


# TRANS-MINIAUTO++
AUTOMATIC START UNIT

## 1.Introduction

## 1.1 General Specifications

The unit provides automatic start and stop the engine and protect the generator system. Both automatic and manual control is possible. A test mode is also available which allows the generator to be run for checking the generator system.

The unit calculates engine RPM from Magnetic Pickup sensor input (Trans-MiniAUTO++.MPU devices only) and/or generator voltage signal. At Trans-MiniAUTO++.CAN devices, unit gets engine RPM information from J1939 ECU and/or generator voltage signal.

The unit monitors J1939 ECU messages and provides remote start/stop control via J1939 protocol at only Trans-MiniAUTO++.CAN devices.

The unit is extensively programmable through the front panel, with password protection on two levels. Operational parameters can also be monitored and controlled from a PC via a built-in RS-232 communication port.

In the event that the engine fails to start on the first attempt, the attempt will be repeated a programmed number of times or until successful.

The unit monitors generator operation and gives warning of any faults that are detected.
If a fault is detected, the unit shuts down the engine and shows the failure message on the LCD display.

The unit has Remote Start input for remote control of the engine.

## 1.2 Warranty

EMKO Elektronik warrants that the equipment delivered is free from defects in material and workmanship. This warranty is provided for a period of two years. The warranty period starts from the delivery date. This warranty is in force if duty and responsibilities which are determined in warranty document and instruction manual performs by the customer completely.

## 1.3 Maintenance

Repairs should only be performed by trained and specialized personnel. Cut power to the device before accessing internal parts.
Do not clean the case with hydrocarbon-based solvents (Petrol, Trichlorethylene etc.). Use of these solvents can reduce the mechanical reliability of the device. Use a cloth dampened in ethyl alcohol or water to clean the external plastic case.

## 2. Installation

**Before beginning installation of this product, please read the instruction manual and warnings below carefully.**

A visual inspection of this product for possible damage occured during shipment is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product.

If there is danger of serious accident resulting from a failure or defect in this unit , power off the system and seperate the electrical connection of the device from the system.

Keep the power off until all of the wiring is completed so that electric shock and trouble with the unit can be prevented.

## 2.1 Unit Configuration

The unit can be programmed using the buttons and LCD display on the front panel or PC Software.

## 2.2 Panel Mounting

The unit is designed for panel mounting. Fixing is by two screw fixings.
**1-** Insert the unit in the panel cut-out from the front.
**2-** Insert the fixings in the slotted at the corners of the unit and tighten the fixing screws to secure the unit against the panel.

**During the equipment is putted in hole on the metal panel while mechanical installation some metal burrs can cause injury on hands, you must be careful.**

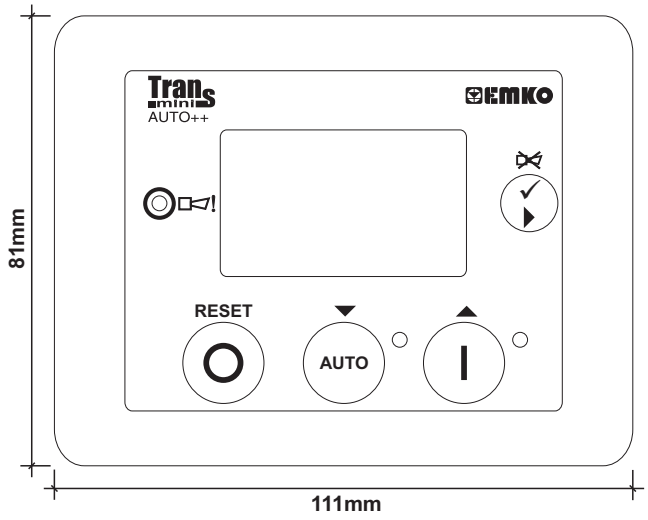



Figure 2.1 Front View

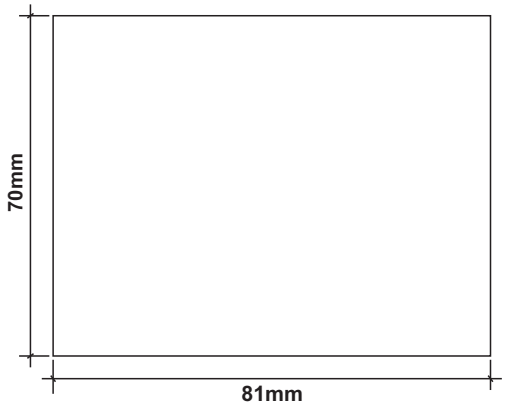
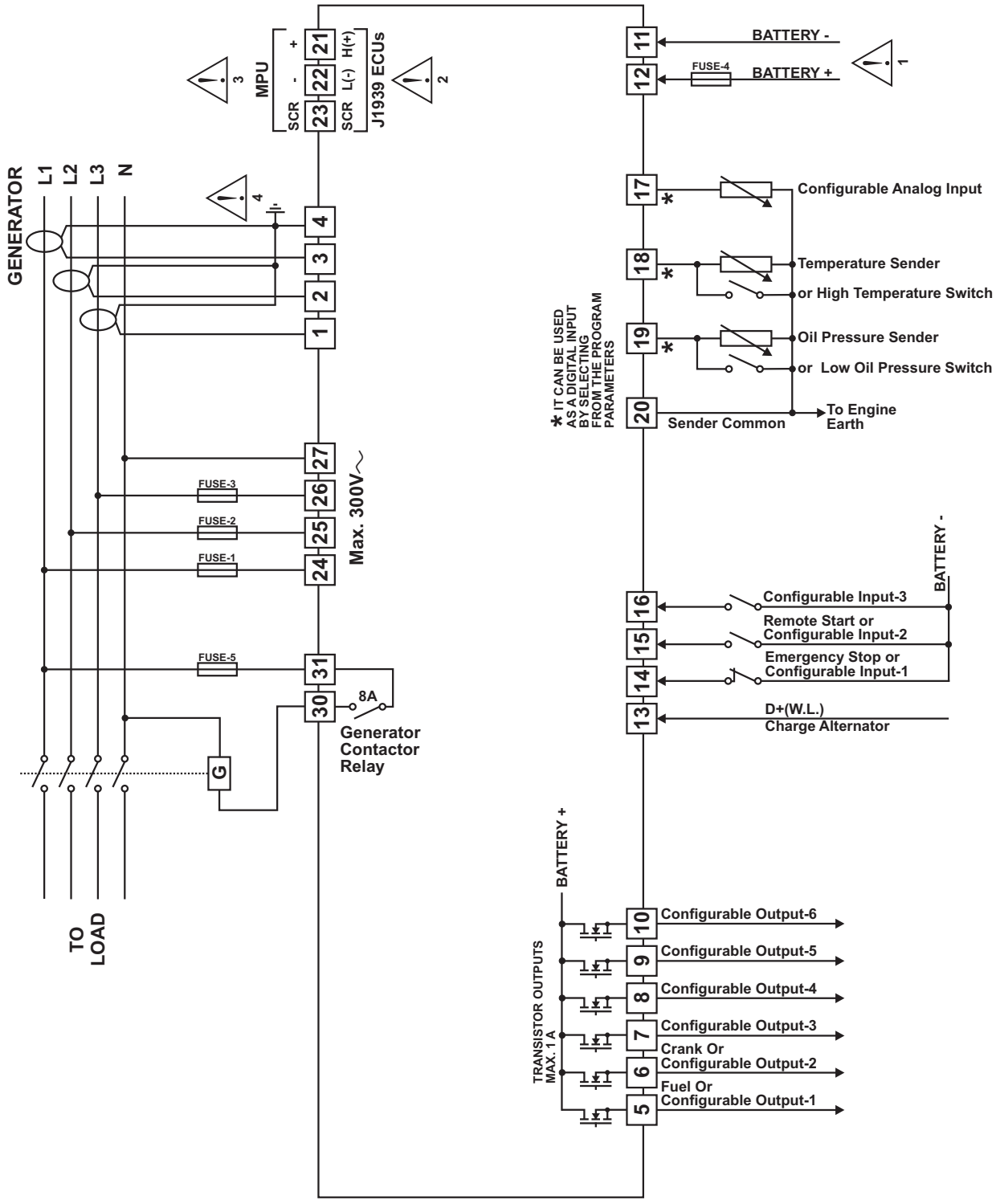



