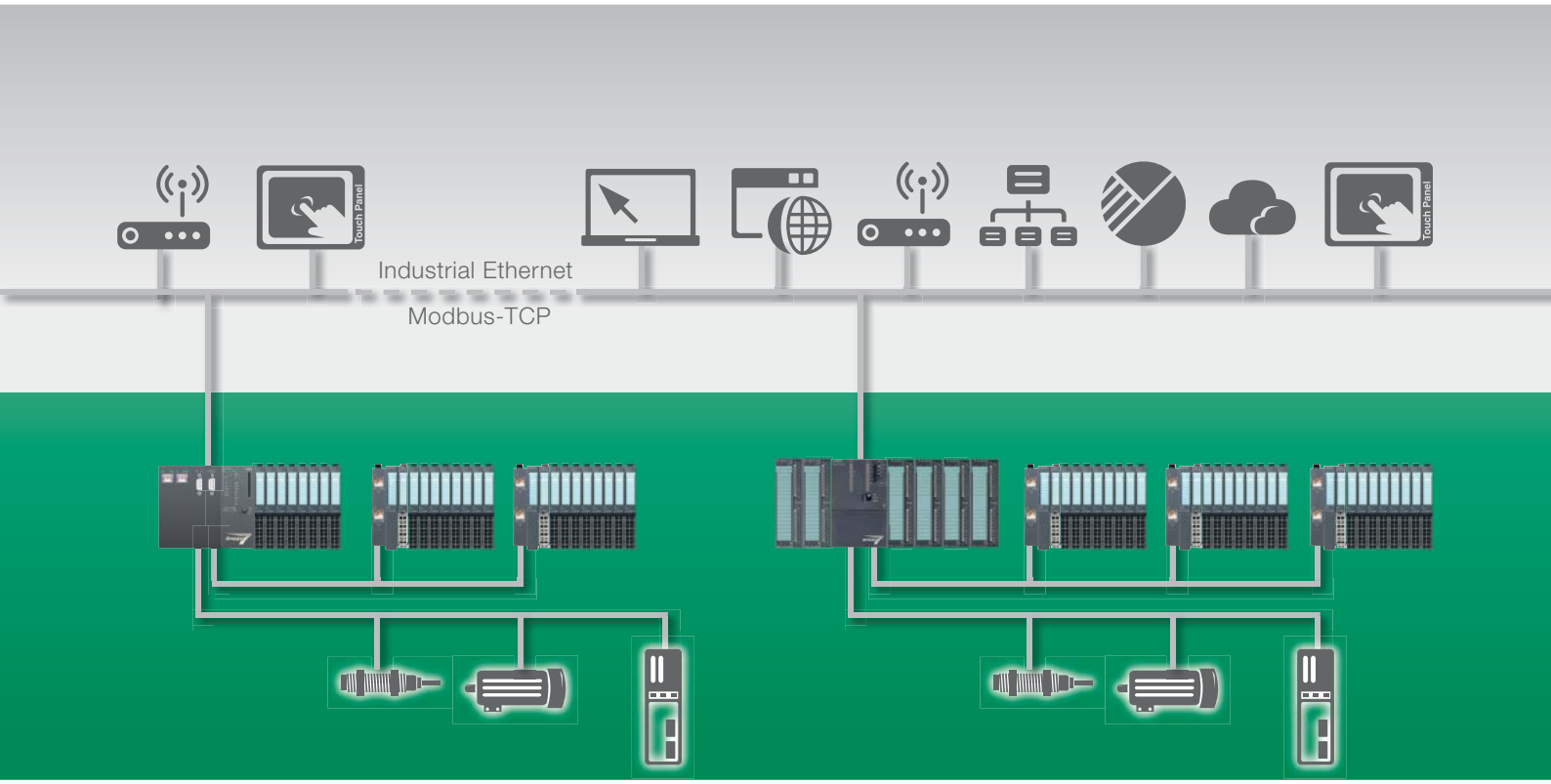
SLIO

The smart control and I/O system

www.vipa.com

VIPA
A YASKAWA COMPANY

SLIO at a glance



SLIO is a modular and extremely compact control and I/O system. It is universally combinable and deployable with every established VIPA system and nearly all those of other producers.

