



GCP-30 Series

Genset Control Package Mains & Generator Protection & Control

APPLICATIONS

The GCP-30 Series genset control is designed to provide total control for multiple, medium to large sized applications.

A network of the compact, versatile GCP-30 controls is capable of controlling up to **14** gensets with automatic sequencing. Load management features include automatic base loading/peak shaving, import/export control and emergency power/back up power generation.

The GCP-31 has logic for one circuit breaker and the GCP-32 has logic for two circuit breakers including open/closed transition.

Fully integrated communication to engine ECUs including [via CAN bus] standard SAE J1939, Deutz EMR, Scania S6, Volvo EMS2, mtu ADEC, mtu MDEC; [via RS232] Caterpillar CCM to EMCP-II, and ECM.

DESCRIPTION

Features

- True RMS 8× voltage (generator/busbar/mains)
- True RMS 4× current (generator/mains)
- Start/stop sequence for Diesel/Gas engines
- Engine pre-glow or purge control
- Battery voltage monitoring
- Speed control with overspeed monitoring
- Idle speed mode operation
- kWh/operation hours/start/maintenance counter
- Load dependent start/stop for up to **14 generators**
- Configurable trip/control set points
- Configurable delays for each protection/alarm
- Magnetic/switching Pickup input
- 16 configurable discrete alarm inputs
- 7 configurable/programmable relays
- Two-line LC display
- Synchroscope
- Push-buttons for direct control
- CAN bus communication
- Multi-level password protection
- Language manager (English/German switchable)

DESCRIPTION (continued)

Protection

ANSI

- 3/4-line measurements

Mains

- Over-/undervoltage (59/27)
- Over-/underfrequency (81O/U)
- Phase/vector shift (78)

Generator

- Over-/undervoltage (59/27)
- Over-/underfrequency (81O/U)
- Overload (32)
- Reverse/reduced power (32R/F)
- Unbalanced load (46)
- Time-overcurrent (TOC) (50)

Controller (all versions)

- Speed/frequency/real power
- Voltage/power factor cosphi
- Mains import/export power
- Load/var sharing for up to **14 generators**

Controller (GCP-31)

Synchronizer for 1 CB

- Isolated operation
- Softloading
- Mains parallel operation

Controller (GCP-32)

Synchronizer for 2 CB

- same as GCP-31 plus following
- Open transition (break-before-make)
- Closed transition (make-before-break)

Special (Version dependent)

- 2 configurable analog outputs (0/4 to 20 mA)
- Generator real power setpoint via 0/4 to 20 mA
- Mains import/export power via 0/4 to 20 mA
- Discrete outputs raise/lower for n/f/V/P/Q
- Analog outputs raise/lower for n/f/V/P/Q
- PWM outputs raise/lower for n/f/P
- 7 conf. analog measuring inputs (0/4 to 20 mA, Pt100, VDO)
- Coupling to LS 4 (GCP-31 only; for details see product specification 37167)
- Event recorder with real time clock

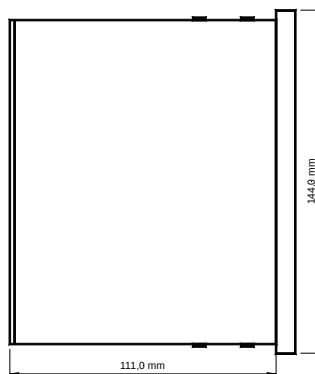
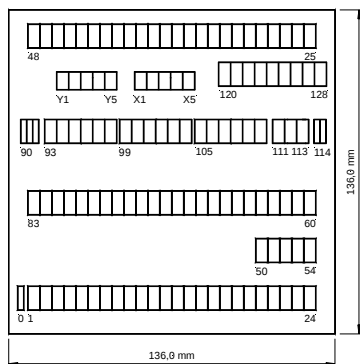
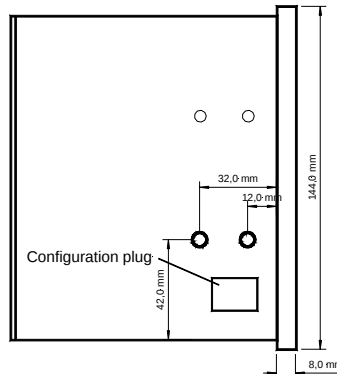
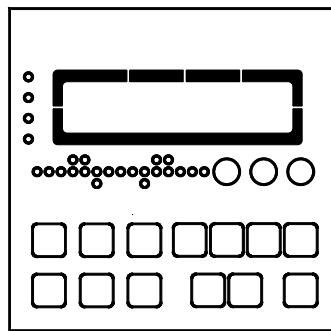
- **J1939** (Volvo EMS2, mtu ADEC, Scania S6, Deutz EMR), mtu **MDEC**, and CAT **CCM** (EMCP-II, and ECM) coupling
- AMF auto start/stop
- Complete engine, generator, and mains protection and controller in one unit
- True RMS sensing of generator, busbar and mains voltage as well as generator and mains current
- Synchronization for one/two breakers
- Load management-automatic base load/peak shaving, import/export power control, automatic sequencing
- Load/var sharing for up to **14 generators** incl. auto start/stop
- Counters for kWh, engine starts, operating hours, maintenance call
- Freely configurable discrete and analog alarm inputs
- Freely configurable relay and analog outputs
- Configurable via PC or front panel
- CAN bus based communication
- CE marked
- UL/cUL Listed