Figure 2.2 Panel Cut-Out

## 2.3 Electrical Connection

TRANS-MINIAUTO++ three phase connections schematic




FUSE-1, FUSE-2, FUSE-3 2A. T
FUSE-4 7A. T
FUSE-5 8A. T

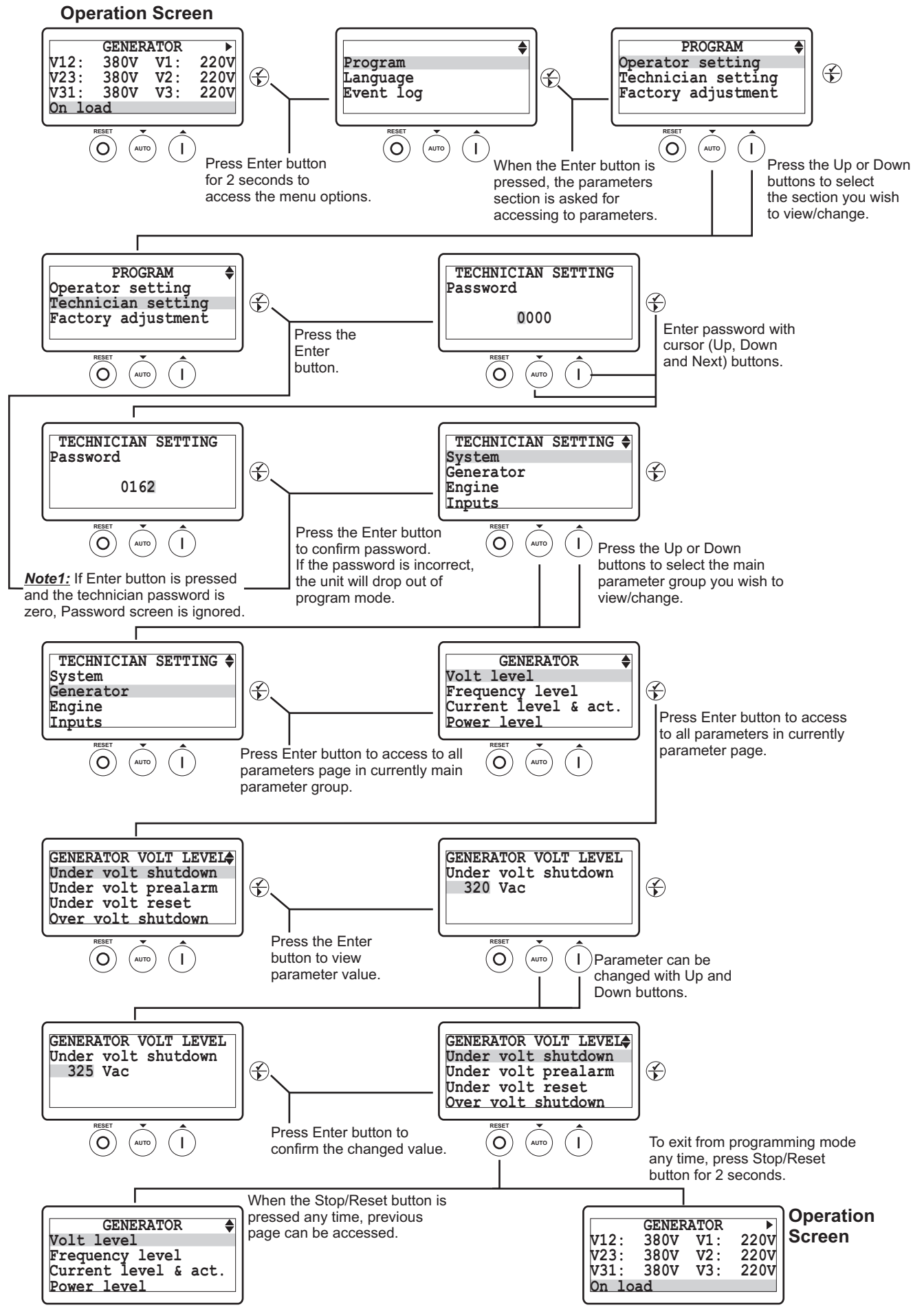
1- Connect the unit as shown in the appropriate diagram. Be sure to connect the battery supply the right way round and battery negative should be grounded.

2- The CAN interface requires that a 120 Ohms terminator is fitted to each end of the communications link. This termination resistor is fitted internally into the unit. So it is not required externally. The screen is grounded at one end ONLY.

3- Screened cable must be used for connecting the Magnetic Pickup, ensuring that the screen is grounded at one end ONLY.

4- Current transformers secondary should be grounded.

# 3. Changing And Saving Parameters Values



# 4. Parameters

## 4.1 Operator Parameters

### 4.1.1 Generator

| GENERATOR VOLT LEVEL (*Generator->Volt level*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Under volt shutdown** | Generator Under Voltage Shutdown | 60(dis) | 600 | 320 | V~ |
| **Under volt prealarm** | Generator Under Voltage Pre-Alarm | 60(dis) | 600 | 340 | V~ |
| **Under volt reset** | Generator Under Voltage Pre-Alarm Reset | 60 | 600 | 350 | V~ |
| **Over volt shutdown** | Generator Over Voltage Shutdown | 60 | 600 | 440 | V~ |
| **Over volt prealarm** | Generator Over Voltage Pre-Alarm | 60(dis) | 600 | 420 | V~ |
| **Over volt reset** | Generator Over Voltage Pre-Alarm Reset | 60 | 600 | 400 | V~ |
| **Shutdown delay time** | Generator Voltage Shutdown Delay Time | 0.0 | 10.0 | 1.0 | Sec |

| GENERATOR FREQ LEVEL (*Generator->Frequency level*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Nominal frequency** | Nominal Alternator Frequency | 30.0 | 75.0 | 50.0 | Hz |
| **Under freq shutdown** | Generator Under Frequency Shutdown | 30.0(dis) | 75.0 | 43.0 | Hz |
| **Under freq prealarm** | Generator Under Frequency Pre-Alarm | 30.0(dis) | 75.0 | 45.0 | Hz |
| **Under freq reset** | Generator Under Frequency Pre-Alarm Reset | 30.0 | 75.0 | 46.0 | Hz |
| **Over freq shutdown** | Generator Over Frequency Shutdown | 30.0(dis) | 75.0 | 58.0 | Hz |
| **Over freq prealarm** | Generator Over Frequency Pre-Alarm | 30.0(dis) | 75.0 | 55.0 | Hz |
| **Over freq reset** | Generator Over Frequency Pre-Alarm Reset | 30.0 | 75.0 | 54.0 | Hz |
| **Shutdown delay time** | Generator Frequency Shutdown Delay Time | 0.0 | 10.0 | 1.0 | Sec |

| GENERATOR CUR LEVEL (*Generator->Current level*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Under cur. set** | Generator Under Current Set | 0 | 9999 | 1 | A~ |
| **Under cur. prealarm** | Generator Under Current Pre-Alarm | 0(dis) | 9999 | dis | A~ |
| **Under cur. reset** | Generator Under Current Pre-Alarm Reset | 0 | 9999 | 5 | A~ |
| **Over cur. set** | Generator Over Current Set | 0 | 9999 | 9999 | A~ |
| **Over cur. prealarm** | Generator Over Current Pre-Alarm | 0(dis) | 9999 | 9990 | A~ |
| **Over cur. reset** | Generator Over Current Pre-Alarm Reset | 0 | 9999 | 9980 | A~ |

