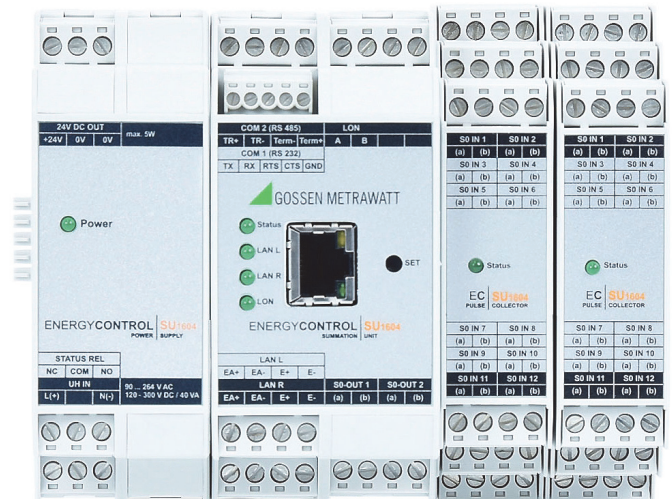


# ENERGYCONTROL SU1604

## Summator

3-447-002-03  
4/12.22

- **New modular concept**
- **Software upward compatible**  
with U1600/1/2/3 summators
- **64 processing channels**  
for calculating energy, power and costs. Physical inputs (up to 64) or LON meters can be assigned as desired
- **Energy Control Language (ECL)** for programming evaluations, monitoring and optimization
- **LON interface** for 64 LON devices
- **One RS 232 interface** (max. 921 kBaud)
- **One RS 485 interface** (max. 921 kBaud, half-duplex)
- **Two ECS LAN interfaces** (max. 375 kBaud)
- **Ethernet interface** (100 MBit/s) with ECL access via TCP/IP (4 sockets)



## Applications

The Energy Control System (ECS) is used to ensure transparent cost center accounting. All electrical and non-electrical energy media can be logged, optimized and billed to the respective cost centers.

As a central device within the Energy Control System (ECS), the U1604 summator makes it possible to log and bill analog and digital quantities.

A device can be set up using the following modules:

- **U1604 basic module** with the following interfaces:  
1 ea. RS 232 (COM-1), 1 ea. RS 485 (COM-2), ECS LAN left + right, LON, 2 ea. S0 relay output
- **U1614 power pack module** with status relay for supplying power to all components via the TBUS and an additional 24 V DC output (max. 5 W) – overall output power amounts to 20 W
- **U1624 S0IN12 input module** with 12 S0-compatible inputs (up to 6 modules, max. 64 S0 inputs)

The U1604 modular summator serves as an extension or a long-term replacement for ECS U1600, U1601, U1602 and U1603 summators.

## Features

### Modular Meter Inputs

The U1604 summator can be equipped with up to 64 electrically isolated S0 meter inputs in a modular fashion for processing pulse-shaped (S0) input signals.

### LON Meter Inputs

Up to 64 LON devices can be connected to the U1604 summator via the easy-to-wire, reverse polarity protected, electrically isolated LON interface.

### Evaluation

All relevant energy and consumption data are acquired over pre-defined periods of time at a programmable interval using 64 processing channels (interval / measurement data list), and are stored as a load profile along with respective maximum values.

### Ethernet Interfaces (100 Mbit/s)

The Ethernet interface permits remote access to device data via a TCP/IP network. Up to four TCP/IP sockets with ECL access can be used simultaneously (corresponds to 4 previously used COM servers).

An ECS LAN network can also be implemented via two of these sockets (ECS LAN via COM).

# ENERGYCONTROL SU1604

## Summator

### Wire Connections

Terminal	External Power Supply Terminal on Backplane Bus	RS 232 Bus to U1604	All Other Terminals
Connection type	Screw connection with tensioning sleeve	Screw connection with tensioning sleeve	Screw connection with tensioning sleeve
Grid dimension	3.81 mm	3.5 mm	5 mm
Rigid/flexible conductor cross-section without ferrule	0.14 to 1.5 mm <sup>2</sup>	0.14 to 1.5 mm <sup>2</sup>	0.2 to 2.5 mm <sup>2</sup>
Flexible conductor cross-section with ferrule and without plastic sleeve	0.25 to 1.5 mm <sup>2</sup>	0.25 to 1.5 mm <sup>2</sup>	0.25 to 2.5 mm <sup>2</sup>
Flexible conductor cross-section with ferrule and plastic sleeve	0.25 to 0.75 mm <sup>2</sup>	0.25 to 0.5 mm <sup>2</sup>	0.25 to 2.5 mm <sup>2</sup>
2 rigid conductors of identical cross-section	0.08 to 0.5 mm <sup>2</sup>	0.08 to 0.5 mm <sup>2</sup>	0.2 to 1 mm <sup>2</sup>
2 flexible conductors of identical cross-section	0.08 to 0.75 mm <sup>2</sup>	0.08 to 0.75 mm <sup>2</sup>	0.2 to 1.5 mm <sup>2</sup>
2 flexible conductors of identical cross-section with ferrule and without plastic sleeve	0.25 to 0.34 mm <sup>2</sup>	0.25 to 0.34 mm <sup>2</sup>	0.25 to 1 mm <sup>2</sup>
2 flexible conductors of identical cross-section with twin ferrule and plastic sleeve	0.5 mm <sup>2</sup>	0.5 to 0.5 mm <sup>2</sup>	0.5 to 1.5 mm <sup>2</sup>
Stripping length	7 mm	7 mm	7 mm
Tightening torque	0.22 to 0.25 Nm	0.22 to 0.25 Nm	0.5 to 0.6 Nm