SPECIFICATIONS (for more see manual 37364)

Accuracy	Class 1
Power supply	12/24 Vdc (9.5 to 32 Vdc)
Intrinsic consumption	max. 20 W
Ambient temperature	Operation..... -20 to 70 °C
.....	Storage..... -30 to 80 °C
Ambient humidity	95 %, non-condensing
Voltage	Rated λ/Δ : [1] 66/115 Vac or [4] 230/400 Vac
.....	V_{ph-ph} max. (UL): [1] 150 Vac or [4] 300 Vac
.....	Rated $V_{ph-ground}$: [1] 150 Vac or [4] 300 Vac
.....	Rated surge voltage: [1] 2.5 kV or [4] 4.0 kV
.....	Setting range (prim.): 0.050 to 65.000 kVAc
Measuring frequency	50/60 Hz (40 to 70 Hz)
Linear measuring range up to	$1.3 \times V_{rated}$
Input resistance	[1] 0.21 M Ω , [4] 0.7 M Ω
Max. power consumption per path	< 0.15 W
Current (rated values; I_{rated})	..5 A
Linear measuring range up to	$I_{gen} = 3.0 \times I_{rated}$
.....	$I_{mains} = 1.5 \times I_{rated}$
Load	< 0.15 VA
Rated short-time current (1 s)	$10 \times I_{rated}$
Discrete inputs	isolated
Input range	12/24 Vdc (6 to 32 Vdc)
Input resistance	approx. 6.8 k Ω
Analog inputs	freely scaleable
Type	0/4 to 20 mA, Pt100, VDO
Resolution	10 Bit

Relay outputs	potential free
Contact material	AgCdO
Load (GP)	2.00 Aac@250 Vac
.....	2.00 Adc@24 Vdc / 0.36 Adc@125 Vdc / 0.18 Adc@250 Vdc
Pilot duty (PD)	1.00 Adc@24 Vdc / 0.22 Adc@125 Vdc / 0.10 Adc@250 Vdc
Analog outputs	isolated
Type	0/4 to 20 mA, freely scaleable
Resolution	8/12 Bit (depending on model)
Max. load 0/4 to 20 mA	500 Ω
Insulating voltage	1,500 Vdc
Housing	Type APRANORM DIN 43 700
Dimensions	144×144×118 mm
Front cutout	138[+1.0]×138[+1.0] mm
Connection	screw/plug terminals depending on connector 1.5 mm ² or 2.5 mm ²
Front	insulating surface
Protection system	with correct installation
.....	Front..... IP42
.....	(sealed IP54; gasket kit = P/N 8923-1039)
.....	Back..... IP21
Weight	depending on version, approx. 1,000 g
Disturbance test (CE)	tested according to applicable EN guidelines
Listings	UL/cUL listed (File No.: E231544)

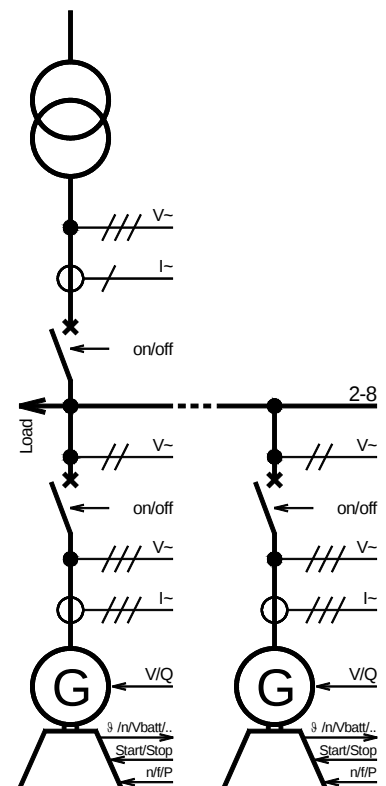
DIMENSIONS



2002-11-21 | GCP30-AMG2 Dimensions g2ww-4702-ab.skf

APPLICATIONS

Typical application for the GCP-32 (GCP-31 same but without MCB)





