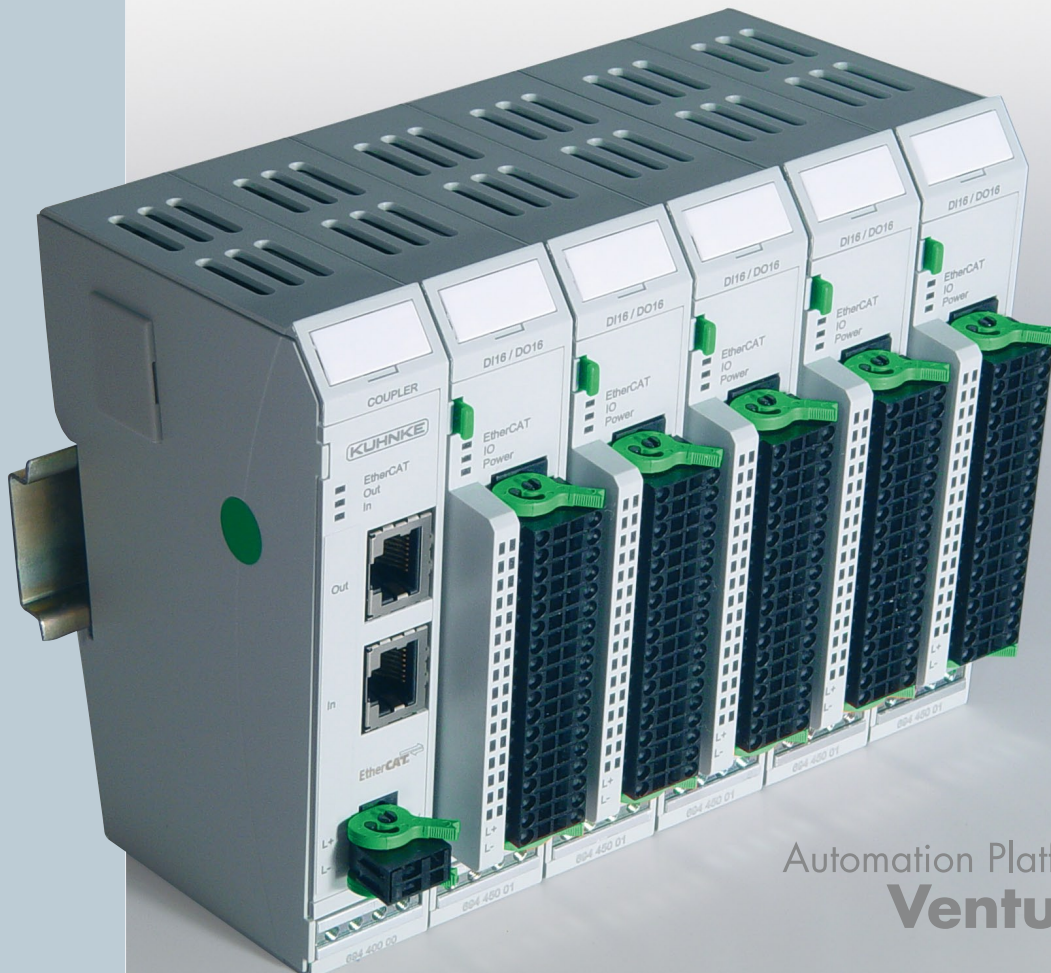


## Ventura FIO EtherCAT® coupler and I/O module in compact design

EtherCAT®

- Clock speed increase via EtherCAT (100 Mbit/s)
- Real-time Ethernet right down to the I/O modules
- Standard and customer-specific modules



Automation Platform  
**Ventura**

## System description

### EtherCAT® – Ethernet Control Automation Technology

EtherCAT® is currently the most powerful Ethernet-based field bus system. EtherCAT sets new speed standards and thanks to its flexible topology and simple configuration is absolutely ideal for controlling extremely fast processes. For example, 1000 I/Os are achieved in 30 µs.

