



دولة فلسطين  
وزارة التربية والتعليم العالي  
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البيانات الشخصية للمعلم

(IUL)283-BF/283/2021/69	الرقم الشخصي: م.س:	البيانات الشخصية للمعلم	الرقم الوظيفي للمعلم:
19 أغسطس 2021	الرقم الوظيفي: م.س:	07 أغسطس 2021	البيانات الشخصية للمعلم:

بيانات المعلم

م.س:	م.س:
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بيانات المدرسة

رقم	م.س	م.س	رقم	#
			05	

2. بيانات المعلم : ..... رقم

أشكر الله على ما آتاهني من فضله، وأسأل الله العلي العظيم أن يوفقني في كل ما أقوم به، وأن يجمع بيني وبين والدي وأهلي في الجنة، آمين.

م.س: ..... م.س: ..... م.س: ..... م.س: .....

بيانات المعلم



م.س: ..... م.س: ..... م.س: ..... م.س: .....





المركز البحثي للدراسات والبحوث (IUL)283-BF/283/2021/69 من ٤١٤٤هـ الموافق ٢٠٢١م

العدد ٤١٤٤هـ الموافق ٢٠٢١م: تاريخ النشر

٤١٤٤هـ الموافق ٢٠٢١م: تاريخ النشر

1. 80% دقة في تحديد نتائج الامتحان

2. 10% نسبة من نتائج الامتحان

3. 05% دقة في تحديد نتائج الامتحان

4. 05% دقة في تحديد نتائج الامتحان

1. نسبة من نتائج الامتحان

دقة في تحديد نتائج الامتحان 80% دقة في تحديد نتائج الامتحان

$$\text{دقة في تحديد نتائج الامتحان} = \frac{\text{عدد الإجابات الصحيحة}}{\text{إجمالي عدد الأسئلة}} \times 80$$

Hit Enter \*80

2. دقة في تحديد نتائج الامتحان

دقة في تحديد نتائج الامتحان 10% دقة في تحديد نتائج الامتحان

$$\text{دقة في تحديد نتائج الامتحان} = \frac{\text{عدد الإجابات الصحيحة}}{\text{إجمالي عدد الأسئلة}} \times 10$$

Hit Enter \*10

3. دقة في تحديد نتائج الامتحان

دقة في تحديد نتائج الامتحان 05% دقة في تحديد نتائج الامتحان

$$\text{دقة في تحديد نتائج الامتحان} = \frac{\text{عدد الإجابات الصحيحة}}{\text{إجمالي عدد الأسئلة}} \times 05$$

Hit Enter \*5

4. دقة في تحديد نتائج الامتحان

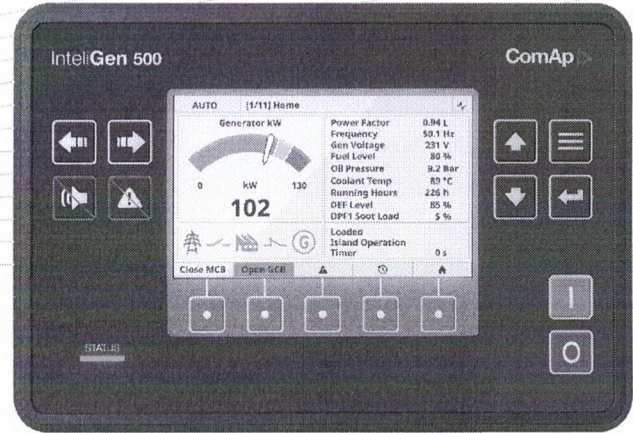
دقة في تحديد نتائج الامتحان 05% دقة في تحديد نتائج الامتحان

$$\text{دقة في تحديد نتائج الامتحان} = \frac{\text{عدد الإجابات الصحيحة}}{\text{إجمالي عدد الأسئلة}} \times 05$$

