

FCU 5000 Series

Fluid Control Unit

Coolant Lubricant Applications



Description

The FCU 5000 is a stationary measuring system for the automation of the coolant lubricant supply. For this purpose, the essential fluid parameters are monitored. Automated re-dosing of coolant concentrate and refilling of the tank with ready-mixed emulsion allows the specified target concentration in the system and the tank level to be kept almost constant at the target specifications. The FCU 5000 can work as a stand-alone unit in KSS central systems or cover up to ten measuring points in conjunction with the HYDAC Fluid Controller.

The unit continuously monitors pH, conductivity, refractive index and temperature. The limits of the measured values are monitored and, if the measured values depart from the set limits, a signal is indicated on the display and via the electrical interfaces.

Thanks to an intelligent flushing concept, a permanent measurement can be realized without manual intervention.

Applications

- Monitoring/control of central coolant lubricant systems
- Automation of fluid management on interlinked, decentralized machine systems

Features

- Ensuring essential coolant lubricant parameters
- Documentation of quality-related data
- Creation of digital lab reports
- Cost efficiency through high levels of automation
- I4.0-ready thanks to direct cloud connection

Technical Specifications

General Data		
Type of operation	Suitable for continuous operation	
Self diagnostics	Continuously with error indication on display	
Display unit (if available)	Via a mobile device (web server), LED (1x device ready for operation and 1x alarm) and a 7" touch panel (optional)	
Measured variables / measuring ranges		
Concentration	0 to 25%	
pH value	0 to 14	
Electrical conductivity	0 to 10000µS	
Temperature	10 to 40 °C / 50 to 104 °F	
Flow rate	3.2 to 22 l/min	
Input pressure (optional)	0 to 8 bar / 116 psi	
Calibration accuracy		
Concentration	± 0.3 Brix	
pH value	± 2.5% (full scale)	
Electrical conductivity	± 1.5% (full scale)	
Temperature	± 1% (full scale)	
Flow rate	± 1.5% (full scale)	
Pressure	± 1% (full scale)	
Sealing material	FKM	
Ambient temperature range	0 to 60 °C / -17.8 to 140 °F	
Storage temperature range	0 to 50 °C / -17.8 to 122 °F	
Relative humidity	0 to 70%, non-condensing	
CE marking	EN 61000-6-1 / 2 / 3 / 4	
Protection class according to DIN 40050	IP44	
Housing	Steel housing	
Weight (without accessories)	≈ 44 kg	
Hydraulic Data		
Operating pressure	0 to 8 bar / 0 to 116 psi	
Measurement flow rate	≈ 5 to 20 l/min	
Permitted viscosity range	1 to 40 mm ² /s; to 180 Sus	
Temperature range of medium	10 to 40°C / 50 to 104 °F	
Electrical Data		
Supply voltage	230 V AC	
Max. power/current consumption	0.7 mA	
Interfaces / data monitoring	Analogue in	2 x 4 to 20 mA
	Analogue in level	2 x 4 to 20 mA
	Ethernet 1	Device config
	Ethernet 2	Modbus TCP / REST
	Ethernet 3	MQTT
	2x switching output	Potential-free contact (max. 24 V 1 A) for metering pump
2x switching output	Potential-free contact (max. 24 V 1 A)	

Model code

FCU 5 3 1 7 - 0 - 1 - 1 - U - 000

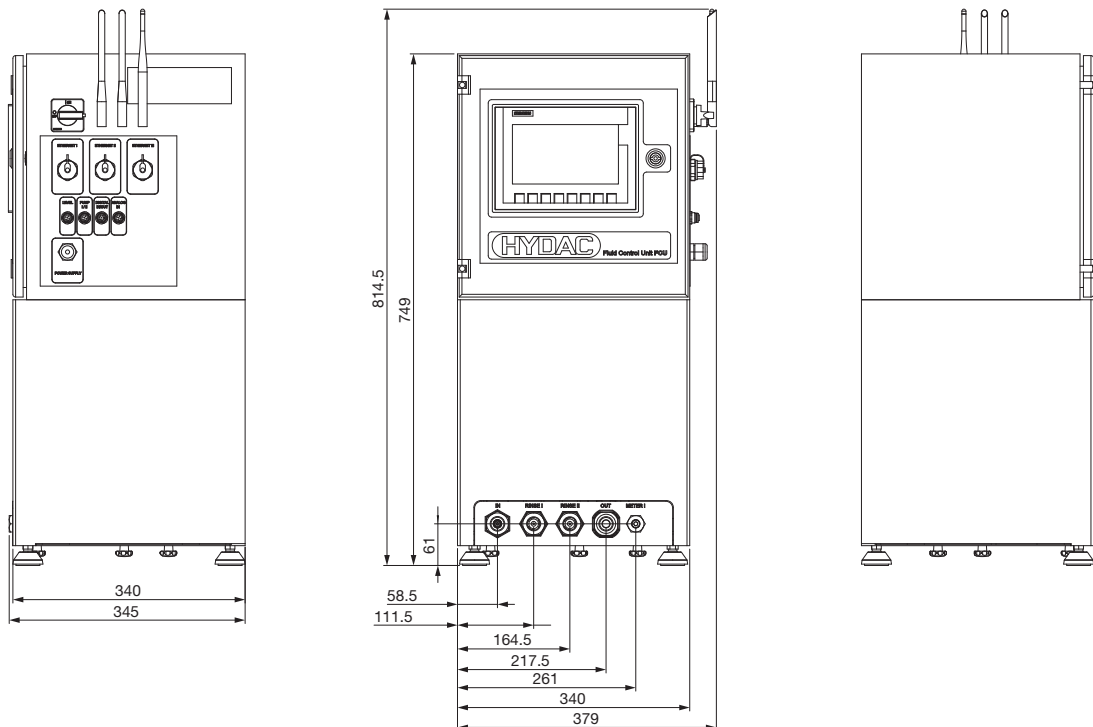
Type	FCU = FluidControl Unit
Series	5 = 5000 series, concentration measurement
Measured variables	1 = concentration, temperature 2 = concentration, temperature, pH value 3 = concentration, temperature, pH value, electrical conductivity
Additional functions	0 = no additional function 1 = top up tank
Media	7 = aqueous coolants
Display	0 = standard: touch display 7" touch
Data interface	0 = standard (Ethernet: TCP/IP, Modbus TCP) 1 = standard + MQTT 2 = standard + MQTT + 4G
Options	0 = without 1 = data memory 2 = CMX integration
Supply voltage	U = 230V AC
Modification	000 = Standard

FCU Equipment

FCU Accessories	Part Number
Metering pump	
Pump kit BG30 for FCU 5000	4656596
Hydraulics	
Wombat filter housing WBF201-B-B-L-F-Z	4158239
Fluid Controller	
FC5000	4724385

FCU Consumables	Part Number
Filter bag 5 µm for FCU 5000	4619116
pH electrode	4692985

Dimensions



All dimensions are in mm.