Because of its high performance, simple wiring and openness to other protocols, EtherCAT is used as a fast drive and I/O bus on the industrial PC, or also in combination with small control systems. Where conventional field bus systems reach their limits, EtherCAT sets new standards. EtherCAT connects the control system as fast as a backplane bus, both with the I/O modules and with drives. EtherCAT control systems thus behave almost like central control systems, and bus runtimes as they occur in conventional field bus systems do not need to be accounted for.

### Ventura FIO – Ventura Fast Input Output

The Ventura automation platform was developed specifically for machine-related operation. As EtherCAT masters, Ventura industrial PCs are equipped with hard real-time behavior and a CoDeSys-PLC. **Ventura FIO** is a system of I/O modules to link the process signals within an EtherCAT network. A **Ventura FIO** block consists of the **Ventura FIO** bus coupler and various I/O modules. The **Ventura FIO** bus coupler converts the transmission physics and generates the system supply for the I/O modules. 100 Base TX lines usual in the office world are connected on the one side and the I/O modules for the process signals in sequence on the other side, whereby the EtherCAT protocol is retained right down to the last I/O module. The connection of the inbound and return lines is automatically closed at the end of the module block, so that the next EtherCAT device can be connected to the second port of the bus coupler.

### Ventura Skaleo – Mini IPC with optional control function

With the **Ventura Skaleo**, the controller module supplies the Ventura FIO I/O modules with the required operating voltage and drives the internal bus. Comparable to an EtherCAT master, it sends EtherCAT telegrams for writing the output data and reading the input data. In combination with an extender module, additional EtherCAT slaves can be connected to the **Ventura Skaleo**. CoDeSys is used for programming the **Ventura Skaleo**. The Mini IPC is able to exchange data with external devices via its Ethernet port (LAN) and its serial interface (RS232 or RS485).

For more detailed information, please refer to Technical Information E 776 ENG „Ventura Skaleo – Mini IPC with optional control function“.

## System properties

Field bus	EtherCAT 100 Mbit/s
Dimensions (B x H x T)	25 mm x 120 mm x 90 mm
Housing	Aluminum
Shield connection	Directly at module
Mounting	35 mm DIN rail (top-hat rail)
I/O connection	Spring-loaded plug with mechanical ejection
Signal display	LED, assigned to the clamping point locally
Diagnosis	LED: Bus status, module status, broken wire/over-current
Number of connections	Up to 32 digital I/Os per module, up to 8 analog channels per module
Power supply	24 V DC (-20 % / +25 %)
Number of I/O modules	20 per bus coupler (together max. 3 A power intake)
Galvanic separation	Modules are galvanically separated from one another and versus the bus
Operating and ambient conditions	Storage temperature: -25 °C ... +70 °C, Operating temperature: 0 °C ... +55 °C Relative humidity: 5 % ... 95 % without dewing
Protection	IP 20
Interference immunity	Zone B per EN 61131-2