VIPA sets a further milestone in the automation industry with the newly developed system SLIO.

SLIO combines high functionality and a clever mechanical concept in an extremely compact design. SLIO stands for slice input and output. SLIO is very compact and is exactly adapted to the demands of the application slice by slice.

Many interface modules are available for the usage as an IO system. Beside PROFINET and PROFIBUS, EtherCAT, DeviceNet, CANopen, EtherNet/IP and MODBUS TCP are available.

All interfaces modules for PROFINET, PROFIBUS, EtherCAT, DeviceNet, CANopen, EtherNet/IP and MODBUS TCP support up to 64 electronic modules.

A module unit consists of terminal and electronic modules that are connected with a safe slide and lock mechanism.

The terminal module combines clamps, intake for the electronic module, and the SLIO backplane bus connector. In the case of service only the electronic module is exchanged by simply pulling it out from the terminal module – the wiring and mounting on the 35mm standard profile rail remain unchanged.

The deployed power modules are in contrasting colors to the signal and function modules. The electronic modules are supplied with voltage and separated – if required - in potential groups by the power modules.

The cage clamps on the terminal module enable a fast, clear and safe wiring.

With the integrated status LEDs and the user friendly front labeling strips of the electronic modules the identification and status monitoring of the I/O channels is clear and precise.

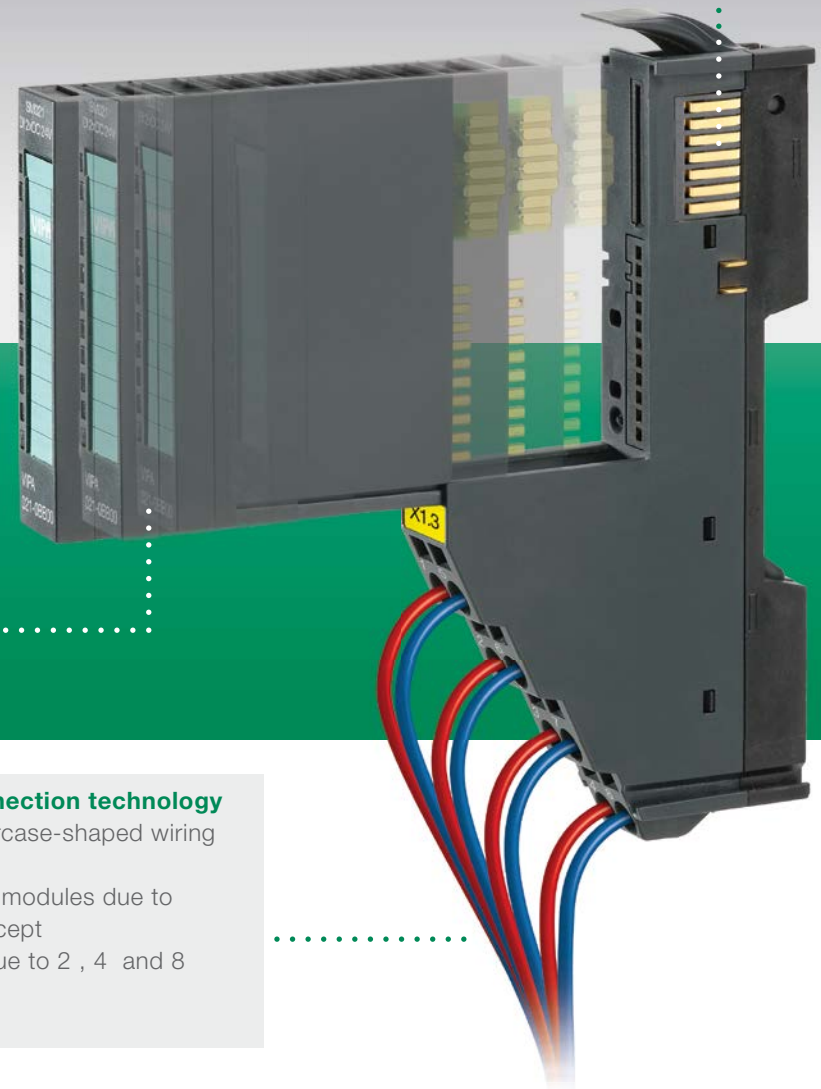
The new SLIO backplane bus concept with a speed of up to 48 Mbit/s ensures very short reaction times.

