

variotrack

The **variotrack** MPPT solar charge controller maximizes the energy generated by charging the batteries in an optimal way. The accuracy of the Maximum Power Point Tracking (MPPT) algorithm, the high peak efficiency and low internal consumption ensure an optimal valorisation of the energy produced by the PV modules to all types of battery technology. The **variotrack** is 100% manufactured in Switzerland and has a 10-year warranty.

Technical data



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VT-40

VT-65

Electrical characteristics PV array side at nominal battery voltage

| | 12 V | 24 V | 48 V | 12 V | 24 V | 48 V |
|--|-----------------------|--------|--------|--------|--------|--------|
| Maximum solar power recommended (@STC) | 625 W | 1250 W | 2500 W | 1000 W | 2000 W | 4000 W |
| Maximum solar open circuit voltage | 75 V | 150 V | 150 V | 75 V | 150 V | 150 V |
| Maximum solar functional circuit voltage | 75 V | 145 V | 145 V | 75 V | 145 V | 145 V |
| Minimum solar functional circuit voltage | Above battery voltage | | | | | |

Electrical characteristics battery side

| | | | | | | |
|--------------------------|--|--|--|------|--|--|
| Maximum output current | 40 A | | | 65 A | | |
| Nominal battery voltages | Automatic / manual set to 12, 24 or 48 V | | | | | |
| Operating voltage range | 7 - 68 V | | | | | |

Performances of the device

| | | | | | | |
|--|---|--|--|--|--|--|
| Tracking efficiency | > 99 % | | | | | |
| European weighted efficiency | > 97 % | | | | | |
| Maximum stand-by self-consumption (48 V) | < 25 mA (1.2 W) | | | | | |
| Maximum stand-by self-consumption (24 V) | < 30 mA (0.8 W) | | | | | |
| Maximum stand-by self-consumption (12 V) | < 35 mA (0.5 W) | | | | | |
| Charging stages* | 4 stages: Bulk, Absorption, Floating, Equalization | | | | | |
| Battery temperature compensation (available with accessory BTS-01/BSP) | -3 mV / °C / cell (25°C ref) default value adjustable -8 to 0 mV / °C | | | | | |

Electronic protections

| | |
|--------------------------|---|
| PV reverse polarity | ✓ |
| Battery reverse polarity | ✓ |
| Battery overvoltage | ✓ |
| Over temperature | ✓ |
| Reverse current at night | ✓ |

Environment

| | |
|-------------------------------------|-------------|
| Operating ambient temperature range | -20 to 55°C |
| Humidity | 100% |
| Ingress protection of enclosures | IP54 |
| Mounting location | indoor |

General data

| | | |
|--|--------------------|--------|
| Weight | 3.8 kg | 5.2 kg |
| Dimensions h/w/l [mm] | 120 / 220 / 310 | |
| Parallel operation (separated PV arrays) | Up to 15 devices | |
| Max wire size | 35 mm ² | |
| Glands | M 20 × 1,5 | |

Communication

| | |
|-----------------|---|
| Network cabling | STUDER communication BUS (included) |
| Configuration | RCC-02/-03, Internal DIP switches for basic settings |
| Data logging | With RCC-02/03, Xcom-232i on SD card - One point every minute |

Accordance to standards

| | |
|------------|--|
| Conformity | Low Voltage Directive (LVD) 2014/35/EU: EN/IEC 62109-1 Electromagnetic Compliance (EMC) Directive 2014/30/EU: EN/IEC 61000-6-2, 61000-6-4 |
|------------|--|



variotrack

VT-80

Electrical characteristics PV array side at nominal battery voltage

| | 12 V | 24 V | 48 V |
|--|-----------------------|--------|--------|
| Maximum solar power recommended (@STC) | 1250 W | 2500 W | 5000 W |
| Maximum solar open circuit voltage | 75 V | 150 V | |
| Maximum solar functional circuit voltage | 75 V | 145 V | |
| Minimum solar functional circuit voltage | Above battery voltage | | |

Electrical characteristics battery side

| | | | |
|--------------------------|--|--|--|
| Maximum output current | 80 A | | |
| Nominal battery voltages | Automatic / manual set to 12, 24 or 48 V | | |
| Operating voltage range | 7 - 68 V | | |

