



Product Specification 37697C

easYgen-400 / easYgen-600 / easYgen-800







Genset Start/Stop Control

Do you package gensets, build switchgear or integrate systems? With several decades of experience in genset control technology, Woodward's easYgen family offers a one-stop-shop solution for all of your genset control needs. easYgen family genset controls cover the full range of generator system applications, ranging from simple functions, such as start/stop of a genset to complex ones, like synchronizing and power management of large fleet of gensets.

DESCRIPTION

The Woodward easYgen-100 series is designed for a single-generator set used in isolated stand-by or prime power applications. The controllers include purpose-built algorithms and logic to start, stop, control, and protect the genset, and open/close circuit breakers. Equipped with state-of-the-art communication interfaces, Woodward's easYgen-100 Series of genset controllers provides exceptional versatility and value for OEM genset packagers.

The easYgen-100 Series is available in three versions:

- easYgen-400 small start/stop controller contains a big liquid crystal display (LCD), configurable I/Os and electronic engine support.
- easYgen-600 compact start/stop controller offers a state of the art LCD, adequate on-board I/Os and common industrial connectivity
- easYgen-800 advanced start/stop controller comes with a large LCD, I/O expansion capability, Ethernet and SD card connectivity

ToolKit-SC is a single service tool for configuring easYgen-100 and –1000 series controllers. The module's password-protected integral front panel lets you adjust various parameters on-site.

FEATURES

- Three-phase true RMS power sensing
- Operation modes: AUTO, STOP, and MANUAL modes accessible through front panel, discrete inputs or via interfaces
- Remote control via multiple interfaces and discrete inputs
- Direct support of several ECUs such as Bosch, Cummins, John Deere, MTU, Perkins, Scania, Volvo, Woodward
- Two heavy duty relay outputs for cranking and fuel solenoid
- Event and data logging capabilities with real time clock
- Maintenance scheduler with multipurpose flexible timers
- Operating hours, start, maintenance counters and monitoring
- Three switchable parameter sets of AC system winding, Rated Voltage, Rated Frequency, Rated Current, Rated Power, Rated Speed
- Can be applied on pumping units as an indicating instrument (relays are inhibited)
- Can be configured from computer via USB or front panel with password protection
- Manual breaker operation with tactile buttons on front panel
- Custom boot-up logo with adjustable screen display time
- Multilingual customizable user interface

easYgen-600 Unique Features

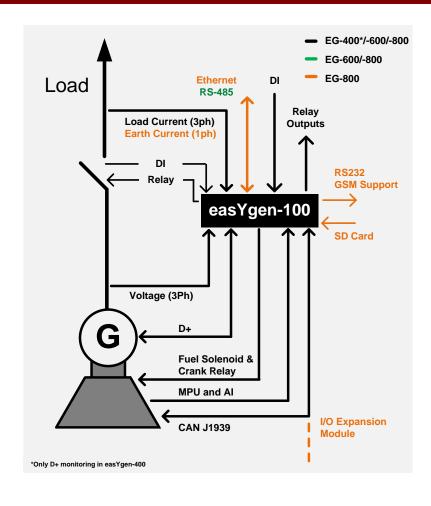
- Compact design optimize footprint of your control panel
- ✓ CAN J1939 direct communication with electronic engines
- Crank disconnect function an additional layer of engine safety
 - Manual and Remote Start/Stop application in
 - Single-unit isolated operation
 - Stand-by operation
 - Prime power operation
 - Rental power operation
 - Easy to set up and commission
 - Comprehensive engine, and generator protection
 - Engine ECU interface to electronic engines
 - Programmable I/Os
 - Power metering
 - Communication ports: CAN J1939, RS-485, USB
 - Dedicated heavy duty relays for engine and breaker interface
 - Switchable parameter sets for mobile genset applications
 - Can be configured from computer or front panel
 - Event log and eventtriggered data log

