rexroth
A Bosch Company

Compu-Spread
CS-660 Advanced Spreader Controller

Multi-function programmable controller for granular, and or liquids as well as joystick applications in Snow and Ice Control.

An controller can meet all winter road maintenance operations.

- **Standard Spreader:** Granular, Prewet, Gate
- **Hydraulic Gate:** Auto, 2 point calibration & catchtest
- **Anti-icing System:** 1 boom, 3 boom, Recirculation
- **Symmetry System:** Granular, Prewet, Anti-icing, Chute
- **Additional Functions:**
  - Spinner Control
  - Conveyor reverse
  - Air Gate Control
  - Solid and Liquid Material Detection
  - Liquid Tank Recirculation
  - Dual Channel Cross Conveyor
  - Dual-spinner, and Lane control
  - 6 configurable on screen indicators
- **Configurable intelligent inputs & light functions**
  - Up to 16 switches, 8 general purpose digital outputs
  - All inputs and outputs CAN bus connected
- **Digital IP Cameras:**
  - Security, Resolution, Intelligence, Scalability
- **Multiple Profiles:** Up to 6 operation configurations
- **Built-in GPS tracking:** Support GPS, Galileo, Beidou

Reliable

- Comprehensive solution for fleet application
- Automotive grade with wide temp range
- Robust and compact design for mobile applications
- High Electromagnetic Compatibility (EMC)
- Inputs and outputs with fault detection

Connected

- CAN bus connected system control components
- WiFi data transfer, soft AP for WiFi cameras&sensors
- Bluetooth & USB connections for data exchange and sensor support
- Serial communications for temp sensor, GPS receiver
- Comprehensive Rexroth IoT Cloud solution for connected fleet management, spreading activity reports, remote analytics, remote diagnosis, vehicle health monitoring
- AVL interface allow 3rd party devices to connect and retrieve information from spreader controllers

Modular

- Modular hardware:
  - Display only, Integrated display
  - Smart IOs, Bodas RC4-5
  - Joystick consoles with or without smart IOs
  - Standalone & Pendant Joystick console
  - RC4-5 Junction block
  - CAN/sensor/valve cables
- Modular functions: Granular, Anti-icing, Joysticks, Smart IOs, parameter configuration and report package, IoT solution

Secure

- Program sequence monitoring watchdog
- Proprietary operating system, Rexroth security
- Data encryption and Certificate management

System Features

- High performance ultra-modern 32-bit TriCore technology
- Component of BODAS system for mobile applications
- Robust and compact design meeting specifications for mobile applications
- High Electromagnetic Compatibility (EMC)
- Inputs and outputs with fault detection
- Central output deactivation
- Pulse-Width-Modulated (PWM) solenoid currents for minimum hysteresis
- Closed-loop control of solenoid currents, i.e. not dependent on supply voltage and temperature
- Fused watchdog supervised processor for program run monitoring
- Hardware based RAM memory supervision
- CPU internal Flash with ECC error-correcting code
- Three independent sensor power supplies
- Two-channel stop function (safety protection)
- Auto-null, Auto-Calibration, and Auto-Catch Test
- Easy to diagnose: Bootup system diagnosis, real time error detection and management
- Configurable CAN IOs for lights, and custom functions
- Dual-band, dual-mode station & softAP, WiFi 802.11/a/b/g/n, station & softAP, dual-band 2.4 & 5 GHz, hardware encryption engine for 128-bit AES, WAPI support
- Bluetooth v3.0+HS
- GNSS receiver support all four global navigation systems, GPS, GLONASS, GALILEO, BEIDOU
- Support for various infra-red temperature, liquid level, hydraulic pressure & temperature sensors
- IP67 junction block with stainless steel connectors and diagnostic LEDs
- Firmware upgradable with an USB stick or WiFi

CS-Desktop Suite

- Support CS-550s, CS550/150s, CS-660s, CS-660/160s
- Parameter management, download/upload, configuration
- Log data management, activity reporting
- Error message management
- Joystick configuration
- Auto WiFi log data and parameter download
- Spreading activity GPS waypoint mapping

