

# 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



**variotrack**

**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 <sup>2</sup>	
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
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## 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 <sup>2</sup>
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
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## 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

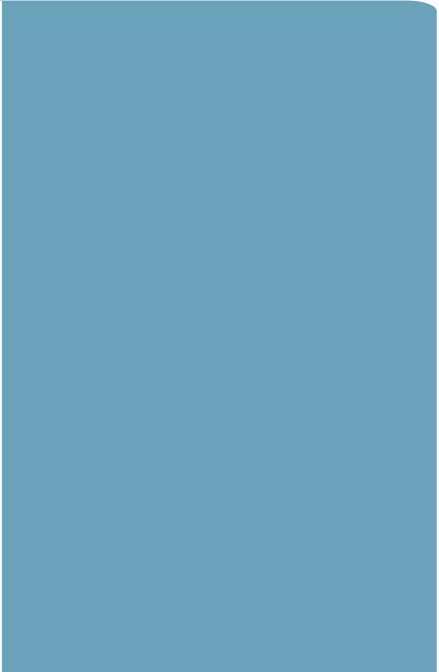
100% manufactured and tested in Switzerland (Europe). ISO certified factory 9001:2020/14001:2020. All our products include a 10-year warranty (5+5).

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**.  
Studer Innotec SA, rue des Casernes 57, 1950 Sion, Switzerland,  
info@studer-innotec.com, fax +41 27 205 60 88.



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