With the new SLIO CPU the I/O system has become one of the most advanced centralized control systems in the automation market. With the introduction of the VIPASetCards (VSC) the customer can configure a suitable CPU within an seconds. Besides expandable work memory you can also select between different fieldbus connections.

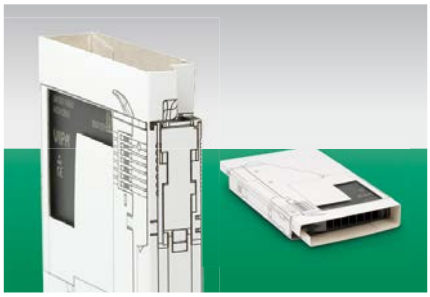
SLIO – Features

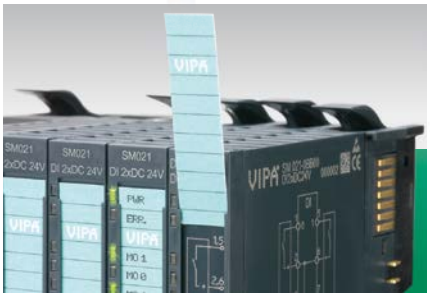
High-performance backplane bus
- Transmission rates of up to 48 Mbit/s
- Very fast reaction time of up to 20µs
- One terminal module for all signal and function modules

Easy installation and maintenance
- Easy mounting through safe slice mechanism
- Click connection for fast mounting and easy shielding
- Failure protection due to automatic identification of electronic modules
- Unique two stage concept consisting of terminal modules and electronic modules allowing simple and fast maintenance



Space saving connection technology
- Space saving staircase-shaped wiring with cage clamps
- Easy exchange of modules due to unique wiring concept
- High modularity due to 2 , 4 and 8 channel modules





Significantly simplified ordering process

- You receive everything that is necessary for operation with one order number. Regardless whether coupler or only modules.
- All modules can be ordered individually.
- The power module is included with the order.
- SLIO does not need a terminal resistor (so there is nothing extra that you have to think about when ordering).