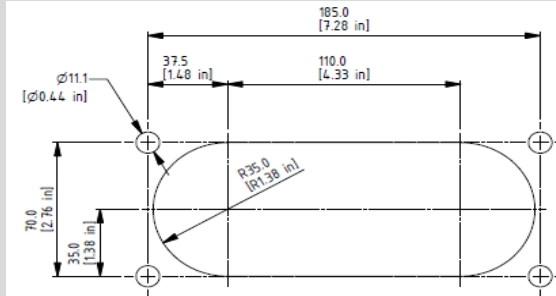# Modular System

IP Camera

- Digital imaging, higher resolution, higher security protection, scalability, remote access, analytics.
- Image sensor: 1/3" progressive scan CMOS sensor
- Main Stream:1920*1080p, sub stream:704*576, 25fps/s
- H.265/H.264
- ICR(IR-CUT) filter auto switch
- 3.6mm len
- IR distance: 30m
- Infrared LED: 35pcs
- Color: 0.05LUX@F1.2
- B/W:0LUX/LED ON
- Support RTSP/FTP/PPPOE/DHCP/DDNS/NTP/UPnP
- Built-in WiFi
- Operation conditions: -30 °C ~ 60 °C (-22 °F ~ 140 °F), humidity 95% or less (non-condensing)
- Power supply; DC 10~24V
- P66 protection (water-proof, vandal-proof)

Technical Data CS-660 (for BODAS Controller RC 4-5/30 details refer to Rexroth data sheet)

General

Enclosure Material		Extruded aluminum, powder coated	
Weight		3.0 kg	6.6 lb. mass
Size	**Display**	252.5 mm high x 184 wide x 60.4 deep	9.942 inches x 7.230 x 2.37
	Junction block	208 mm length x 90 wide x 45 high	8.07 inches x 3.54 x 1.77

Mechanical Mounting	"Ram Bracket", size 1-1/2"
Display Screen	7" wide WVGA, 800 x 480 pixels, 16.7M colours, capacitive touch screen, 6H hardness
	Adjustable backlight, brightness of 1350 cd/m^2 ,Strengthen glass with thickness of 1.1mm
Loudspeaker	1.5 Watt amplifier with adjustable voice feedback

Electrical & Environmental Specifications

Supply Voltage	9-32 VDC	
Outputs	Proportional outputs	9 channels
	Digital Outputs	5 channels
Inputs	Frequency Inputs	5 channels
(All inputs protected and filtered)	Switch Inputs	8 channels
	Analogue Inputs	7 channels
Interfaces	2 CAN ports, 2 serial ports	
GPS Tracking (when supplied)	High resolution industrial GNSS receiver support all four navigation systems, GPS, GLONASS, BEIDOU, GALILEO, and accept up to 72 satellites simultaneously	
WiFi Data Transfer (when supplied)	802.11 a/b/g/n, station & softAP, dual-band 2.4&5 GHz, hardware encryption engine for 128bit AES, WAPI support	
Operating Temperature	-30°C to 85°C	-22°F to 185°F
Storage Temperature	-40°C to 85°C	-40°F to 185°F

Compliant Standards (CS-660/160 and RC Controllers)

Electromagnetic Compatibility	100v/m, load dump
Immunity	RF Immunity: ISO 11452-2, 400-1000 MHz, 80% mod.1kHz 1 GHz—2 GHz, 80% mod. 1 kHz 25v/m (Level 1 Severity) Conducted Immunity: ISO 7637-2 (2004), System Pulse 1, 2a, 2b, 3b, 4
RF Emissions	CISPR 25:2002-08, 30 MHz—1 GHz, according to 72/245/EC EN 55025
Electrostatic Discharge	EN 61000-4-2 ISO 10605, Contact +/- 8kV, air discharge +/- 15kV
Vibration	ISO 16750-3, 10-2000Hz @ 58 m/s
Shock	IEC 60068-2-72, 40G for 11 ms
Moisture	DIN EN 60068-2-30Db; version 2, part 2, Hum=95% 25 to −55°C
Salt Spray	DIN 50021-SS, 72h 35°C 5% NaCl
Medial Resistance	ISO 16750-5, cola, coffee, paint thinner
Enclosure Protection	IEC 60529 IP56