| GEN POWER LEVEL (*Generator->Power level*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Under power shutdown** | Generator Under Power Shutdown | 0(dis) | 9999 | dis | kVA |
| **Under power prealarm** | Generator Under Power Pre-Alarm | 0(dis) | 9999 | dis | kVA |
| **Under power reset** | Generator Under Power Pre-Alarm Reset | 0 | 9999 | 5 | kVA |
| **Over power shutdown** | Generator Over Power Shutdown | 0(dis) | 9999 | dis | kVA |
| **Over power prealarm** | Generator Over Power Pre-Alarm | 0(dis) | 9999 | dis | kVA |
| **Over power reset** | Generator Over Power Pre-Alarm Reset | 0 | 9999 | 0 | kVA |
| **Shutdown delay time** | Generator Power Shutdown Delay Time | 0 | 99 | 2 | Sec |
| **Reverse power set** | Reverse Power Set | -9999 | 0 | 0 | kW |

**Note:** dis = disable

## 4.2 Technician Parameters

### 4.2.1 System

| SYSTEM NETWORK (*System->Network*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **CT ratio** | Current Transformer Ratio | 5 | 9999 | 100 | |
| **PT ratio** | Voltage Transformer Ratio | 1 | 50 | 1 | |
| **Type of AC system** | Select AC system; 0- 1 Phase 2 Wire<br>1- 3 Phase 4 Wire<br>2- 2 Phase 3 Wire L1-L2<br>3- 2 Phase 3 Wire L1-L3 | 0 | 3 | 1 | |
| **Generator kVA rating** | Generator kVA rating set | 0 | 9999 | 300 | kVA |

| BREAKERS (*System->Breakers*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Type of Breaker** | Hardware Breaker Selection | 0(dis) | 3 | 1 | |
| **Gen.brk.cls.contact** | Gen Close Breaker Contact Type | NO / NC | | 0 | |
| **Gen.brk.cls.relay** | Gen Close Breaker Relay Type | NOR / PULS | | 0 | |
| **Gen.brk.cls.time** | Gen Close Timer | 1 | 250 | 5 | Sec |
| **Gen.brk.open relay** | Gen Open Breaker Relay Type | NOR / PULS | | 0 | |
| **Gen.brk.open time** | Gen Open Timer | 1 | 250 | 5 | Sec |
| **Break.close puls.time** | Breaker Close Pulse Time | 0.0 | 10.0 | 0.5 | Sec |
| **Break.open pulse time** | Breaker Open Pulse Time | 0.0 | 10.0 | 0.5 | Sec |
| **Transfer time** | Transfer Time | 0 | 250 | 2 | Sec |
| **Spring loading time** | Spring Loading Time | 1 | 250 | 3 | Sec |
| **Retry number** | Retry Number | 1 | 250 | 5 | |

| LCD DISPLAY (*System->LCD display*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Language*1** | Language Selection | ENGLISH/CHINESE | | ENGLISH | |
| **Contrast** | Digital Contrast | 4 | 9 | 5 | |
| **Auto scroll time** | Auto Scroll Time | 0 (dis) | 250 | 0 | Sec |
| **Auto scroll number*2** | Auto Scroll Number | 1 | 14 | 3 | |
| **Err. mesg scroll time** | Scroll Time For Error Messages | 1 | 250 | 2 | Sec |

| COMMUNICATION (*System->Communication*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Slave address** | Slave Address | 1 | 247 | 1 | |
| **Baud rate** | Baud Rate<br>0 - 1200 baud<br>1 - 2400 baud<br>2 - 4800 baud<br>3 - 9600 baud<br>4 - 19200 baud<br>5 - 38400 baud | 0 | 5 | 3 | |
| **Parity** | Parity<br>0 - NONE<br>1 - ODD<br>2 - EVEN | 0 | 2 | 0 | |
| **Stop bit** | Stop Bit (0-> 1 stop bit,1-> 2 stop bit) | 0 | 1 | 0 | |

**Note:** *1 = Selectable value of this parameter is “ENGLISH/TURKISH” at Trans-MiniAUTO++.XXX (TR) devices.
*2 = Max. value of this parameter is equal to 20 at Trans-MiniAUTO++.CAN devices
NO / NC : Normally Open / Normally Close
NOR / PULS : Normal / Pulse
dis = disable

| DATE & TIME SET (*System->Date & time set*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **RTC** | Real time clock enable/disable | ENABL/DISBL | | ENABL | |
| **Year** | Year | 0 | 99 | | |
| **Month** | Month | 1 | 12 | | |
| **Day** | Date | 1 | 31 | | |
| **Week** | Day of week | 1 | 7 | | |
| **Hour** | Hour | 0 | 23 | | |
| **Minute** | Minute | 0 | 59 | | |
| **Second** | Second | 0 | 59 | | |

| DEFAULT SETTINGS (*System->Default settings*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Save setting to def.** | Save setting to default | YES / NO | | NO | |
| **Reset default sets** | Reset default sets | YES / NO | | NO | |
| **Reset factory sets** | Reset factory sets | YES / NO | | NO | |

| PASSWORD SETTINGS (*System->Password settings*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Operator password** | Operator Password | 0 | 9999 | 0 | |
| **Technician password** | Technician Password | 0 | 9999 | 0 | |

## 4.2.2 Generator

| GENERATOR VOLT LEVEL (*Generator->Volt level*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Under volt shutdown** | Generator Under Voltage Shutdown | 60(dis) | 600 | 320 | V~ |
| **Under volt prealarm** | Generator Under Voltage Pre-Alarm | 60(dis) | 600 | 340 | V~ |
| **Under volt reset** | Generator Under Voltage Pre-Alarm Reset | 60 | 600 | 350 | V~ |
| **Over volt shutdown** | Generator Over Voltage Shutdown | 60 | 600 | 440 | V~ |
| **Over volt prealarm** | Generator Over Voltage Pre-Alarm | 60(dis) | 600 | 420 | V~ |
| **Over volt reset** | Generator Over Voltage Pre-Alarm Reset | 60 | 600 | 400 | V~ |
| **Shutdown delay time** | Generator Voltage Shutdown Delay Time | 0.0 | 10.0 | 1.0 | Sec |

| GENERATOR FREQ LEVEL (*Generator->Frequency level*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Nominal frequency** | Nominal Alternator Frequency | 30.0 | 75.0 | 50.0 | Hz |
| **Under freq shutdown** | Generator Under Frequency Shutdown | 30.0(dis) | 75.0 | 43.0 | Hz |
| **Under freq prealarm** | Generator Under Frequency Pre-Alarm | 30.0(dis) | 75.0 | 45.0 | Hz |
| **Under freq reset** | Generator Under Frequency Pre-Alarm Reset | 30.0 | 75.0 | 46.0 | Hz |
| **Over freq shutdown** | Generator Over Frequency Shutdown | 30.0(dis) | 75.0 | 58.0 | Hz |
| **Over freq prealarm** | Generator Over Frequency Pre-Alarm | 30.0(dis) | 75.0 | 55.0 | Hz |
| **Over freq reset** | Generator Over Frequency Pre-Alarm Reset | 30.0 | 75.0 | 54.0 | Hz |
| **Shutdown delay time** | Generator Frequency Shutdown Delay Time | 0.0 | 10.0 | 1.0 | Sec |