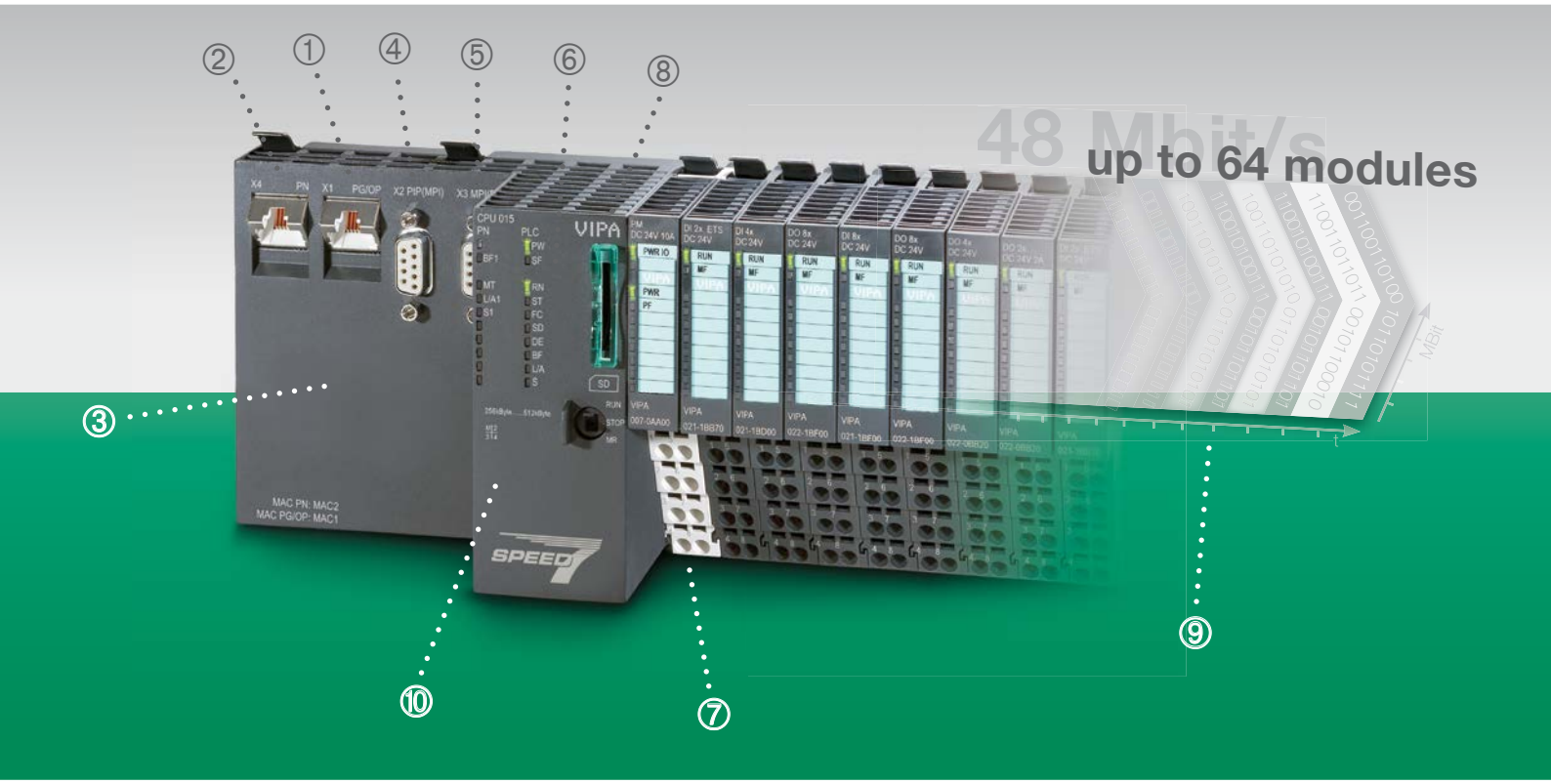
Clear status and diagnosis monitoring

- Monitoring of diagnosis and channel status via LEDs.
- Clear allocation and readability of the channel status.
- Detailed diagnosis of each electronic module in the system.

Clever, user friendly labeling

- Labeling strips for individual indication per channel.
- Status LEDs with direct allocation on the labeling strip.
- Terminal assignment and terminal graph on each module.

SLIO – CPU



① Ethernet PG/OP interface
Always integrated. For easy programming and for flexible communication with Touch Panels and Panel PC´s.

② PROFINET controller
With our CPU 015 you get a high performance PROFINET controller that allows you to connect up to 128 devices. Of course you can use this interface at the same time as an active Ethernet interface.

③ Multi programmable
You are not depending on one system. Use the engineering tool which you know best: SPEED7 Studio, SIMATIC Manager or TIA Portal. We are flexible and we will remain flexible!

④ Full serial interface
ASCII, STX/ETX, USS, 3964(R), MPI and MODBUS RTU master/slave are also available on each of our SLIO CPUs as standard.

⑤ MPI - For us a must
Of course you can expand this interface as a PROFIBUS slave or master – just as you desire.