SPECIFICATIONS

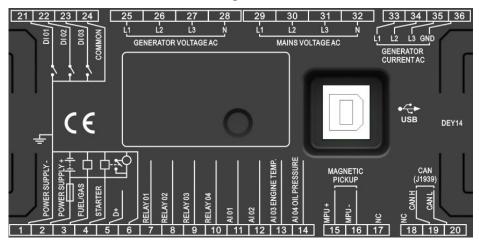
Power Supply Operating Voltage (Reverse polarity protected) Supply. Maximum supply voltage Short Time 80 V (5-10 s); Long T. 50 V 6.5 V Minimum supply voltage (All relays closed, LCD bright) (easYgen-800) 450 mA (12 V); 220 mA (24 V) (All relays closed, LCD dimm) (easYgen-800) 420 mA (12 V); 200 mA (24 V) (easYgen-800) 4		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	Power Supply	
Maximum supply voltageShort Time 80 V (5-10 s); Long T. 50 VMinimum supply voltage 6.5 V Maximum operating current(All relays closed, LCD bright)(easYgen-800) 450 mA (12 V); 220 mA (24 V)Maximum standby current(All relays closed, LCD dimm)(easYgen-800) 420 mA (12 V); 200 mA (24 V)Power Consumption 44 W (standby ≤ 2 W)Alternator Input Range $50 \text{ Hz}/60 \text{ Hz}$ 3-Phase 4-Wire $AC15\text{V} - AC360\text{V}$ (ph-N) 3-Phase 3-Wire $AC30\text{V} - AC360\text{V}$ (ph-N) 3-Phase 2-Wire $AC15\text{V} - AC360\text{V}$ (ph-N) 3-Phase 3-Wire $AC15\text{V} - AC360\text{V}$ (ph-N) 3-Phase 3-Wire $AC15\text{V} - AC360\text{V}$ (ph-N) 3-Phase 3-Wire 3-Minimement 3-Phase 3-Wire 3-Minimement 3-Phase 3-Wire 3-Minimement 3-Phase 3-Wire 3-Minimement $3-Minime$	Operating Voltage	$8.0~V_{\text{DC}}$ to $35.0~V_{\text{DC}},$ Continuous Power
Minimum supply voltage Maximum operating current (easYgen-800) Maximum standby current (easYgen-800) Maximum standby current (easYgen-800) Power Consumption Alternator Input Range 3-Phase 4-Wire 3-Phase 3-Wire Single-Phase 2-Wire 2-Phase 3-Wire AC15V - AC360V (ph-N) AC15V - AC360V (ph-N)	(Reverse polarity protected)	Supply.
Maximum operating current (All relays closed, LCD bright) (easYgen-800) 450 mA (12 V); 220 mA (24 V) Maximum standby current (All relays closed, LCD dimm) (easYgen-800) 420 mA (12 V); 200 mA (24 V) Power Consumption <4 W (standby ≤ 2 W)	Maximum supply voltage	Short Time 80 V (5-10 s); Long T. 50 V
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Maximum standby current (All relays closed, LCD dimm) (easYgen-800) 420 mA (12 V); 200 mA (24 V) Power Consumption <4 W (standby ≤ 2 W)	Maximum operating current	(All relays closed, LCD bright)
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Power Consumption <4 W (standby ≤ 2 W)	Maximum standby current	(All relays closed, LCD dimm)
Alternator Input Range 3-Phase 4-Wire 3-Phase 3-Wire Single-Phase 2-Wire 2-Phase 3-Wire AC15V - AC360V (ph-ph) AC15V - AC360V (ph-N) AC15V - AC360V (ph-N) AC15V - AC360V (ph-N) AC-Measurement Phase-phase: 100 624 V : 1%; Voltage Accuracy (400/480 V % rated) Phase-neutral: 100 360 V : 1% 50 100 V : 1.5 % Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution Frequency accuracy ±0.1 Hz	(easYgen-800)	420 mA (12 V); 200 mA (24 V)
3-Phase 4-Wire 3-Phase 3-Wire AC30V - AC360V (ph-ph) Single-Phase 2-Wire AC15V - AC360V (ph-ph) AC15V - AC360V (ph-N) AC15V - AC360V (ph-N) AC-Measurement Phase-phase: 100 624 V : 1%; 50 100 V : 1.5 % Phase-neutral: 100 360 V : 1% 50 100 V : 1.5 % Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency accuracy 40.1 Hz	Power Consumption	<4 W (standby ≤ 2 W)
3-Phase 3-Wire AC30V - AC620V (ph-ph) Single-Phase 2-Wire AC15V - AC360V (ph-N) 2-Phase 3-Wire AC15V - AC360V (ph-N) AC-Measurement Phase-phase: 100 624 V : 1%; 50 100 V : 1.5 % Voltage Accuracy Phase-neutral: 100 360 V : 1% 50 100 V : 1.5 % Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution 0.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz	Alternator Input Range	50 Hz/60 Hz
Single-Phase 2-Wire 2-Phase 3-Wire AC15V - AC360V (ph-N) AC-Measurement Voltage Accuracy (400/480 V % rated) Minimum frequency Maximum frequency Frequency resolution Frequency accuracy AC15V - AC360V (ph-N) Phase-phase: 100 624 V : 1%; 50 100 V : 1.5 % Phase-neutral: 100 360 V : 1% 50 100 V : 1.5 % Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency accuracy ±0.1 Hz	3-Phase 4-Wire	AC15V - AC360V (ph-N)
2-Phase 3-Wire AC15V - AC360V (ph-N) AC-Measurement Phase-phase: 100 624 V : 1%; Voltage Accuracy 50 100 V : 1.5 % Phase-neutral: 100 360 V : 1% 50 100 V : 1.5 % Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution 0.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz	3-Phase 3-Wire	AC30V - AC620V (ph-ph)
AC-Measurement Voltage Accuracy (400/480 V % rated) Minimum frequency Frequency resolution Phase-phase: 100 624 V : 1%; 50 100 V : 1.5 % Phase-neutral: 100 360 V : 1% 50 100 V : 1.5 % Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency accuracy 40.1 Hz 40.1 Hz	Single-Phase 2-Wire	AC15V - AC360V (ph-N)
Voltage Accuracy (400/480 V % rated) So 100 V : 1.5 % Phase-neutral: 100 360 V : 1% So 100 V : 1.5 % Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution 0.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz	2-Phase 3-Wire	AC15V - AC360V (ph-N)
(400/480 V % rated) Phase-neutral: 100 360 V : 1% 50 100 V : 1.5 % Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution O.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz	AC-Measurement	Phase-phase: 100 624 V : 1%;
50 100 V : 1.5 % Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution 0.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz	Voltage Accuracy	50 100 V : 1.5 %
Minimum frequency Generator: 10 Hz; Mains: 27 Hz Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution 0.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz	(400/480 V % rated)	
Maximum frequency Generator: 99.5 Hz; Mains: 99.5 Hz Frequency resolution O.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz		50 100 V : 1.5 %
Frequency resolution 0.1 Hz (10 99 Hz) Frequency accuracy ±0.1 Hz	Minimum frequency	Generator: 10 Hz; Mains: 27 Hz
Frequency accuracy ±0.1 Hz	Maximum frequency	Generator: 99.5 Hz; Mains: 99.5 Hz
	Frequency resolution	0.1 Hz (10 99 Hz)
Nominal CT secondary rating 5 A	Frequency accuracy	±0.1 Hz
	Nominal CT secondary rating	5 A