Performances of the device

| | | | |
|--|-----------------|--|--|
| Tracking efficiency | > 99 % | | |
| European weighted efficiency | > 97 % | | |
| Maximum stand-by self-consumption (48 V) | < 25 mA (1.2 W) | | |
| Maximum stand-by self-consumption (24 V) | < 30 mA (0.8 W) | | |
| Maximum stand-by self-consumption (12 V) | < 35 mA (0.5 W) | | |

Charging stages* 4 stages: Bulk, Absorption, Floating, Equalization

Battery temperature compensation (available with accessory BTS-01/BSP) -3 mV / °C / cell (25°C ref) default value adjustable -8 to 0 mV / °C

Electronic protections

| | |
|--------------------------|---|
| PV reverse polarity | ✓ |
| Battery reverse polarity | ✓ |
| Battery overvoltage | ✓ |
| Over temperature | ✓ |
| Reverse current at night | ✓ |

Environment

| | |
|-------------------------------------|-------------|
| Operating ambient temperature range | -20 to 55°C |
| Humidity | 100% |
| Ingress protection of enclosures | IP54 |
| Mounting location | indoor |

General data

| | |
|--|--------------------|
| Weight | 5.5 kg |
| Dimensions h/w/l [mm] | 120 / 220 / 350 |
| Parallel operation (separated PV arrays) | Up to 15 devices |
| Max wire size | 35 mm ² |
| Glands | M 20 × 1,5 |

Communication

| | |
|-----------------|---|
| Network cabling | STUDER communication BUS (included) |
| Configuration | RCC-02/-03, Internal DIP switches for basic settings |
| Data logging | With RCC-02/03, Xcom-232i on SD card · One point every minute |

Accordance to standards

| | |
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| Conformity | Low Voltage Directive (LVD) 2014/35/EU: EN/IEC 62109-1 Electromagnetic Compliance (EMC) Directive 2014/30/EU: EN/IEC 61000-6-2, 61000-6-4 |
|------------|--|

Efficient, robust and flexible

- Easy and safe commissioning with full protection against incorrect wiring
- Rugged and durable, this device is designed to perform in harsh environmental conditions (IP54)
- High tracking efficiency >99%
- Up to 15 VarioTrack in parallel on the same communication bus (75kW)
- 4 step charger fully programmable for longer battery life
- Low self-consumption: <1W in night time mode
- Display with 7 LEDs showing status and current
- Suitable for any solar and battery system
- Optimal usage in an Xtender system with synchronized battery management

Combine with a range of accessories

- Display, programming and data logging remote control (**RCC-02/-03**)
- Communication sets (**Xcom-LAN/Xcom-GSM**)
- Communication module (**Xcom-232i/Xcom-CAN**)
- Battery temperature sensor (**BTS-01**)
- Battery Status Processor (**BSP**)
- Communication with lithium battery BMS (**Xcom-CAN**)
- 2 additional auxiliary contacts (**ARM-02**)

Certifications & Warranty

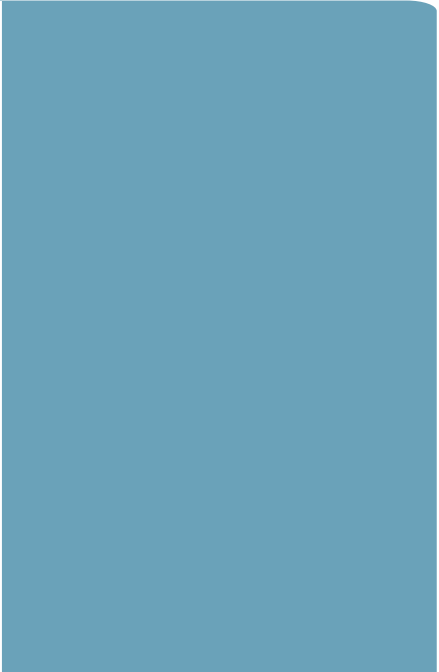
100% manufactured and tested in Switzerland (Europe). ISO certified factory 9001:2020/14001:2020. All our products include a 10-year warranty (5+5).

STC = Standard Test Conditions
Data may change without any notice

* Number of steps, thresholds, end current and times adjustable with the RCC-02/-03



Call our specialists **+41 27 205 60 80** or visit **studer-innotec.com**.
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