⑥ Webinterface
Every SLIO CPU has a web interface, so the diagnostic information and status of your modules are displayed. Of course, a remote access to this site is also possible. Only a simple connection to your network is required and you can access this web interface.

⑦ Exchangeable power module
The power module is supplied with the CPU. In the case of a fault only the electronic module can be exchanged and you can continue. As you can see we considered your requirements here.

⑧ SD cards and SD cards locking
Higher performance and safety by the usage of SD cards including a unique SD card lock!

⑨ High speed backplane bus
With our high speed backplane bus with up to 48 Mbit/s the fastest reaction times of up to 20 µs can be reached. Use all modules from the SLIO I/O system. Up to 64 modules can be connected in one line.

⑩ Expandable work memory
Well known with the unique SPEED7 technology, here we also made sure that you have a possibility of expanding your application. Your CPU can simply grow with your application.

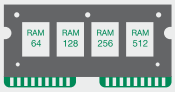
CPU features which can be activated

① **CPU**


014


015

② **Work memory**



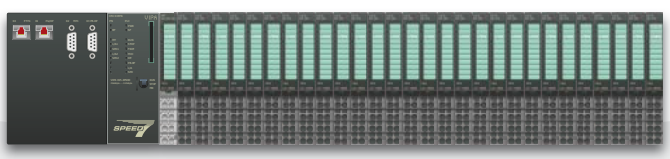
③ **Fieldbus**


master


slave

Technical data

	CPU 014	CPU 015PN
Work memory **from**	64 kB	256 kB
up to	192 kB	512 kB
PROFINET	-	✓
Ethernet-PG/OP	✓	✓
PB-Master	optionally	optionally
PB-Slave	optionally	optionally
MPI	✓	✓
MPI, ASCII, STX/ETX, 3964(R), USS Master, Modbus-Master/-Slave	✓	✓
RJ45 Ports	1	2



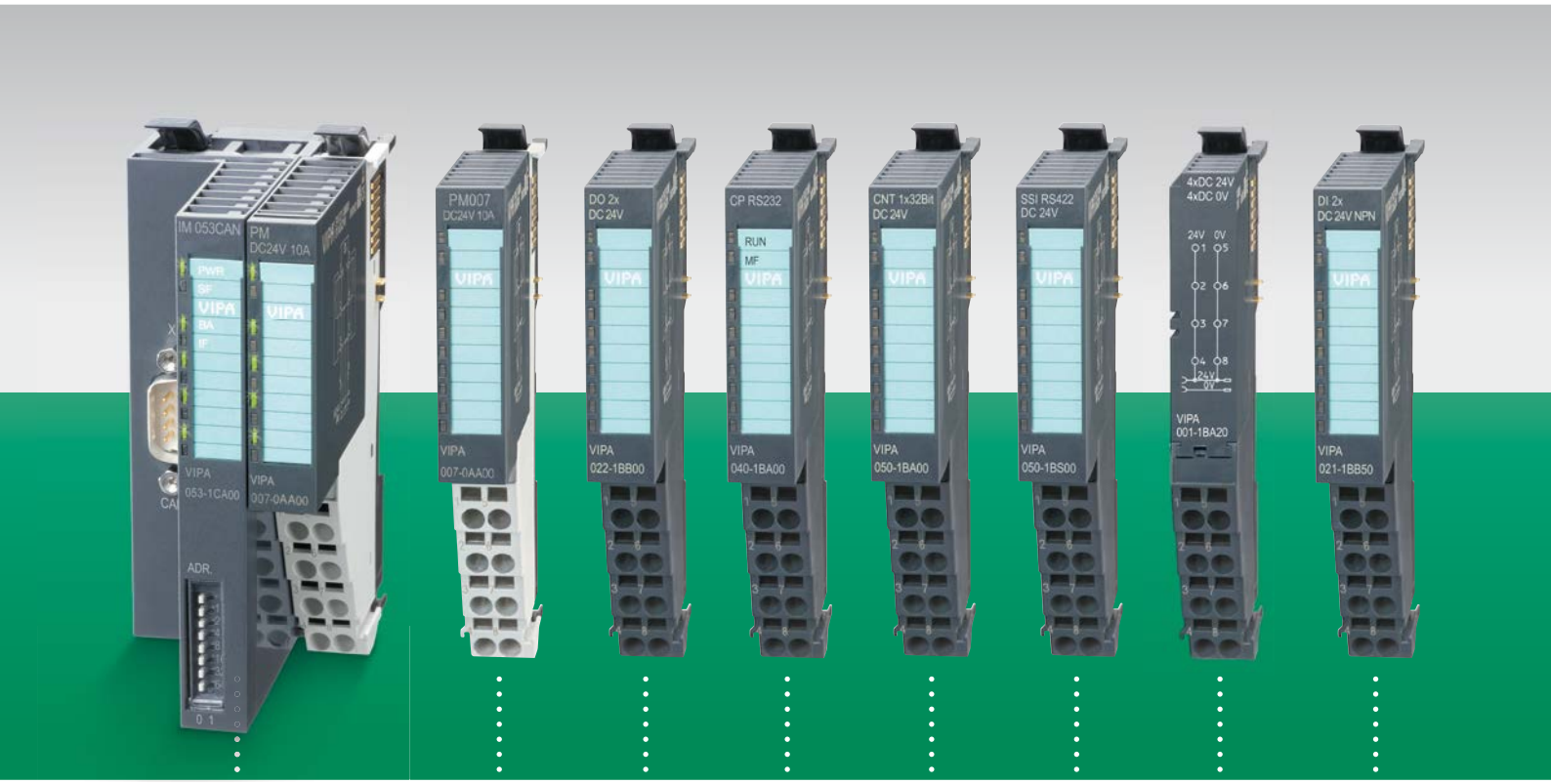
Features which can be activated via SD card