Hit Enter \*5



# InteliGen 500



Order code: IG3500XXBAA

## Parallel gen-set controller

# Datasheet

## Product description

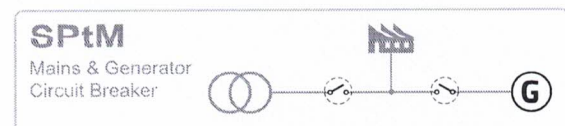
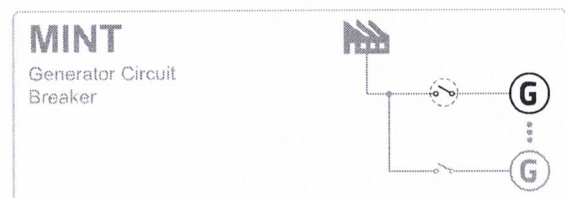
- ▶ Comprehensive paralleling gen-set controller
- ▶ Parallel operation for up to 32 gen-sets
- ▶ Direct communication with ECU
- ▶ Remote control and monitoring
- ▶ Flexible, extendable, yet user friendly

## Key features

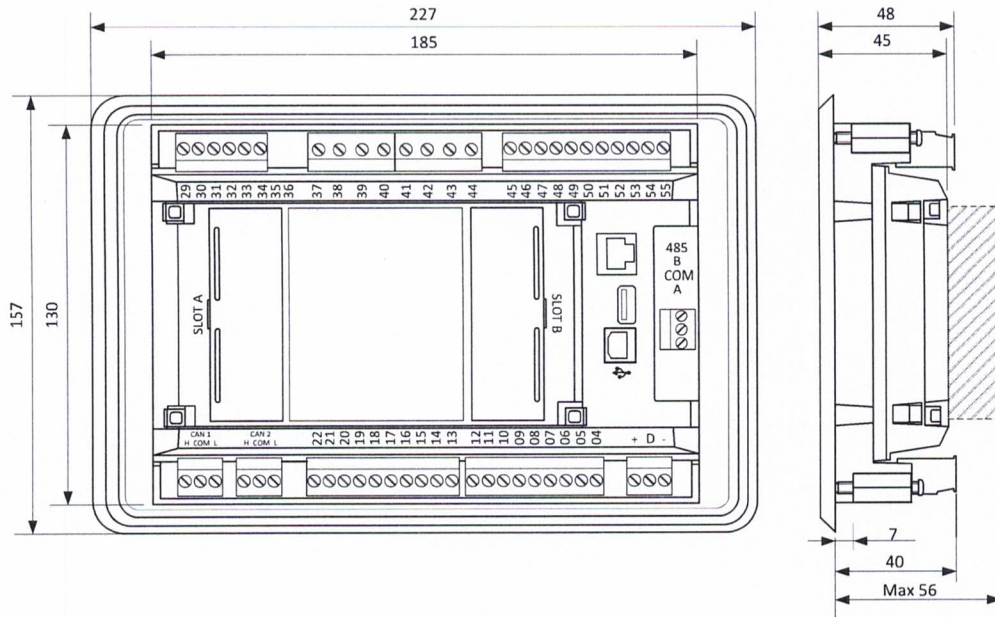
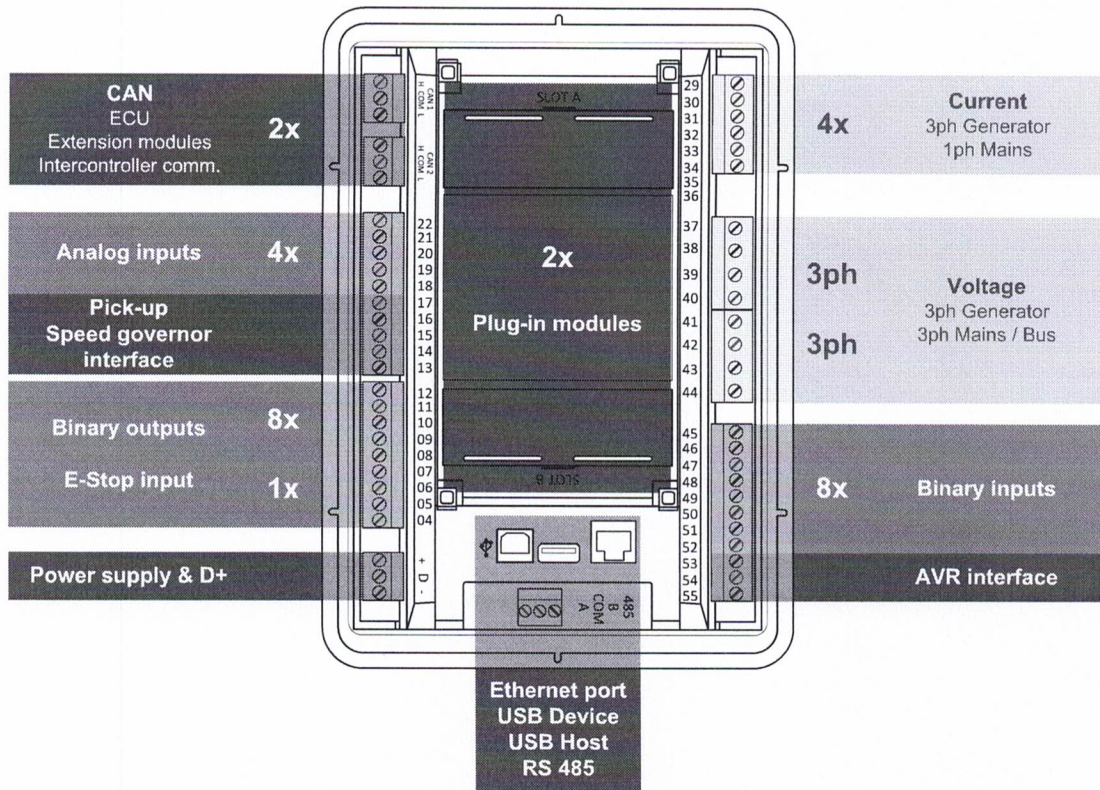
- ▶ Multiple Island or Single Parallel to Mains applications both in one controller
- ▶ PLC support with PLC editor and monitor
- ▶ Perfect solution for rental applications:
  - Rental timers
  - Geofencing and tracking via WebSupervisor
  - Alternative configuration
  - Droop and Emergency droop
- ▶ Load sharing and VAr sharing via CAN
- ▶ Wide communication capabilities including
  - Integrated USB for configuration
  - Isolated RS485 port on board for MODBUS
  - Integrated USB Host for uploading/downloading FW/Configuration with USB key
  - Integrated Ethernet port
- ▶ High accuracy of voltage and current measurement

