GCP-30 Series
Genet Control Package
Mains & Generator
Protection & Control

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

A network of the compact, versatile GPC-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, 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, mtu MDEC; [via RS232] Caterpillar CCM to EMCP-II, and ECM.

DESCRIPTION

Features
- True RMS 8x voltage (generator/busbar/mains)
- True RMS 4x 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
- kW/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)

Protection ANSI #

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

- J1939 (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
- PC and front panel configurable
- CAN bus based communication
- CE marked
- UL/cUL Listed
SPECIFICATIONS (for more see manual 37239)

Accuracy .................................................................Class 1
Power supply ...........................................................12/24 Vdc (9.5-32 Vdc)
Intrinsic consumption ..............................................max. 15 W
Ambient temperature ..............................................20-+70 °C
Ambient humidity .....................................................95 %, non-condensing
Voltage
Rated: [1] 57/100(120) Vac or [4] 230/400 Vac
UL: [1] max. 150 Vac or [4] max. 300 Vac
Measuring frequency ..............................................50/60 Hz (40-70 Hz)
Linear measuring range up to ....................................1.3×Un
Input resistance.....................................................[1] 0.21 MΩ, [4] 0.7 MΩ
Max. power consumption per path ................................< 0.15 W
Current (rated values) ..............................................[
[1] .1 A or [4] .5 A
Current-carrying capacity ...........................................Igen = 3.0×Irated
Imains = 1.5×Irated
Load .................................................................................< 0.15 VA
Rated short-time current (1 s) ......................[1] 50×Irated, [4] 10×Irated
Discrete inputs ..............................................................isolated
Input range .................................................................12/24 Vdc (4-40 Vdc)
Input resistance .........................................................approx. 6.7 kΩ
Analog inputs ..............................................................freely scaleable
Type ..............................................................................0/4-20 mA, Pt100, VDO
Resolution .................................................................10 Bit
Relay outputs ..............................................................isolated
Contact material ......................................................AgCdO
Load (GP) ......................................................................2.00 Aac@250 Vac
2.00 Adc@24 Vac / 0.36 Adc@125 Vac / 0.18 Adc@250 Vac
Pilot duty (PD) ............................................................B300
1.00 Adc@24 Vac / 0.22 Adc@125 Vac / 0.10 Adc@250 Vac
Analog outputs ..............................................................isolated
Type ..............................................................................0/4-20 mA, freely scaleable
Resolution .................................................................8/12 Bit (depending on model)
Max. load 0/4-20 mA ......................................................500 Ω
Insulating voltage ......................................................500 Vdc
Housing .................................................................Type APRANORM DIN 43 700
Dimensions .............................................................144×144×118 mm
Front cutout .............................................................138×138 mm
Connection ..............................................................screw/plug terminals depending on connector 1.5 mm² or 2.5 mm²
Front ..............................................................................insulating surface
Protection system .....................................................at professional installation
Front.................................................................IP42
(sealed IPSA gasket kit = PN 8023-1039)
Back .................................................................IP21
Weight ............................................................................depending on version, approx. 1,000 g
Disturbance test (CE) ..................................................tested according to applicable EN guidelines
Listings .................................................................UL/cUL listed (voltages up to 300 Vac)

DIMENSIONS

APPLICATIONS

Typical application for the GCP-32 (GCP-31 same but without MCB)
WIRING DIAGRAM (example: GCP-32/XPQ+SC06; for other’s see manual 37239)
## FEATURES OVERVIEW

### GCP-30 Series Genset Control

<table>
<thead>
<tr>
<th>Package</th>
<th>GCP 31</th>
<th>GCP 32</th>
<th>GCP 315</th>
<th>GCP 325</th>
<th>GCP 31 325</th>
<th>GCP 31 325</th>
<th>GCP 32 325</th>
<th>GCP 32 325</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breaker control logic</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Synchronization</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Isolated single-unit operation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>AMF (auto mains failure operation)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stand-by operation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Peak load op. (auto start/stop)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mains parallel operation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Open transition (break-before-make)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Closed transition (make-before-break)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Softloading</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start/Stop logic for Diesel/Gas engines</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>kWh counter</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Configuration via PC</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Event recorder, real time clock</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Language manager (English/German)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator: voltage/frequency</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mains: vol/freq/phase shift</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Generator: overload/load imbalance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Generator: reverse/reduced power</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Generator: time-overcurrent (TOC)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Controller</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrete raise/lower: n/f &amp; P</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Discrete raise/lower: V &amp; Q</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Analog raise/lower: n/f &amp; P</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Analog raise/lower: V &amp; Q</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>PWM raise/lower: n/f &amp; P</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mains import/export power via 20 mA</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mains import/export power control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Load-dependent start/stop</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Active power setpoint 04-20 mA</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Load/var sharing for 14 generators</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>I/O’s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnetic/switching Pickup</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Analog outputs (configurable)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Analog outputs 04-20 mA (config)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CAN bus comm., Guidance level</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CAN bus comm., Engine level</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>RS232 comm., Engine level</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>LS 4 - Circuit Breaker Control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Listings/Approvals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE Marked</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>UL/UL Listed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Part numbers PIN

- **Measuring inputs (V and A)**
  - 120 Vac.../8 A (8440): -1546 -1607 -1552 -1556
  - 400 Vac.../8 A (8444): -1549 -1608 -1553 -1557

- **Measuring inputs (V and 400 A)**
  - 120 Vac.../8 A (8440): -1546 -1607 -1552 -1556

### Notes

- #1 External unit LS 4 necessary
- #2 In isolated parallel operation with min. 2 gensets in parallel
- #3 Cable incl. software necessary (DPC)
- #4 +/-20 mA analog and +/-10 Vdc as PVH signal (type and range configurable); bipolar/detected setpoint via relay manager
- #5 [T1] [T2] = 0-20 mA, [T5] [T10] = P1000, [T6] = VDO 0-1800mV, [T7] = VDO 0-3600mV; 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
- #6 Remote monitoring, control, configuration (GW 4 could be used for several interfaces)
- #7 CAN bus connection to I/O, into MEC- Scania EMUS, CAN SAE J1939 and/or ST3 (configurable)
- #8 RS232 connection via Caterpillar CCM to Caterpillar EMCP-II, and ECM (configurable)

---

© Woodward Governor Company

All Rights Reserved

032400 - 04/6/S