Overload Measurement	Max.: 10 A
Current Accuracy	1 %
Excitation current D+	110 mA (12 V); 230 mA (24 V)
(easYgen-600 and easYgen 800)	
Start Relay and Fuel Relay	16 A DC28V supply output in EG-600/-
Outputs	800
	5 A DC28V supply output in EG-400
Housing	
Case Dimensions	easYgen-400: 135 x 110 x 44 mm
	easYgen-600: 209 X 166 x 45 mm
	easYgen-800: 237 x 172 x 45 mm
Panel Cutout	easYgen-400: 114 x 88 mm
	easYgen-600: 186 x 141 mm
	easYgen-800: 214 x 160 mm
Operating Conditions	Temperature: (-25 to +70) °C;
	Humidity: (20 to 93) %RH
Storage Condition	Temperature: (-25 to +70) °C
Protection Level	IP65 in the front, mounted with kit
	IP20 on rear side
Net Weight	easYgen-400: 0.3 kg
	easYgen-600: 0.56 kg
	easYgen-800: 0.85 kg

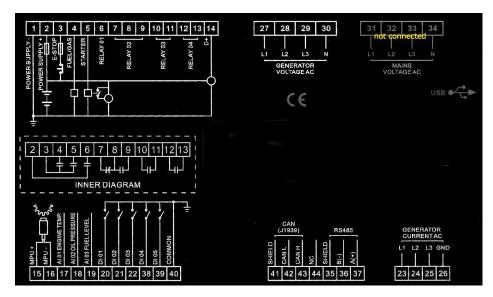
APPLICATION



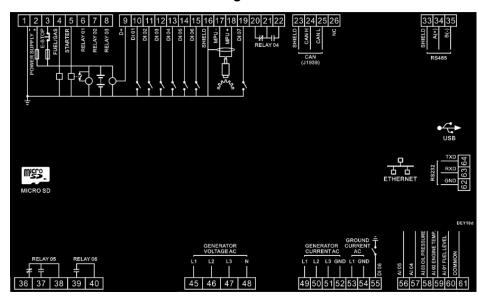
easYgen-400



easYgen-600



easYgen-800





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For more information contact:

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FEATURES OVERVIEW

Model			easYgen-100 Series			
Measuring	ERSYGEN 100	Model			easYgen-800	
Cementor current (3x frue r m.s.) Centrol	Measuring					
Generator current (2x frue r.m.s.)	Generator voltage (3-phase/4-wire)			./		
Social and Single unit operation Social and sin	Generator current (3x true r.m.s.)			v		
Solated single unit operation Stant Stup peration Stant Stup operation Stant Stup sequence for diesel and gas engines Diesel Diesel Diesel Diesel Diesel Stant Stup Stup Stup Stup Stup Stup Stup Stu	Earth current (1x true r.m.s.)		-	-	√	
Sland-by operation Slart/stop sequence for diseal and gas engines Diesel Diesel/Gas	Control					
Sland-by operation Slart/stop sequence for diseal and gas engines Diesel Diesel/Gas	Isolated single unit operation					
Diesel D	Stand-by operation		1	✓		
Tacilie buttons to start/stop the geneal and open/close the breaker Protection	GCB control		<u> </u>			
Tacilie buttons to start/stop the genset and open/close the breaker Protection	Start/stop sequence for diesel and gas engi	ines	Diesel	Diesel	Diesel/Gas	
Remote monitoring and control over SMS (modem support) -	Tactile buttons to start/stop the genset and					
Voltage		madem support)	 	1	./	
Voltage Frequency Loss of phase Phase sequence Current Reverse Power Overload		modern support)	-		V	
Frequency Loss of phase Phase sequence Current Reverse Power		Valtage				
Loss of phase Phase sequence Phase sequence Current Reverse Power Overfload Earth fault -	Generator		1			
Phase sequence Current						
Current Reverse Power Overload Earth fault -			I	,		
Reverse Power			I	√	•	
Coverload Earth fault -			I			
Earth fault			I			
Discrete inputs Discrete i				T	./	
Under speed Loss of speed Crank disconnect V	Facina		-		Y	
Loss of speed Crank disconnect	Lengine I		I			
Crank disconnect Battery voltage HMI, Counters, and Event Log			1	✓		
Battery voltage						
HMI, Counters, and Event Log Integral display with tactile buttons Monochrome LCD (132 x 64) Monochrome LCD (132 x 7 TFT LCD (480 x 272) 64) Customizable power-up text and image	Pottony voltage	CIAIIK GISCOIIIIEGE				
Integral display with tactile buttons				, 		
Customizable power-up text and image			Managhrama I CD (132 v 64)	Managhrama I CD (132 v	TET I OD / 480 v 272)	
Front panel configuration with PIN protection Flush mounting Operating hours/start/maintenance counters Fush mounting Operating hours/start/maintenance counters Foot panel configuration with PIN protection Flush mounting Operating hours/start/maintenance counters Foot panel configuration Flush mounting Operating hours/start/maintenance counters Foot panel counters Foot panel configuration Flush mounting Operating hours/start/maintenance counters Foot panel counter for panel counters Foot panel counter foot panel counters Flush mounting Operating hours/start/maintenance data log using SD card d			Monochrome LOD (132 x 04)	64)	1F1 LOD (400 x 2/2)	
Flush mounting	Customizable power-up text and image		✓	✓	✓	
Operating hours/start/maintenance counters ✓ <td></td> <td>n</td> <td></td> <td></td> <td></td>		n				
Special production with real time clock 50 50 99 internal; extended data log using SD card kWh, kvarh ✓/- ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	Flush mounting			· ·		
kWh, kvarh ✓/- ✓ ✓ Switchable parameter sets - - ✓ I/Os and Interfaces - - ✓ Discrete inputs 3 (+2 switchable as AI/DI) 1x E-Stop, 5x configurable 1x E-Stop, 8x configurable Relay outputs 1x Fuel (5A), 1x Start (5A), 4x configurable 1x Fuel (16 A), 1x Start (16 A), 4x configurable 1x Fuel (16 A), 4x configurable 1x Fuel (16 A), 4x configurable 1x Fuel (16 A), 6x configurable 5x (VDO, RTD, mA) Speed input (MPU) 1 2 1 1 1 </td <td></td> <td>S</td> <td>·</td> <td>· ·</td> <td>•</td>		S	·	· ·	•	