### Applicable Regulations and Standards

<b>IEC 61010-1</b> <b>DIN EN 61010-1</b> <b>VDE 0411-1</b>	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements
<b>DIN EN 61326-1</b> <b>VDE 0843-20-1</b>	Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements

U1614 – Power Pack with Broad Range AC/DC Input	
Test voltage: (alternating voltage, 1 min.)	
Input – housing:	0.5 kV
AC auxiliary voltage input – input:	3.0 kV
Status relay (U1614) – input:	3.0 kV
S0 semiconductor output (U1604) – input:	0.5 kV
Interfaces – input:	0.5 kV
Status relay	250 V AC, 5 A, 3-pole, AgNi 90/10

### Characteristic Values

#### Binary Inputs

U1624 – S0 Inputs, 12-Fold S0IN12	
Input quantity	Direct current, bipolar (square-wave pulses, S0 compatible)
Design	Electrically isolated
Input voltage	Max. 30 V
Input resistance	5.1 kΩ

#### Auxiliary Power Supply

U1614 – Power Pack with Broad Range AC/DC Input	
Nominal range of use, AC	90 V ... 264 V
Frequency	47 ... 440 Hz
Nominal range of use, DC	120 V ... 300 V DC
Efficiency	83 %
Separate DC output	Max. 24 V, 5 W
Voltage accuracy	±2 %
Total DC output power	Max. 24 V, 20 W (incl. DC output)
Power consumption	Max. 40 VA
U1604 (basic module)	5 W
U1624 (12 ea. S0 input)	1 W
Fuse	T 1.6 A/250 V AC, 300 V DC (20 mm)
Overvoltage category:	II A suitable surge protector must be used in order to ensure that the installation site meets the requirements specified for overvoltage category II.
Protection category:	II

#### Memory

MRAM – RTC	
MRAM	4 MB
Data retention	> 20 years (data retention <b>does not depend</b> on the RTC backup battery)
RTC real-time clock	
Follow-up time	> 10 years
Accuracy	5 ±5 ppm (0 ... +10 ppm)
Backup battery for RTC	Lithium batt. 3 V/850 mA ½ AA installed to PCB
Service life	> 10 years, battery replacement is typically unnecessary

#### Outputs

Relay Outputs	
Two S0 semiconductor relays (U1604 basic module)	max. 50 V DC, 200 mA, bipolar
Status relay (U1614 power pack module)	250 V AC, 5 A, 3-pole, AgNi 90/10

#### Mechanical Design

Modular Housing Concept	
Width	
U1614 power pack module	35 mm
U1604 basic module	45 mm
U1624 S0IN12	22.5 mm
Height	100 mm
Depth	
U1614 power pack module	114 mm
U1604 basic module	114 mm
U1624 S0IN12	107 mm
Mounting	To top-hat rail per EN 50022 / 35 mm

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## Summator

### Ambient Conditions

Operating temperature range	-10 ... +55 °C
Storage temperature range	-25 ... +70 °C
Relative humidity	< 75 % annual average
Elevation	Up to 2000 m
Place of use	Indoors
Mechanical classification	M1
Electromagnetic classification	E2

### Electromagnetic Compatibility (EMC)

Product standard	EN 61 326-1	
Interference emission	EN 55011	Class A
Interference immunity	EN 61 000-4-2	4 kV contact, 8 kV atmospheric Feature B
	EN 61 000-4-3	10 V/m Feature A
	EN 61 000-4-4	Feature B
	EN 61 000-4-5	Power cable: 1 kV sym., 2 kV asym. signal cable: 1 kV asymmetrical Feature A
	EN 61 000-4-6	3 V/m Feature A
	EN 61 000-4-11	Voltage dip: Feature A Brief interruption: Feature B

### Scope of Delivery

#### Scope of delivery, SU1604

- 1 U1604 basic module
- 1 Split toroidal core
- 2 ME 22.5 T-bus mounting rail connector
- 1 Condensed operating instructions

#### Scope of delivery, SU1614

- 1 U1614 power pack module
- 2 ME 17.5 T-bus mounting rail connector
- 1 Condensed operating instructions

#### Scope of delivery, SU1624

- 1 U1624 pulse recording module
- 1 ME 22.5 T-bus mounting rail connector
- 1 Condensed operating instructions


### Order Information

Description	Type	Article Number
Basic module for SU1604 summator	SU1604	U1604
Power pack module for SU1604 summator	SU1614	U1614
Pulse recording module for SU1604 summator	SU1624	U1624
<ul style="list-style-type: none"> <li>– One 5-fold connector terminal for RS 232 and SU1604</li> <li>– Five 4-fold connector terminals for SU1624 and SU1604 S0 modules</li> <li>– Two connector terminals for SU1614 power pack module</li> </ul>	SU1604 connector terminal package	Z302U
<ul style="list-style-type: none"> <li>– Three T-bus terminals, 22.5 mm</li> <li>– Two T-bus terminals, 17.5 mm</li> <li>– One power supply terminal, left</li> <li>– One power supply terminal, right</li> </ul>	SU1604 T-bus terminal package	Z302T
USB – RS 232 cable for connection to the SU1604 for firmware updating	SU1604 programming cable	Z302V

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