Article No.	additional work memory	PB master	PB slave
955-C000M00	0 kB	✓	-
955-C000S00	0 kB	-	✓
955-C000020	+ 64 kB	-	-
955-C000M20	+ 64 kB	✓	-
955-C000S20	+ 64 kB	-	✓
955-C000030	+ 128 kB	-	-
955-C000M30	+ 128 kB	✓	-
955-C000S30	+ 128 kB	-	✓
955-C000040	+ 256 kB	-	-
955-C000M40	+ 256 kB	✓	-
955-C000S40	+ 256 kB	-	✓

✓ Clear reduction of your warehouse costs
✓ Flexible reaction within seconds using VSC configuration
✓ SPEED7 technology:

- large amounts of data are processed in real time
- offers a flexible memory expansion, compatible with the application
- ensures maximum speed with all applications

SLIO – The I/O system



Interface modules (IM)

The space saving interface module is the interface between process level and superior bus system. All control signals are transmitted to the electronic module via the internal backplane bus.

Signal modules (SM)

Signal modules are for the connection of the sensor/actor level and for capture of digital and analog signals in and out of the process.

SSI modules (FM)

The SSI module is specially designed to process the data of an encoder with SSI interface. This allows you extremely precise work.

Potential distribution modules (CM)

Distributors for power supply are easily realizable by the deployment of clamp modules and this makes possible the connection of active supplied sensors for example proximity switches.

Power modules (PM)

The power modules are used for feeding in the load voltage. The two stage concept enables a simplified maintenance by the separation of the power electronics and the terminal module.

Communication processor (CP)

Communication processor are for the connection of different target or source systems, for example via Ethernet to superior ERP systems or via serial to subordinate scanners, printers and other peripheral equipment.