- ▶ Cloud-based monitoring and control
- ▶ Active SMS and emails in different languages
- ▶ Up to 5 languages in the controller
- ▶ Configurable MODBUS (User MODBUS)
- ▶ Support of MODBUS RTU/TCP or SNMP v1/v2c
- ▶ Detailed history with up to 500 events
- ▶ Load shedding, dummy load capability
- ▶ Tier 4 Final support
- ▶ Automatic temperature based cooling/heating
- ▶ Comprehensive gen-set protections
- ▶ Multipurpose flexible timers with full calendar
- ▶ True RMS measurement

## Application overview



## Dimensions, terminals and mounting



**Note:** The final depth of the controller depends on the selected extension module - it can vary between 41 and 56 mm. Mind also a size of connector and cables (e.g. in case of RS232 connector add about another 60 mm for standard RS232 connector and cable).

## Technical data

### Power supply

Power supply range	8-36 V DC
Power consumption (without modules)	6 W
RTC battery	Replaceable
Fusing power	5 A / 6 × 0.5 A BO/UT
Fusing ESTOP	1.2 A
Max. Heat Dissipation	8 W

### D+

Max. excitation current	250 mA
Charging fail threshold	80 % of U <sub>supply</sub>

### Operating conditions

Operating temperature	-20 °C to +70 °C
Storage temperature	-30 °C to +80 °C
Operating humidity (norm 60068-2-30)	95 % w/o condensation
Protection degree (front p.)	IP 65
Vibration	5-25 Hz, ±1,6 mm 25-100 Hz, a = 4 g
Shocks	a = 500 m/s <sup>2</sup>
Surrounding air temperature rating 70 °C.	
Suitable for pollution degree 2.	

### Voltage measurement

Measurement inputs	3ph-n Gen voltage 3ph-n Mains voltage
Measurement range	277 V
Max. allowed voltage	350 V
Accuracy	1 %
Frequency range	40-70 Hz (accuracy 0.1 Hz)
Input impedance	0.72 MΩ ph-ph; 0.36 MΩ ph-n

### Current measurement

Measurement inputs	3ph Gen current 1ph Mains current
Measurement range	5 A
Max. allowed current	10 A
Accuracy	±20 mA for 0-2 A 1% of value for 2-5 A
Input impedance	< 0.1 Ω

### Display

Type	Build-in colour TFT 5"
Resolution	800 × 480 px

### E-Stop

Dedicated terminal for safe Emergency Stop input.
Physically disconnects BO 1 & BO 2 from power supply.