**Note:** dis = disable

| GEN CUR LEVEL & ACT (*Generator->Current level & act.*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Under cur. set** | Generator Under Current Set | 0 | 9999 | 1 | A~ |
| **Under cur. prealarm** | Generator Under Current Pre-Alarm | 0(dis) | 9999 | dis | A~ |
| **Under cur. reset** | Generator Under Current Pre-Alarm Reset | 0 | 9999 | 5 | A~ |
| **Under cur. act.** | Generator Under Current Actions<br>0 - Disable<br>1 - Warning (Alarm Only, No Shutdown)<br>2 - Electrical Trip (Alarm/Off Load Generator Followed By Shutdown After Cooling)<br>3 - Shutdown (Alarm And Shutdown) | 0(dis) | 3 | dis | |
| **Under act. delay time** | Generator Under Current Actions Delay Time | 0 | 99 | 2 | Sec |
| **Over cur. set** | Generator Over Current Set | 0 | 9999 | 9999 | A~ |
| **Over cur. prealarm** | Generator Over Current Pre-Alarm | 0(dis) | 9999 | 9990 | A~ |
| **Over cur. reset** | Generator Over Current Pre-Alarm Reset | 0 | 9999 | 9980 | A~ |
| **Over cur. act.** | Generator Over Current Actions<br>0 - Disable<br>1 - Warning (Alarm Only, No Shutdown)<br>2 - Electrical Trip (Alarm/Off Load Generator Followed By Shutdown After Cooling)<br>3 - Shutdown (Alarm And Shutdown) | 0(dis) | 3 | dis | |
| **Over act. delay time** | Generator Over Current Actions Delay Time | 0 | 99 | 2 | Sec |
| **Short circuit cur.** | Generator Short Circuit Current Set | 0 | 9999 | 9999 | A~ |

| GEN POWER LEVEL (*Generator->Power level*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Under power shutdown** | Generator Under Power Shutdown | 0(dis) | 9999 | dis | kVA |
| **Under power prealarm** | Generator Under Power Pre-Alarm | 0(dis) | 9999 | dis | kVA |
| **Under power reset** | Generator Under Power Pre-Alarm Reset | 0 | 9999 | 5 | kVA |
| **Over power shutdown** | Generator Over Power Shutdown | 0(dis) | 9999 | dis | kVA |
| **Over power prealarm** | Generator Over Power Pre-Alarm | 0(dis) | 9999 | dis | kVA |
| **Over power reset** | Generator Over Power Pre-Alarm Reset | 0 | 9999 | 0 | kVA |
| **Shutdown delay time** | Generator Power Shutdown Delay Time | 0 | 99 | 2 | Sec |
| **Reverse power set** | Reverse Power Set | -9999 | 0 | 0 | kW |
| **Reverse power act.** | Reverse Power Actions<br>0 - Disable<br>1 - Warning (Alarm Only, No Shutdown)<br>2 - Electrical Trip (Alarm/Off Load Generator Followed By Shutdown After Cooling)<br>3 - Shutdown (Alarm And Shutdown) | 0(dis) | 3 | 0(dis) | |
| **Rv.pow.act.delay time** | Reverse Power Action Delay Time | 0 | 99 | 2 | Sec |

| GENERATOR GENERAL (*Generator->General*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Sens.option gen.freq** | Sensing Options Generator Frq En/Dis | ENABL/DISBL | | ENABL | |
| **Sens.opt.pickup&flywh*[3]** | Sensing Opt Pickup En/Dis & Flywheel | 0(dis) | 1000 | DISBL | |
| **All warning are latch** | All Warnings Are Latched En/Dis | ENABL/DISBL | | DISBL | |

**Note:** *[3] = This parameter is only available at Trans-MiniAUTO++.MPU
dis = disable

## 4.2.3 Engine

| ENGINE START OPTIONS (*Engine->Starting options*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Horn prior start** | Audible Alarm Prior To Starting En/Dis | ENABL/DISBL | | DISBL | |
| **No. of crank attemp** | Number Of Start Attempts | 1 | 10 | 3 | |
| **Cranking time** | Cranking Time | 1 | 99 | 5 | Sec |
| **Crank rest time** | Crank Rest Time | 5 | 99 | 10 | Sec |
| **Pickup fail delay*4** | Pickup Sensor Fail Delay(Pickup) | 0.1 | 10.0 | 3.0 | Sec |

| ENG. CRANK DISCONNECT (*Engine->Crank disconnect*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Generator frequency** | Crank Disconnect On Gen. Frequency | 25.0 | 75.0 | 30.0 | Hz |
| **Engine speed** | Crank Disconnect On Engine RPM | 500 | 6000 | 500 | RPM |
| **Generator volt** | Crank Disconnect On Gen. Voltage | 60 (dis) | 600 | 300 | V~ |
| **Alt. Charge volt** | Crank Disconnect On Charge Alt. Voltage | 6.0 (dis) | 30.0 | dis | V⎓ |
| **Oil pressure** | Crank Disconnect On Oil Pressure | 1.0 (dis) | 30.0 | dis | BAR |

| ENGINE SPEED SETS (*Engine->Speed settings*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Nominal speed** | Nominal Speed | 500 | 5000 | 1500 | RPM |
| **Under speed shutdown** | Engine Under Speed Shutdown | 500(dis) | 5000 | dis | RPM |
| **Under speed prealarm** | Engine Under Speed Prealarm | 500(dis) | 5000 | dis | RPM |
| **Under speed reset** | Engine Under Speed Prealarm Reset | 500 | 5000 | 500 | RPM |
| **Over speed shutdown** | Engine Over Speed Shutdown | 500(dis) | 5000 | dis | RPM |
| **Over speed prealarm** | Engine Over Speed Prealarm | 500(dis) | 5000 | dis | RPM |
| **Over speed reset** | Engine Over Speed Prealarm Reset | 500 | 5000 | 500 | RPM |
| **Shutdown delay time** | Engine Speed Shutdown Delay Time | 0.0 | 10.0 | 1.0 | Sec |

| ENGINE PLANT BATTERY (*Engine->Plant battery*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Under volt** | Battery Undervolts Warning | 6.0(dis) | 30.0 | 10.0 | V⎓ |
| **Under volt reset** | Battery Undervolts Warning Reset | 6.0 | 30.0 | 10.5 | V⎓ |
| **Under volt delay** | Battery Undervolts Volts Delay | 0.0 | 9.9 | 1.0 | Sec |
| **Over volt** | Battery Overvolts Warning | 6.0(dis) | 30.0 | 30.0 | V⎓ |
| **Over volt reset** | Battery Overvolts Warning Reset | 6.0 | 30.0 | 29.5 | V⎓ |
| **Over volt delay** | Battery Overvolts Delay | 0.0 | 9.9 | 1.0 | Sec |
| **Alt. chg. warning** | Charge Alternator Warning | 6.0(dis) | 30.0 | dis | V⎓ |

**Note:** *4 = This parameter is only available at Trans-MiniAUTO++.MPU
dis = disable

| CANBUS ECU (*Engine->CanBus ECU*)*5 | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Baud rate** | Baud Rate:<br>0 - 20<br>1 - 50<br>2 - 100<br>3 - 125<br>4 - 250<br>5 - 500<br>6 - 800<br>7 - 1.000 | 0 | 7 | 4 | kBaud |
| **J1939 ECU type** | J1939 ECU Type Selection:<br>0 - Disable<br>1 - Standard<br>2 - Volvo EMS1<br>3 - Volvo EMS2<br>4 - Volvo EMS2b<br>5 - Volvo EDC3<br>6 - Volvo EDC4<br>7 - Deutz EMR2<br>8 - Deutz EMR3<br>9 - Perkins 1300<br>10 - Perkins ADEM3<br>11 - Perkins ADEM4 | 0(dis) | 11 | 0 | |
| **Device address** | Device Address | 0 | 255 | 17 | |
| **Engine cont. address** | Engine Control Address | 0 | 255 | 0 | |
| **ECU remote control** | ECU Remote Control via J1939 | ENABL/DISBL | | DISBL | |
| **Speed control enable** | Speed Control via J1939 | ENABL/DISBL | | DISBL | |
| **Oil pres cont. enab** | Oil Pressure Control via J1939 | ENABL/DISBL | | DISBL | |
| **Temp. control enable** | Coolant Temperature Control via J1939 | ENABL/DISBL | | DISBL | |
| **Speed set point** | Speed Set Point Selection | 1500 / 1800 | | 1500 | RPM |
| **Speed correction** | Speed Correction Value | 0 | 100 | 50 | % |

