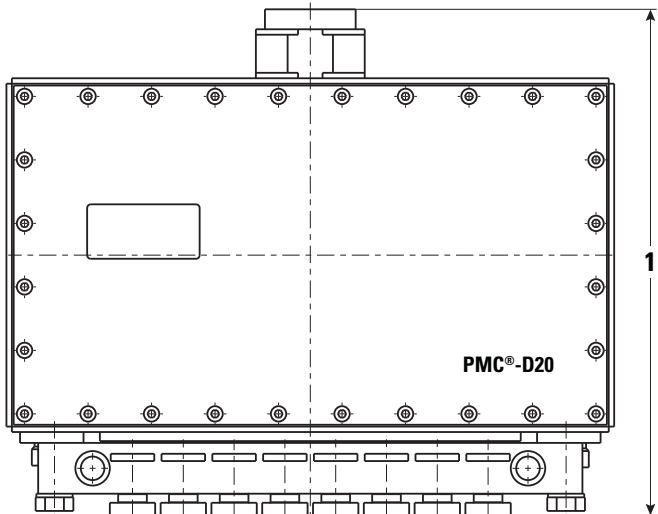
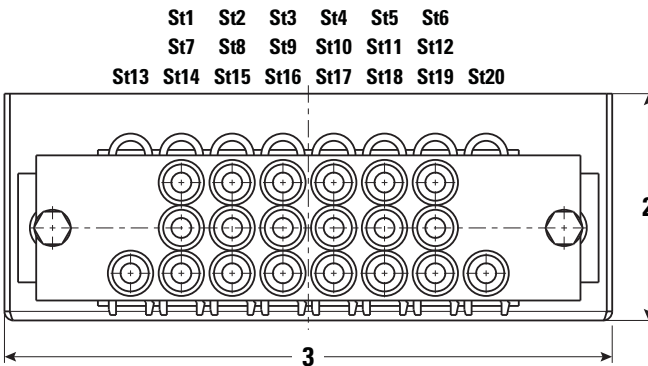
- HEALTH for Longwall Vibration Analysis (former VibraGuard) provides vibration monitoring functionality for longterm health monitoring of the following longwall related equipment:
 - CST gearbox and relating motor
 - UEL gearbox and relating motor
 - Stage loader gearbox and relating motor
 - Crusher and relating motor
 - Shearer haulage and ranging arm gearboxes
 - Water/HFA pump station

PMC-D/PMC-D20 Drive Control Unit



PMC-D Dimensions and Plug Assignments (All dimensions are approximate.)

| | | |
|----------|--------|----------|
| 1 Width | 278 mm | 10.94 in |
| 2 Height | 148 mm | 5.83 in |
| 3 Length | 335 mm | 13.19 in |



PMC-D20 Dimensions and Plug Assignments (All dimensions are approximate.)

| | | |
|----------|--------|----------|
| 1 Width | 279 mm | 10.98 in |
| 2 Height | 125 mm | 4.92 in |
| 3 Length | 335 mm | 13.19 in |

PMC-D/PMC-D20 Drive Control Unit

Electrical Sockets

| Socket | Pin 1 | Pin 2 | Pin 3 | Pin 4 |
|--------|----------------------|-------------------------|-------------------------|---------------------|
| St1 | Optocoupler Anode | Relay Contact NO: a | Relay Contact NO: b | Optocoupler Cathode |
| St2 | +12 V (A) (output) | Serial Interface: RxD_0 | Serial Interface: TxD_0 | GND |
| St3 | +12 V (B) (output) | Serial Interface: RxD_B | Serial Interface: TxD_B | GND |
| St4 | +12 V (C) (output) | Serial Interface: RxD_C | Serial Interface: TxD_C | GND |
| St5 | +12 V (C) (output) | Switch 1 | Switch 2 | GND |
| St6 | | Profibus: a (internal) | Profibus: b (internal) | |
| St7 | +12 V (Power Supply) | | | GND (Power Supply) |
| St8 | Multi Mode Input 4 | Multi Mode Input 1 | +8.2 V (output) | GND |
| St9 | Multi Mode Input 5 | Multi Mode Input 2 | +8.2 V (output) | GND |
| St10 | +12 V (output) | Multi Mode Input 3 | +8.2 V (output) | GND |
| St11 | +12 V (output) | Multi Mode Input 6 | +8.2 V (output) | GND |
| St12 | | TP a | TP b | |
| St13 | | CM-Sensor + | CM-Sensor – | CM-GND |
| St14 | | CM-Sensor + | CM-Sensor – | CM-GND |
| St15 | | CM-Sensor + | CM-Sensor – | CM-GND |
| St16 | | CM-Sensor + | CM-Sensor – | CM-GND |
| St17 | | CM-Sensor + | CM-Sensor – | CM-GND |
| St18 | | CM-Sensor + | CM-Sensor – | CM-GND |
| St19 | | CM-Sensor + | CM-Sensor – | CM-GND |
| St20 | | CM-Sensor + | CM-Sensor – | CM-GND |

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at www.cat.com

© 2014 Caterpillar
All Rights Reserved
Printed in U.S.A.

AEHQ7148-01 (03-14)
Replaces AEHQ7148

Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

CAT, CATERPILLAR, SAFETY.CAT.COM, their respective logos, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