## Technical data

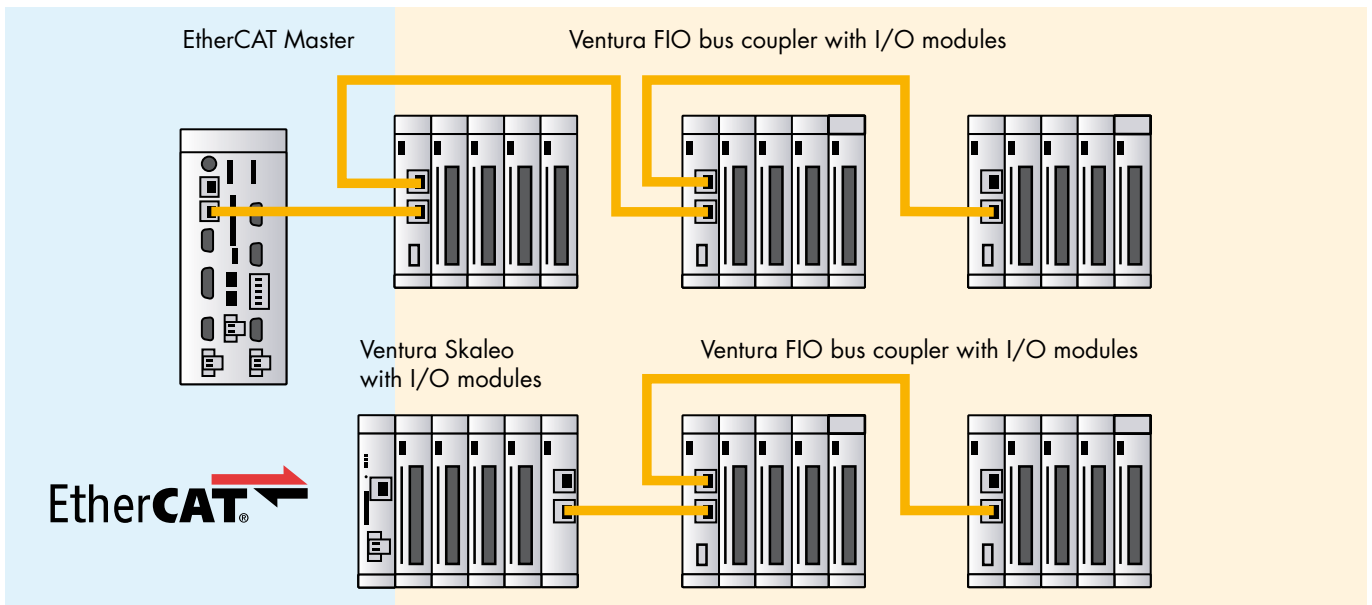
### Ventura FIO bus coupler

Field bus	EtherCAT 100 Mbit/s 100 Base TX per IEEE802.3
Connection EtherCAT	2 x RJ45
Diagnosis	Status LED: EtherCAT, Bus Out, Bus In
Connection Ventura FIO I/O module	Integrated in module side panel

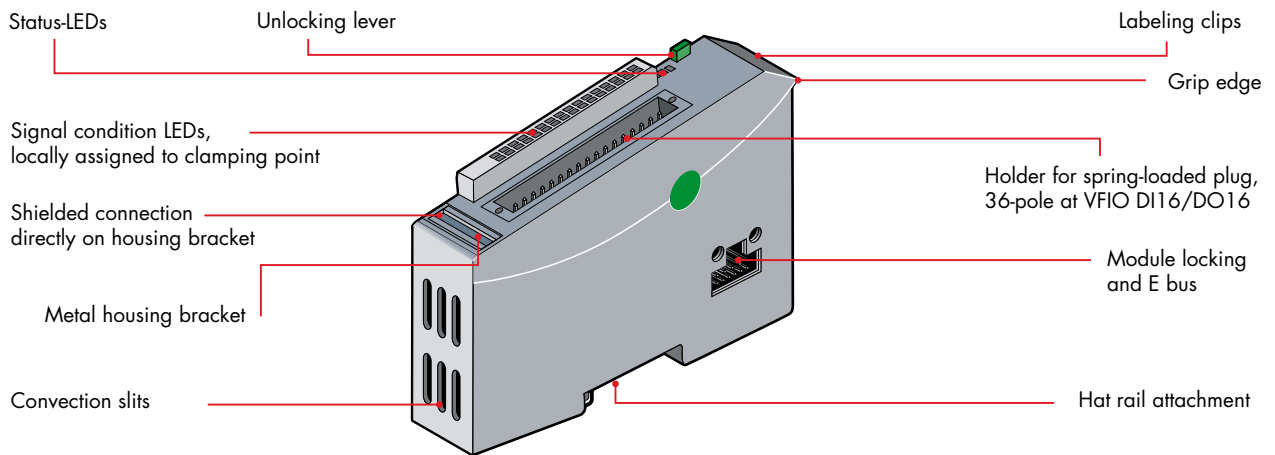
### Ventura FIO I/O modules

Field bus	EtherCAT 100 Mbit/s LVDS: E bus
Connection I/O	Spring-loaded plug 18- or 36-pole
Diagnosis	Status LED: EtherCAT, I/O, Power, I/O channel
Connection of additional Ventura FIO I/O module	Integrated in module side panel