**Note:** *5 = Parameters in this table are only available at Trans-MiniAUTO++.CAN
dis = disable

| CANBUS ERROR SET (*Engine->CanBus error set*)*6 | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **CAN fault actions** | Can Fault Actions:<br>0- Disable<br>1- Warning Non-Latching<br>2- Warning (Alarm Only, No Shutdown)<br>3- Electrical Trip (Alarm/Off Load Generator Followed By Shutdown After Cooling)<br>4- Shutdown (Alarm And Shutdown) | 0(dis) | 4 | 0 | |
| **CAN fault activation** | Can Fault Activation:<br>0- Active From Starting<br>1- Active From Safety On<br>2- Always Active | 0 | 2 | 0 | |
| **CAN fault delay** | Can Fault Delay | 2 | 250 | 10 | Sec |
| **Amber warn.actions** | J1939 Amber Warning Lamp Actions:<br>0- Disable<br>1- Warning Non-Latching<br>2- Warning (Alarm Only, No Shutdown)<br>3- Electrical Trip (Alarm/Off Load Generator Followed By Shutdown After Cooling)<br>4- Shutdown (Alarm And Shutdown) | 0(dis) | 4 | 0 | |
| **Amber warn.activation** | J1939 Amber Warning Lamp Activation:<br>0- Active From Starting<br>1- Active From Safety On<br>2- Always Active | 0 | 2 | 2 | |
| **Amber warn.delay** | J1939 Amber Warning Lamp Delay | 0 | 250 | 2 | Sec |
| **Red stop actions** | J1939 Red Stop Lamp Actions:<br>0- Disable<br>1- Warning Non-Latching<br>2- Warning (Alarm Only, No Shutdown)<br>3- Electrical Trip (Alarm/Off Load Generator Followed By Shutdown After Cooling)<br>4- Shutdown (Alarm And Shutdown) | 0(dis) | 4 | 0 | |
| **Red stop activation** | J1939 Red Stop Lamp Activation:<br>0- Active From Starting<br>1- Active From Safety On<br>2- Always Active | 0 | 2 | 2 | |
| **Red stop delay** | J1939 Red Stop Lamp Delay | 0 | 250 | 2 | Sec |

**Note:** *6 = Parameters in this table are only available at Trans-MiniAUTO++.CAN
dis = disable

| ENGINE MAINTENANCE (*Engine->Maintenance*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Running hour interval** | Running Hours Interval | 0(dis) | 9999 | 5000 | Hour |
| **Maint.date interval** | Maintenance Date Interval | 0(dis) | 12 | 6 | Month |
| **Eng. stop when maint** | Force Engine Shutdown When Maintenance Is Due | ENABL/DISBL | | DISBL | |
| **Eng.running hour(lsb)** | Engine Running Hour (Lsb) | 0 | 255 | 0 | |
| **Eng.running hour** | Engine Running Hour | 0 | 255 | 0 | |
| **Eng.running hour(msb)** | Engine Running Hour(Msb) | 0 | 14 | 0 | |
| **Maintenance okay** | Maintenance Okay | YES/NO | | NO | |

| LOAD TEST (*Engine->Load test*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Disable/enable select** | Disable, No Load or On Load Selection | 0-DISABLE<br>1-NO LOAD<br>2-ON LOAD | | 1-NO LOAD | |

| ENGINE GENERAL (*Engine->General*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Fuel selection** | Engine Fuel Selection | 0-GAS<br>1-DIESEL<br>2-GASOLINE | | 1-DIESEL | |
| **Stop solenoid time** | Stop Solenoid Time | 5 | 99 | 20 | Sec |
| **Ignition delay** | Ignition Delay | 1 | 99 | 5 | Sec |
| **Gas valve delay** | Gas Valve Delay | 1 | 99 | 5 | Sec |
| **Min. of ignition speed** | Minimum Ignition Speed | 10 | 1500 | 200 | RPM |
| **Choke time** | Choke Time | 0.0 | 30.0 | 0.8 | Sec |

## 4.2.4 Inputs

| SENDER INPUTS (*Inputs->Sender inputs*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Oil pressure unit** | Oil Pressure Unit | BAR/PSI/KPA | | BAR | |
| **Oil press. input type** | Oil Pressure Input Type | 0 - Not Used (Disable)<br>1 - Digital NC<br>2 - Digital NO<br>3 - VDO 5 BAR<br>4 - VDO 7 BAR<br>5 - VDO 10 BAR<br>6 - DATCON 5 BAR<br>7 - DATCON 7 BAR<br>8 - MURPHY 7 BAR<br>9 - User Configured | | 3 | |
| **Oil pressure prealarm** | Oil Pressure Pre-Alarm | 0.0 (dis) | 30.0 | 1.2 | BAR |
| **Oil pressure reset** | Oil Pressure Pre-Alarm Reset | 0.0 | 30.0 | 1.4 | BAR |
| **Oil pressure shutdown** | Oil Pressure Shutdown | 0.0 | 30.0 | 1.0 | BAR |
| **Temperature unit** | Coolant Temperature Unit | ºC/ºF | | ºC | |
| **Temp. input type** | Coolant Temperature Input Type | 0 - Not Used (Disable)<br>1 - Digital NC<br>2 - Digital NO<br>3 - VDO 120 ºC<br>4 - VDO 150 ºC<br>5 - DATCON<br>6 - MURPHY<br>7 - PT100<br>8 - User Configured | | 3 | |
| **Temp. sensor break** | Temperature Sensor Break | 0 - Disable<br>1 - Enable From Safety On (3min. delayed)<br>2 - Always Enable | | 0 (dis) | |
| **High temp. prealarm** | High Temperature Pre-Alarm | 0 (dis) | 300 | 90 | ºC |
| **High temp. reset** | High Temp. Pre-Alarm Reset | 0 | 300 | 88 | ºC |
| **High temp. shutdown** | High Temperature Shutdown | 0 | 300 | 95 | ºC |
| **Low temp. warning** | Low Temperature Warning | 0 (dis) | 70 | 0 (dis) | ºC |
| **Conf. AI unit** | Configurable Analog Input Unit | BAR/PSI/KPA/ºC/ºF/%/Lt | | % | |
| **Conf. AI type** | Configurable Analog Input Type | 0 - Not Used (Disable)<br>1 - Digital NC<br>2 - Digital NO<br>3 - VDO OHM (10-180)<br>4 - VDO TUBE (90-0)<br>5 - US OHM (240-33)<br>6 - EMS OHM (0-190)<br>7 - FORD (73-10)<br>8 - User Configured | | 0 (dis) | |
| **Conf. AI low prealrm** | Configurable Analog Input Low Pre-Alarm | 0 (dis) | 3000 | 0 (dis) | % |
| **Conf. AI low reset** | Configurable Analog Input Low Reset | 0 | 3000 | 60 | % |
| **Conf. AI low shutdwn** | Configurable Analog Input Low Shutdown | 0 (dis) | 3000 | 0 (dis) | % |
| **Conf. AI high prealr** | Configurable Analog Input High Pre-Alarm | 0 (dis) | 3000 | 0 (dis) | % |