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FEATURES OVERVIEW

GCP-30 Series Genset Control	GCP-31					GCP-32				
	BPQ	XPQ	XPQ	XPQ+SB03	XPQ+SC10	BPQ	XPQ	XPQ	XPQ+SB03	XPQ+SC10
Control										
Breaker control logic	1	1	1	1	1	2	2	2	2	2
Synchronization	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Isolated single-unit operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AMF (auto mains failure operation)		✓ #1	✓ #1	✓ #1	✓ #1	✓	✓	✓	✓	✓
Stand-by operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Peak load op. (auto start/stop)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mains parallel operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Open transition (break-before-make)						✓	✓	✓	✓	✓
Closed transition (make-before-break)						✓	✓	✓	✓	✓
Softloading	✓ #2	✓ #2	✓ #2	✓ #2	✓ #2	✓	✓	✓	✓	✓
Accessories										
Start/stop logic for Diesel/Gas engines	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
kWh counter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operating hours/start/maintenance counter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Configuration via PC #3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Event recorder, real time clock		50	50	50	50		50	50	50	50
Language manager (English/German)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Protection										
Generator: voltage/frequency	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mains: volt./freq./phase shift	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Generator: overload/unbalanced load	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Generator: reverse/reduced power	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Generator: time-overcurrent (TOC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controller										
Discrete raise/lower: n/f & P #4	✓ #5	✓	✓ #5	✓ #5	✓ #5	✓ #5	✓	✓ #5	✓ #5	✓ #5
Discrete raise/lower: V & Q #4	✓ #5	✓	✓ #5	✓ #5	✓ #5	✓ #5	✓	✓ #5	✓ #5	✓ #5
Analog raise/lower: n/f & P #4 #5	✓		✓	✓	✓	✓		✓	✓	✓
Analog raise/lower: V & Q #4 #5	✓		✓	✓	✓	✓		✓	✓	✓
PWM raise/lower: n/f & P #4 #5	✓		✓	✓	✓	✓		✓	✓	✓
Mains import/export power via 20 mA		✓	✓	✓	✓		✓	✓	✓	✓
Mains import/export power control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Load-dependent start/stop	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Active power setpoint 0/4 to 20 mA #6		✓	✓	✓	✓		✓	✓	✓	✓
Load/var sharing for 14 generators	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
I/O's										
Magnetic/switching Pickup	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Discrete alarm inputs (configurable)	16	16	16	16	16	16	16	16	16	16
Relay outputs (configurable)	7	7	7	7	7	7	7	7	7	7
Analog inputs (configurable) #6		7	7	7	7		7	7	7	7
Analog outputs 0/4 to 20 mA (configurable)		2	2	2	2		2	2	2	2
External operation mode selection via DI		✓	✓	✓	✓		✓	✓	✓	✓
CAN bus comm., Guidance level #7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CAN bus comm., Engine level #8					✓					✓
RS-232 comm., Engine level #9				✓					✓	
LS 4 - Circuit Breaker Control #10		✓	✓	✓	✓					
Listings/Approvals										
CE Marked	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UL/cUL Listed	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Part numbers P/N										
Measuring inputs 100 Vac, ..5 A (8440-	-1609	-1554	-1558	-1562	-1560	-1613	-1570	-1574	-1578	-1576
Measuring inputs 400 Vac, ..5 A (8440-	-1610	-1555	-1559	-1563	-1561	-1614	-1571	-1575	-1579	-1577

#1 External unit LS 4 necessary

#2 In isolated parallel operation with min. 2 gensets in parallel

#3 Cable incl. software necessary (DPC; P/N 5417-557)

#4 n = speed; f = frequency; V = voltage; P = real power; Q = reactive power

#5 +/-20 mA and +/-10 Vdc and PWM signal (type and range configurable); bias/discrete setpoint via relay manager

#6 [T1]-[T3] = 0/4 to 20 mA, [T4]/[T5] = Pt100, [T6] = VDO 0 to 180ohm, [T7] = VDO 0 to 380ohm; function of 20 mA inputs is configurable between alarm input, remote setpoint value for generator real power, mains import/export real power measuring value; others upon request

#7 Remote monitoring, control, configuration (GW 4 could be used for several interfaces; refer to product specs 37170 / manual 37360)

#8 CAN bus connection to IKD1, mtu MDEC, mtu ADEC, Volvo EMS2, Scania EMS/S6, CAN SAE J1939 and/or ST3 (configurable; refer to manual 37382)

#9 RS-232 connection via Caterpillar CCM to Caterpillar EMCP-II, and ECM (configurable; refer to manual 37200)

#10 External unit LS 4 (refer to product specs 37167 / manual 37105)