## Ventura FIO in the EtherCAT network



## Module structure



## Order data

Description	Part number
<b>Controller</b>	
Ventura Skaleo 100 RS232 (CoDeSys PLC)	694.300.00
Ventura Skaleo 100 RS485 (CoDeSys PLC)	694.300.01
<b>Bus coupler</b>	
Ventura FIO bus coupler, 3 A	694.400.00
Ventura FIO Extender, 1 Port	694.400.01 *
Ventura FIO Extender, 2 Port	694.400.02 *
<b>Digital I/Os</b>	
Ventura FIO DI16/DO16 5 ms/0.5 A	694.450.01
Ventura FIO DI16/DO8 1 A	694.450.02 **
Ventura FIO DI16/DO16 1 ms/0.5 A	694.450.03
Ventura FIO DI16 5 ms	694.451.01
Ventura FIO DI32 1 ms	694.451.02
Ventura FIO DI16 1 ms	694.451.03
Ventura FIO DI32 5 ms	694.451.04
Ventura FIO DI8/DO8 5 ms/0.5 A	694.450.04 **
Ventura FIO DI8/DO8 1 ms/0.5 A	694.450.05 **
Ventura FIO DO16 0.5 A	694.452.01
Ventura FIO DO8 1 A	694.452.02 **

\* 1. quarter 2010

\*\* On request. Additional modules in preparation: counter, communication modules, functional modules

## Order data

Description	Part number
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### Analog I/Os

Ventura FIO AI4-I 12 bit	694.441.01
Ventura FIO AI8-I 12 bit	694.441.04
Ventura FIO AI4/8-U 13 bit (4 diff./8 s.e.)	694.441.02
Ventura FIO AI8/16-U 13 bit (8 diff./16 s.e.)	694.441.03
Ventura FIO AO4-U/I 12 bit	694.442.02

### Analog inputs temperature

Ventura FIO AI4-Pt/Ni100 16 bit	694.443.01
Ventura FIO AI8-Pt/Ni100 16 bit	694.443.02
Ventura FIO AI4-Pt/Ni1000 16 bit	694.443.03
Ventura FIO AI8-Pt/Ni1000 16 bit	694.443.04
Ventura FIO AI4-Thermo 16 bit	694.443.05
Ventura FIO AI8-Thermo 16 bit	694.443.06

### Counter/Posi/Drive

Ventura FIO Counter1 5 V/24 V	694.444.00**
Ventura FIO Counter2 5 V/24 V	694.444.01*
Ventura FIO Counter/Posi1 5 V/24 V	694.454.00**
Ventura FIO Counter/Posi2 5 V/24 V	694.454.01**
Ventura FIO Drive Control DC/EC 3.5 A	694.454.13

### Interface

Ventura FIO PROFIBUS-DP-Slave	694.455.03
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### Accessories

Potential distributor FIO 2 x 16 with 3-pin connection	694.411.00
Ventura FIO plug 2-pole 1 piece	694.100.02.01
Ventura FIO plug 18-pole 1 piece	694.100.18.01
Ventura FIO plug 36-pole 1 piece	694.100.36.01
Ventura FIO plug 2-pole 20 pieces	694.100.02.20
Ventura FIO plug 18-pole 20 pieces	694.100.18.20
Ventura FIO plug 36-pole 20 pieces	694.100.36.20
Ventura FIO shielded connection clamp 2 x 8 mm	694.412.01
Ventura FIO shielded connection clamp 14 mm	694.412.02

\* 1. quarter 2010

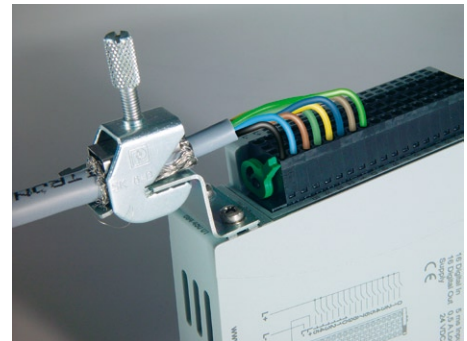
\*\* On request. Additional modules in preparation: counter, communication modules, functional modules



Ventura  
Skaleo

Ventura FIO  
bus coupler

Ventura FIO  
I/O module



Shielded connection clamp



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