| | | | | | |
|---|---|---|---|---|---|
| **Conf. AI high reset** | Configurable Analog Input High Reset | 0 | 3000 | 90 | % |
| **Conf. AI high shutd.** | Configurable Analog Input High Shutdown | 0 (dis) | 3000 | 0 (dis) | % |
| **Conf. AI control ON** | Configurable Analog Input control ON | 0 (dis) | 3000 | 0 (dis) | % |
| **Conf. AI control OFF** | Configurable Analog Input control OFF | 0 | 3000 | 75 | % |

| SENDER LINEARISATION (*Inputs->Sender linearisation*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Oil pressure sender 1** | Oil Pressure Sender Point-1 | 0 | 1300 | 11 | R |
| **Oil pressure 1** | Oil Pressure Point-1 | 0.0 | 30.0 | 0.0 | BAR |
| **Oil pressure sender 2** | Oil Pressure Sender Point-2 | 0 | 1300 | 29 | R |
| **Oil pressure 2** | Oil Pressure Point-2 | 0.0 | 30.0 | 0.5 | BAR |
| **Oil pressure sender 3** | Oil Pressure Sender Point-3 | 0 | 1300 | 47 | R |
| **Oil pressure 3** | Oil Pressure Point-3 | 0.0 | 30.0 | 1.0 | BAR |
| **Oil pressure sender 4** | Oil Pressure Sender Point-4 | 0 | 1300 | 65 | R |
| **Oil pressure 4** | Oil Pressure Point-4 | 0.0 | 30.0 | 1.5 | BAR |
| **Oil pressure sender 5** | Oil Pressure Sender Point-5 | 0 | 1300 | 82 | R |
| **Oil pressure 5** | Oil Pressure Point-5 | 0.0 | 30.0 | 2.0 | BAR |
| **Oil pressure sender 6** | Oil Pressure Sender Point-6 | 0 | 1300 | 100 | R |
| **Oil pressure 6** | Oil Pressure Point-6 | 0.0 | 30.0 | 2.5 | BAR |
| **Oil pressure sender 7** | Oil Pressure Sender Point-7 | 0 | 1300 | 117 | R |
| **Oil pressure 7** | Oil Pressure Point-7 | 0.0 | 30.0 | 3.0 | BAR |
| **Oil pressure sender 8** | Oil Pressure Sender Point-8 | 0 | 1300 | 134 | R |
| **Oil pressure 8** | Oil Pressure Point-8 | 0.0 | 30.0 | 3.5 | BAR |
| **Oil pressure sender 9** | Oil Pressure Sender Point-9 | 0 | 1300 | 151 | R |
| **Oil pressure 9** | Oil Pressure Point-9 | 0.0 | 30.0 | 4.0 | BAR |
| **Oil pressure sender 10** | Oil Pressure Sender Point-10 | 0 | 1300 | 184 | R |
| **Oil pressure 10** | Oil Pressure Point-10 | 0.0 | 30.0 | 5.0 | BAR |
| **Temperature sender 1** | Temperature Sender Point-1 | 0 | 1300 | 291 | R |
| **Temperature 1** | Temperature Point-1 | 0 | 300 | 40 | ºC |
| **Temperature sender 2** | Temperature Sender Point-2 | 0 | 1300 | 197 | R |
| **Temperature 2** | Temperature Point-2 | 0 | 300 | 50 | ºC |
| **Temperature sender 3** | Temperature Sender Point-3 | 0 | 1300 | 134 | R |
| **Temperature 3** | Temperature Point-3 | 0 | 300 | 60 | ºC |
| **Temperature sender 4** | Temperature Sender Point-4 | 0 | 1300 | 97 | R |
| **Temperature 4** | Temperature Point-4 | 0 | 300 | 70 | ºC |
| **Temperature sender 5** | Temperature Sender Point-5 | 0 | 1300 | 70 | R |
| **Temperature 5** | Temperature Point-5 | 0 | 300 | 80 | ºC |
| **Temperature sender 6** | Temperature Sender Point-6 | 0 | 1300 | 51 | R |
| **Temperature 6** | Temperature Point-6 | 0 | 300 | 90 | ºC |
| **Temperature sender 7** | Temperature Sender Point-7 | 0 | 1300 | 38 | R |
| **Temperature 7** | Temperature Point-7 | 0 | 300 | 100 | ºC |
| **Temperature sender 8** | Temperature Sender Point-8 | 0 | 1300 | 29 | R |
| **Temperature 8** | Temperature Point-8 | 0 | 300 | 110 | ºC |
| **Temperature sender 9** | Temperature Sender Point-9 | 0 | 1300 | 22 | R |
| **Temperature 9** | Temperature Point-9 | 0 | 300 | 120 | ºC |
| **Temperature sender 10** | Temperature Sender Point-10 | 0 | 1300 | 15 | R |
| **Temperature 10** | Temperature Point-10 | 0 | 300 | 140 | ºC |
| **Conf. AI sender 1** | Configurable Analog Input Sender Point-1 | 0 | 1300 | 10 | R |
| **Conf. AI value 1** | Configurable Analog Input Point-1 | 0 | 3000 | 0 | % |
| **Conf. AI sender 2** | Configurable Analog Input Sender Point-2 | 0 | 1300 | 30 | R |
| **Conf. AI value 2** | Configurable Analog Input Point-2 | 0 | 3000 | 11 | % |
| **Conf. AI sender 3** | Configurable Analog Input Sender Point-3 | 0 | 1300 | 50 | R |
| **Conf. AI value 3** | Configurable Analog Input Point-3 | 0 | 3000 | 22 | % |
| **Conf. AI sender 4** | Configurable Analog Input Sender Point-4 | 0 | 1300 | 70 | R |
| **Conf. AI value 4** | Configurable Analog Input Point-4 | 0 | 3000 | 33 | % |
| **Conf. AI sender 5** | Configurable Analog Input Sender Point-5 | 0 | 1300 | 90 | R |
| **Conf. AI value 5** | Configurable Analog Input Point-5 | 0 | 3000 | 44 | % |

| | | | | | |
|---|---|---|---|---|---|
| **Conf. AI sender 6** | Configurable Analog Input Sender Point-6 | 0 | 1300 | 110 | R |
| **Conf. AI value 6** | Configurable Analog Input Point-6 | 0 | 3000 | 55 | % |
| **Conf. AI sender 7** | Configurable Analog Input Sender Point-7 | 0 | 1300 | 130 | R |
| **Conf. AI value 7** | Configurable Analog Input Point-7 | 0 | 3000 | 66 | % |
| **Conf. AI sender 8** | Configurable Analog Input Sender Point-8 | 0 | 1300 | 150 | R |
| **Conf. AI value 8** | Configurable Analog Input Point-8 | 0 | 3000 | 77 | % |
| **Conf. AI sender 9** | Configurable Analog Input Sender Point-9 | 0 | 1300 | 170 | R |
| **Conf. AI value 9** | Configurable Analog Input Point-9 | 0 | 3000 | 88 | % |
| **Conf. AI sender 10** | Configurable Analog Input Sender Point-10 | 0 | 1300 | 190 | R |
| **Conf. AI value 10** | Configurable Analog Input Point-10 | 0 | 3000 | 100 | % |