### Binary inputs

Number	8 non-isolated
Close/Open indication	0-2 V DC close contact 6-36 V DC open contact

### Binary outputs

Number	8 non-isolated
Max. current	BO 1-8 = 0.5 A
Switching to	Positive supply terminal

### Analog inputs

Number	4 switchable (R/U/I)
Range	R = 0-2500 Ω; U = 0-10 V; I = 0-20 mA
Accuracy	R: ±2 % from value ±5 Ω for 0-250 Ω R: ±4% from value for 250 Ω - 2500 Ω U: 1% from value ±100 mV I: 1% from value ±0.2 mA

### Voltage regulator output

Protection	Isolated
Type	Max ±10 V DC

### Speed governor output

Output type	±10 V DC or 5 V PWM
Protection	Non-isolated

### Magnetic pick-up

Minimum input voltage	4 V pk-pk to 50 V pk-pk in range 4 Hz to 1 kHz
Working voltage range	6 V pk-pk to 50 V pk-pk in range 4 Hz to 5 kHz 10 V pk-pk to 50 V pk-pk in range 4 Hz to 10 kHz
Frequency input range	4 Hz to 10 kHz
Frequency measurement tolerance	0.2 % from range 10 kHz

### Communications

USB device	Non-isolated type B connector
USB host	Non-isolated type A connector
RS 485	Isolated
Ethernet	10/100 Mbit
CAN 1 + CAN 2	Isolated, 250 / 50 kbps nominal impedance 120 Ω

## Available extension plug-in modules

Product	Description	Order code
CM-4G-GPS	GSM modem / 4G wireless internet and GPS locator	CM14GGPSXBX
CM-GPRS	GSM modem / GPRS wireless internet	CM2GPRSXXBX
CM-RS232-485	Dual port interface	CM223248XBX
EM-BIO8-EFCP	8 additional binary inputs/outputs; current measurement	EM2BIO8EXBX

**Note:** Up to 2 plug-in modules can be connected at the same time.

## Available extension CAN modules

Product	Description	Order code
Inteli AIN8	8 Analog Input Channels and 1 RPM/Impulse Input Module	I-AIN8
Inteli AIN8TC	8 Analog Input Channels for termocouples measurement	I-AIN8TC
Inteli IO8/8	16 Configurable Binary Inputs/Outputs and Analog Outputs Module	I-IO8/8
IGL-RA15	Remote Annunciator w/ 15 programmable LEDs	EM2IGLRABAA
IGS-PTM	Up to 12 additional Analog/Binary Input/Output Module	IGS-PTM

**Note:** Up to 5 CAN modules can be connected at the same time.

## Functions and protections

The described product fully supports the following functions and protections as defined by ANSI (American National Standards Institute):

Description	ANSI code	Description	ANSI code
Synchronism check	25	Earth fault current	50N + 64
Under voltage	27	Overcurrent (IDMT)	51
Overload	32	Power factor	55
Load shedding	32P	Over voltage	59
Reserve power	32R	Gas (fuel) level	71
Excitation loss	40	Vector shift	78
Current unbalance	46	Over frequency	81H
Voltage asymmetry and Phase rotation	47	Under frequency	81L
Temperature	49T	ROCOF	81R
Generator overcurrent	50		

- ▶ EN 61000-6-2
- ▶ EN 61000-6-4
- ▶ EN 61010-1
- ▶ EN 60068-2-1 (-20 °C/16 h for std version)
- ▶ EN 60068-2-2 (70 °C/16 h)
- ▶ EN 60068-2-6 (2+25 Hz / ±1,6 mm; 25+100 Hz / 4,0 g)
- ▶ EN 60068-2-27 (a=500 m/s<sup>2</sup>; T=6 ms)
- ▶ EN 60068-2-30:2005 25/55°C, RH 95%, 48hours
- ▶ EN 60529 (front panel IP65, back side IP20)