Switchable parameter sets - - ✓ I/Os and Interfaces Relay outputs 3 (+2 switchable as AI/DI) 1x E-Stop, 5x configurable configurable as (16 A), 1x Start					data log using SD card	
Vos and Interfaces Single						
Discrete inputs 3 (+2 switchable as AI/DI) 1x E-Stop, 5x configurable 1x Fuel (5A), 1x Start (5A), 4x configurable 1x Fuel (16 A), 1x Start (16 A), 4x configurable 1x Fuel (16 A), 1x Start (16 A), 4x configurable 1x Fuel (16 A), 1x Start (16 A), 4x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A), 6x configurable 1x Fuel (16 A), 1x Start (16 A),			-	-	✓	
Configurable Configurable Configurable	I/Os and Interfaces					
Relay outputs	Discrete inputs		3 (+2 switchable as AI/DI)		c '	
Analog inputs Ax resistive (2 switchable as AI/DI) Speed input (MPU) 1 1 1 1 Aux. excitation (D+) Ethernet (TCP/IP) CAN (J1939) 1 1 1 USB service port 1 1 1 RS485 - 1 1 External DI/DO via CAN bus External DI/DO via CAN bus Listings/Approvals CE Marked UL / cUL Listing EAC Part Numbers Control with connectors and fastening kit Ax resistive (2 switchable as AI/DI) 5x (VDO, RTD, mA) 1 1 1 1 1 1 1 1 1 1 1 1 1	Relay outputs			1x Fuel (16 A), 1x Start	1x Fuel (16 A), 1x Start	
Speed input (MPU) 1 1 1 Aux. excitation (D+) 1 1 1 Ethernet (TCP/IP) - - 1 CAN (J1939) 1 1 1 USB service port 1 1 1 RS485 - 1 1 RS232 - - 1 External DI/DO via CAN bus - -/- 16 / 16 Micro SD card slot - - 1 Listings/Approvals - - 1 CE Marked ✓ UL / cUL Listing Pending EAC Part Numbers Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-004-675 10-004-675	Analog inputs		4x resistive (2 switchable as	` ''	, ,	
Aux. excitation (D+) 1	Speed input (MPU)		1	1	1	
Ethernet (TCP/IP) 1 CAN (J1939) 1 1 1 1 USB service port 1 1 1 RS485 - 1 1 1 RS232 1 External DI/DO via CAN bus 1 External DI/DO via CAN bus 1 Listings/Approvals CE Marked ✓ UL / cUL Listing EAC Part Numbers Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675	Aux. excitation (D+)		1	1	1	
USB service port 1 1 1 RS485 1 1 RS232 1 External DI/DO via CAN bus 16 / 16 Micro SD card slot 1 Listings/Approvals CE Marked UL / cUL Listing EAC Part Numbers Control with connectors and fastening kit Spare connector kit 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ethernet (TCP/IP)		-	-	1	
USB service port 1 1 1 RS485 1 1 RS232 1 External DI/DO via CAN bus 16 / 16 Micro SD card slot 1 Listings/Approvals CE Marked UL / cUL Listing EAC Part Numbers Control with connectors and fastening kit Spare connector kit 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	CAN (J1939)		1	_ 1	_1	
RS232	USB service port		1	1	1	
External DI/DO via CAN bus	RS485		-	1	1	
Micro SD card slot - 1 Listings/Approvals ✓ CE Marked ✓ UL / cUL Listing Pending EAC Part Numbers Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675	RS232		-	-	1	
Listings/Approvals CE Marked ✓ UL / cUL Listing Pending EAC Part Numbers Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675	External DI/DO via CAN bus		-	-/-	16 / 16	
CE Marked ✓ UL / cUL Listing Pending EAC Pending Part Numbers Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675	Micro SD card slot		-	-	1	
UL / cUL Listing Pending EAC Part Numbers Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675	Listings/Approvals					
EAC Pending Part Numbers Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675	CE Marked			✓		
Part Numbers 8440-2231 8440-2229 8440-3003 Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675			Pending			
Control with connectors and fastening kit 8440-2231 8440-2229 8440-3003 Spare connector kit 10-009-352 10-004-674 10-004-675						
Spare connector kit 10-009-352 10-004-674 10-004-675			8440-2231	8440-2229	8440-3003	
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RELATED PRODUCTS

- Configuration tool ToolKit-SC (Product Specification # 37695)
- I/O Expansion Board IKD1 (Product Specification # 37171): P/N 8440-2116
- Small Engine Control Module **SECM-70** (Product Specification # 36363)