| CONF. INPUT-X (*Inputs->Conf. input-x*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Dis,user conf.or list** | 0- Disable<br>1- User Configured<br>2- Select From List | 0(dis) | 2 | in1=2<br>in2=2<br>in3=0 | |
| **Polarity** | 0- Normally Open (Close To Activate)<br>1- Normally Close (Open To Activate) | 0 | 1 | in1=1<br>in2=0<br>in3=0 | |
| **Indication** | If User Configured<br>0- Status<br>1- Warning Non-Latching<br>2- Warning Latching<br>3- Electrical Trip<br>4- Shutdown | 0 | 4 | in1=0<br>in2=0<br>in3=0 | |
| **Activation** | If User Configured<br>0- Active From Starting<br>1- Active From Safety On<br>2- Always Active | 0 | 2 | in1=2<br>in2=2<br>in3=2 | |
| **Select from list** | If Select From List<br>0-Remote Start On Load<br>1-Remote Start Off Load<br>2-Reserved<br>3-Failures Masked<br>4-Reserved<br>5-Reserved<br>6-Simulate Auto Button<br>7-Simulate Test Button<br>8-Reserved<br>9-Simulate Start Button<br>10-Simulate Stop Button<br>11-Generator Closed Auxiliary<br>12-Generator Load Inhibit<br>13-Reserved<br>14-Reserved<br>15-Auto Restore Inhibit<br>16-Auto Start Inhibit<br>17-Panel Lock<br>18-Reserved<br>19-Reserved<br>20-Reserved<br>21-Reserved<br>22-Remote Inhibit<br>23-Being Found Alive<br>24-Reserved<br>25-Low Oil Pressure<br>26-High Temperature<br>27-Emergency Stop<br>28-Low Oil Level | 0 | 28 | in1=27<br>in2=0<br>in3=4 | |
| **Active delay** | Input active delay | 0 | 250 | in1=0<br>in2=0<br>in3=5 | Sec |

**Note-1 :** x = 1(input-1), 2(input-2) or 3(input-3)

**Note-2 :** dis = disable

## 4.2.6 Outputs

| CONF. OUTPUT-1 (*Outputs->Conf. output-1*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Polarity** | 0- Normally Open (Close To Activate)<br>1- Normally Close (Open To Activate) | 0 | 1 | 0 | |
| **Function** | 0-NOT USED<br>1-AIR FLAP CONTROL<br>2-ALARM RESET<br>3-AUDIBLE ALARM<br>4-AUTO START INHIBIT<br>5-RESERVED<br>6-BATTERY HIGH VOLTAGE<br>7-BATTERY LOW VOLTAGE<br>8-RESERVED<br>9-CAN ECU POWER (only available at Trans-MiniAUTO++.CAN)<br>10-CAN ECU STOP (only available at Trans-MiniAUTO++.CAN)<br>11-CHARGE ALTERNATOR FAILURE<br>12-COMMON ALARM<br>13-COMMON ELECTRICAL TRIP ALARM<br>14-COMMON SHUTDOWN ALARM<br>15-COMMON WARNING ALARM<br>16-COOLING FAN AFTER START<br>17-COOLING FAN AFTER STOP<br>18-COOLANT TEMPERATURE HIGH PRE-ALARM<br>19-COOLANT TEMPERATURE HIGH SHUTDOWN<br>20-COOLING DOWN TIMER IN PROGRESS<br>21-CRANK RELAY ENERGISED<br>22-DELAYED ALARMS ACTIVE<br>23-DIGITAL INPUT1 ALARM<br>24-DIGITAL INPUT2 ALARM<br>25-DIGITAL INPUT3 ALARM<br>26-RESERVED<br>27-RESERVED<br>28-RESERVED<br>29-RESERVED<br>30-RESERVED<br>31-RESERVED<br>32-RESERVED<br>33-RESERVED<br>34-RESERVED<br>35-RESERVED<br>36-RESERVED<br>37-RESERVED<br>38-RESERVED<br>39-EMERGENCY STOP<br>40-FAIL TO START ALARM<br>41-FAIL TO STOP ALARM<br>42-CONFIGURABLE ANALOG INPUT CONTROL<br>43-FUEL RELAY ENERGISED<br>44-GAS ENGINE IGNITION OUTPUT<br>45-GENERATOR AT REST<br>46-GENERATOR AVAILABLE<br>47-GENERATOR CLOSED AUXILIARY<br>48-GENERATOR FAILED TO CLOSE<br>49-GENERATOR FAILED TO OPEN<br>50-GENERATOR HIGH FREQUENCY PRE-ALARM<br>51-GENERATOR HIGH FREQUENCY SHUTDOWN<br>52-GENERATOR HIGH VOLTAGE PRE-ALARM<br>53-GENERATOR HIGH VOLTAGE SHUTDOWN<br>54-GENERATOR LOAD INHIBIT<br>55-GENERATOR LOW FREQUENCY PRE-ALARM<br>56-GENERATOR LOW FREQUENCY SHUTDOWN<br>57-GENERATOR LOW VOLTAGE PRE-ALARM<br>58-GENERATOR LOW VOLTAGE SHUTDOWN<br>59-GENERATOR STOPPING<br>60-GENERATOR OPEN BREAKER<br>61-HORN OUTPUT LATCHED<br>62-HORN OUTPUT PULSED<br>63-LAMP TEST<br>64-RESERVED<br>65-LOSS OF MAGNETIC PICK-UP SPEED SIGNAL (only available at Trans-MiniAUTO++.MPU)<br>66-LOW TEMPERATURE<br>67-MAINTENANCE DUE ALARM<br>68-RESERVED<br>69-RESERVED<br>70-RESERVED<br>71-RESERVED<br>72-RESERVED<br>73-RESERVED<br>74-RESERVED<br>75-RESERVED<br>76-RESERVED<br>77-RESERVED<br>78-NO LOADING COMMAND<br>79-OIL PRESSURE LOW PRE-ALARM<br>80-OIL PRESSURE LOW SHUTDOWN<br>81-CONFIGURABLE ANALOG INPUT HIGH PREALARM<br>82-CONFIGURABLE ANALOG INPUT HIGH SHUTDOWN<br>83-OVER CURRENT PRE-ALARM<br>84-OVER CURRENT<br>85-OVER POWER PRE-ALARM<br>86-OVER POWER SHUTDOWN<br>87-OVERSPEED PRE-ALARM<br>88-OVERSPEED SHUTDOWN<br>89-PANEL LOCK<br>90-PRE-HEAT(during preheat timer)<br>91-PRE-HEAT(until end of cranking)<br>92-PRE-HEAT(until end of warming)<br>93-PRE-HEAT(until end safety on)<br>94-REMOTE START PRESENT<br>95-REMOTE STOP DELAY IN PROGRESS<br>96-SHORT CIRCUIT<br>97-SMOKE LIMITING<br>98-STARTING ALARM<br>99-STARTING ALARMS ARMED<br>100-STOP RELAY ENERGISED<br>101-SYSTEM IN AUTO MODE<br>102-SYSTEM IN MANUAL MODE<br>103-SYSTEM IN STOP MODE<br>104-SYSTEM IN TEST MODE<br>105-UNDER CURRENT PRE-ALARM<br>106-UNDER CURRENT<br>107-UNDER POWER PRE-ALARM<br>108-UNDER POWER SHUTDOWN<br>109-UNDERSPEED PRE-ALARM<br>110-UNDERSPEED SHUTDOWN<br>111-WAITING FOR GENERATOR<br>112-REVERSE POWER<br>113-LOAD SUPPLY FROM GENERATOR<br>114-RESERVED<br>115-CONFIGURABLE ANALOG INPUT LOW PRE-ALARM<br>116-CONFIGURABLE ANALOG INPUT LOW SHUTDOWN<br>117-RESERVED<br>118-RESERVED<br>119-RESERVED<br>120-RESERVED<br>121-CHOKE ACTIVE<br>122-REMOTE CONTROL ACTIVE | 0 | 122 | 43 | |

| CONF. OUTPUT-2 (*Outputs->Conf. output-2*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Polarity** | 0- Normally Open (Close To Activate)<br>1- Normally Close (Open To Activate) | 0 | 1 | 0 | |
| **Function** | The same as Configurable Output-1 options | 0 | 122 | 21 | |

| CONF. OUTPUT-3 (*Outputs->Conf. output-3*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Polarity** | 0- Normally Open (Close To Activate)<br>1- Normally Close (Open To Activate) | 0 | 1 | 0 | |
| **Function** | The same as Configurable Output-1 options | 0 | 122 | 62 | |

| CONF. OUTPUT-4 (*Outputs->Conf. output-4*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Polarity** | 0- Normally Open (Close To Activate)<br>1- Normally Close (Open To Activate) | 0 | 1 | 0 | |
| **Function** | The same as Configurable Output-1 options | 0 | 122 | 46 | |

| CONF. OUTPUT-5 (*Outputs->Conf. output-5*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Polarity** | 0- Normally Open (Close To Activate)<br>1- Normally Close (Open To Activate) | 0 | 1 | 0 | |
| **Function** | The same as Configurable Output-1 options | 0 | 122 | 12 | |

| CONF. OUTPUT-6 (*Outputs->Conf. Output-6*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Polarity** | 0- Normally Open (Close To Activate)<br>1- Normally Close (Open To Activate) | 0 | 1 | 0 | |
| **Function** | The same as Configurable Output-1 options | 0 | 122 | 12 | |

### 4.2.6 Timers

| START TIMERS (*Timers->Start timers*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Remote start delay** | Remote Start Delay | 0 | 3600 | 4 | Sec |
| **Pre-heat** | Pre-Heat | 0 | 250 | 3 | Sec |
| **Pre-heat bypass** | Pre-Heat Bypass | 0 | 250 | 0 | Min |
| **Safety on delay** | Safety On Delay | 0 | 99 | 5 | Sec |
| **Warming up time** | Warmup Time | 0 | 250 | 3 | Sec |
| **Horn duration** | Horn Duration | 0 (dis) | 999 | 60 | Sec |
| **Chg. excitation time** | Charge Excitation Time | 0 | 99(cont) | 15 | Sec |
| **Cooling fan time** | Cooling Fan Time | 0 | 250 | 180 | Sec |
| **Idle mode time** | Idle Mode Time (Smoke Limiting) | 0 (dis) | 3600 | dis | Sec |
| **Idle mode time off** | Idle Mode Time Off (Smoke Limiting Off) | 0 | 250 | 5 | Sec |

| STOPPING TIMERS (*Timers->Stopping timers*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Remote stop delay** | Remote Stop Delay | 0 | 250 | 4 | Sec |
| **Cooling time** | Cooling Time | 0 (dis) | 3600 | 60 | Sec |
| **Fail to stop delay** | Fail To Stop Time | 15 | 99 | 30 | Sec |

**Note:** dis = disable cont = continuous

## 4.2.7 User Adjustment

| GEN. VOLTAGE OFFSET (*User adjustment->Gen. voltage offset*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Gen. V1 offset** | Generator V1 Offset | -20 | 20 | 0 | V~ |
| **Gen. V2 offset** | Generator V2 Offset | -20 | 20 | 0 | V~ |
| **Gen. V3 offset** | Generator V3 Offset | -20 | 20 | 0 | V~ |

| CURRENT OFFSET (*User adjustment->Current offset*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Current I1 offset** | Current I1 Offset | -20 | 20 | 0 | A~ |
| **Current I2 offset** | Current I2 Offset | -20 | 20 | 0 | A~ |
| **Current I3 offset** | Current I3 Offset | -20 | 20 | 0 | A~ |

| BATTERY&CHRG GEN.VOL (*User adjustment->Battery&chrg gen.vol*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Batt.volt offset** | Battery Voltage Offset | -5.0 | 5.0 | 0 | V⎓ |
| **Gen.chg.volt offset** | Charge Generator Voltage Offset | -5.0 | 5.0 | 0 | V⎓ |

| SENDER INPUTS OFFSET (*User adjustment->Sender inputs offset*) | | Min | Max | Default | Unit |
|---|---|---|---|---|---|
| **Oil Pressure offset** | Oil Pressure Offset | -2.0 | 2.0 | 0.0 | BAR |
| **Temperature offset** | Coolant Temperature Offset | -20 | 20 | 0 | ºC |
| **Conf. AI offset** | Configurable Analog Input Offset | -200 | 200 | 0 | % |

## 5. Specifications

| | |
|---|---|
| **Equipment use** | : Electrical control equipment for generating sets. |
| **Housing & Mounting** | :111 mm x 81 mm x 61 mm. (including connectors). Plastic housing for panel mounting. |
| **Panel Cut-Out** | : 81mm x 70mm. |
| **Protection** | : IP65 at front panel. |
| **Weight** | : Approximately 0,3 Kg. |
| **Environmental rating** | : Standard, indoor at an altitude of less then 2000 meters with non-condensing humidity. |
| **Operating/Storage Temperature** | : -20°C to +70°C / -30°C to +80°C |
| **Operating/Storage Humidity** | : 90 % max. (non-condensing) |
| **Installation Over Volt. Category** | : II Appliances, portable equipment |
| **Pollution Degree** | : II, Normal office or workplace, non conductive pollution |
| **Mode of Operation** | : Continuous. |
| **DC Battery Supply Voltage** | : 8 to 32 V ⎓. Max. operating current is 360 mA. |
| **Cranking Dropouts** | : Battery voltage can be “0” VDC for max. 50 ms during cranking (battery voltage should be at least nominal voltage before cranking). |
| **Battery Voltage Measurement** | : 8 to 32 V ⎓, accuracy: 1 % FS, resolution: 0,1 V |
| **Generator Voltage Measurement** | : 3 to 300 VAC Ph-N, 5 to 99.9 Hz. Accuracy: 1 % FS, Resolution: 1 V. |
| **Generator Frequency** | : 5 to 99.9Hz (min. 20 VAC Ph-N) Accuracy: 0,25 % FS, Resolution: 0,1 Hz. |
| **Magnetic Pickup Input** | : 35 to 10000 Hz (4 to 35 volts peak continuously). Accuracy: 0,25 % FS. (Only available at Trans-MiniAUTO++.MPU devices) |
| **CT secondary** | : 5A. |
| **Charge Generator Excitation** | : 210mA @12V, 105mA @24V. Nominal 2.5W. |
| **Charge Gen. Vol. Measurement** | : 8 to 32 V ⎓, accuracy: 1 % FS, resolution: 0,1 V. |
| **Sender Measurement** | : 0 to 1300 ohm, accuracy: 1 % FS, resolution: 1 ohm. |
| **Communication interface** | : RS-232, CanBus communication with 1939 ECU(Only available at Trans-MiniAUTO++.CAN devices) |
| **Relay Outputs** | : Generator contactor relay output 8A@250V~ |
| **Transistor Outputs** | : Fuel or Configurable output-1 1A at DC supply voltage<br>Crank or Configurable output-2 1A at DC supply voltage<br>Configurable output-3 1A at DC supply voltage<br>Configurable output-4 1A at DC supply voltage<br>Configurable output-5 1A at DC supply voltage<br>Configurable output-6 1A at DC supply voltage<br>All transistor ouputs supplied from DC supply terminal 12 |

## 6. Other Informations

**Manufacturer Information:**
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Demirtaş Organize Sanayi Bölgesi Karanfil Sk. No:6 16369
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## 7. Order Information

**Trans-MiniAUTO++** : Auto Start GenSet controller, LCD display
**Trans-MiniAUTO++.CAN** : Auto Start GenSet controller, CanBus J1939 ECU comm.
**Trans-MiniAUTO++.MPU** : Auto Start GenSet controller, speed sensing from Magnetic Pickup

**Note:** Devices have time clock. If real time clock is needed, “RTC” expression must be added to end of order code.
Example: Trans-MiniAUTO++.MPU.RTC