Counter modules (FM)

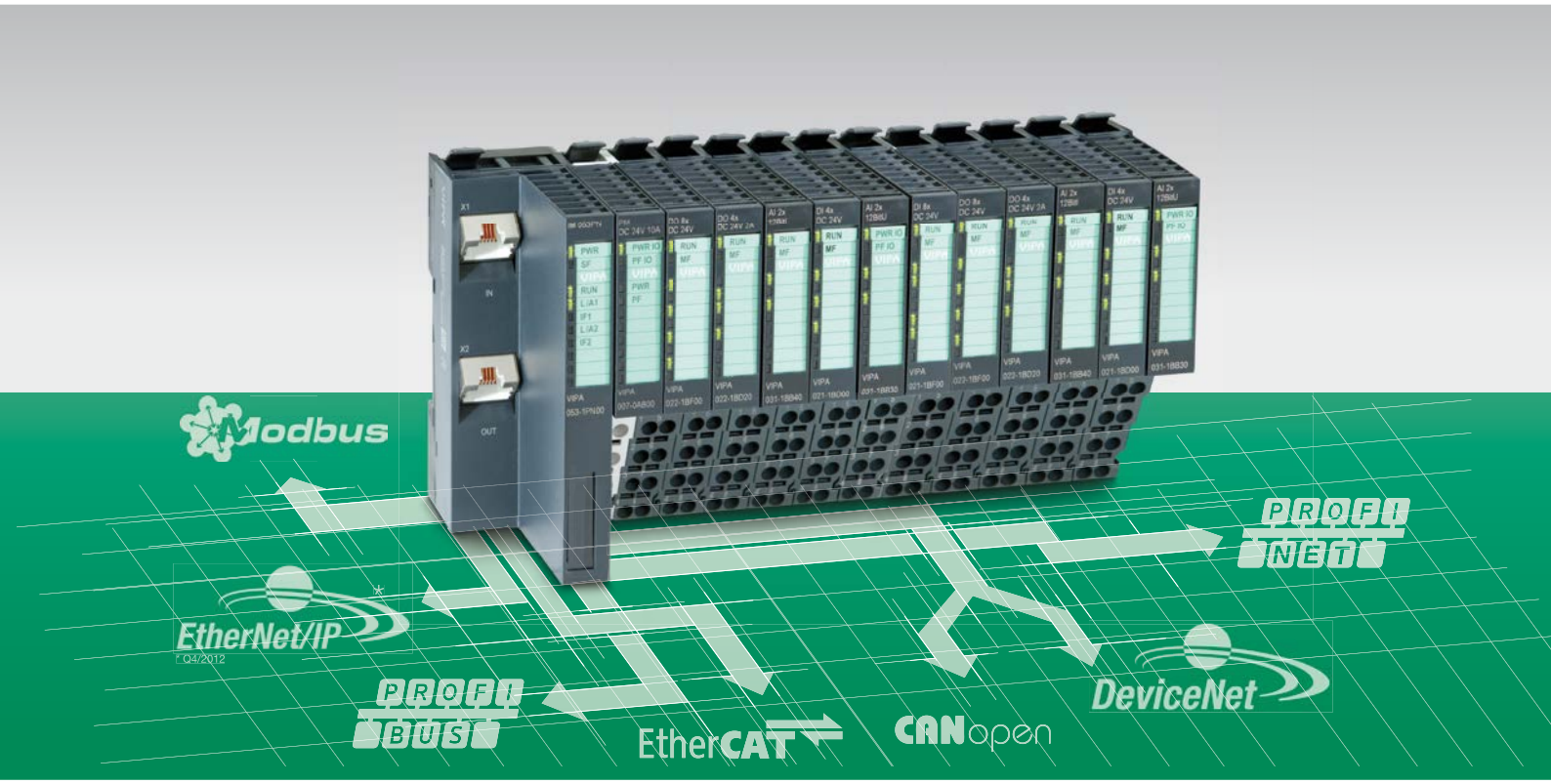
These special function modules are designed specifically for counting. And in this task they can hardly be beaten.

ETS modules (Edge Timestamp System)

Microsecond accurate measurement and detection of moving objects (speed and acquisition period).

This means for you:
No time accuracy errors anymore, which are caused by the fieldbus and CPU cycle.

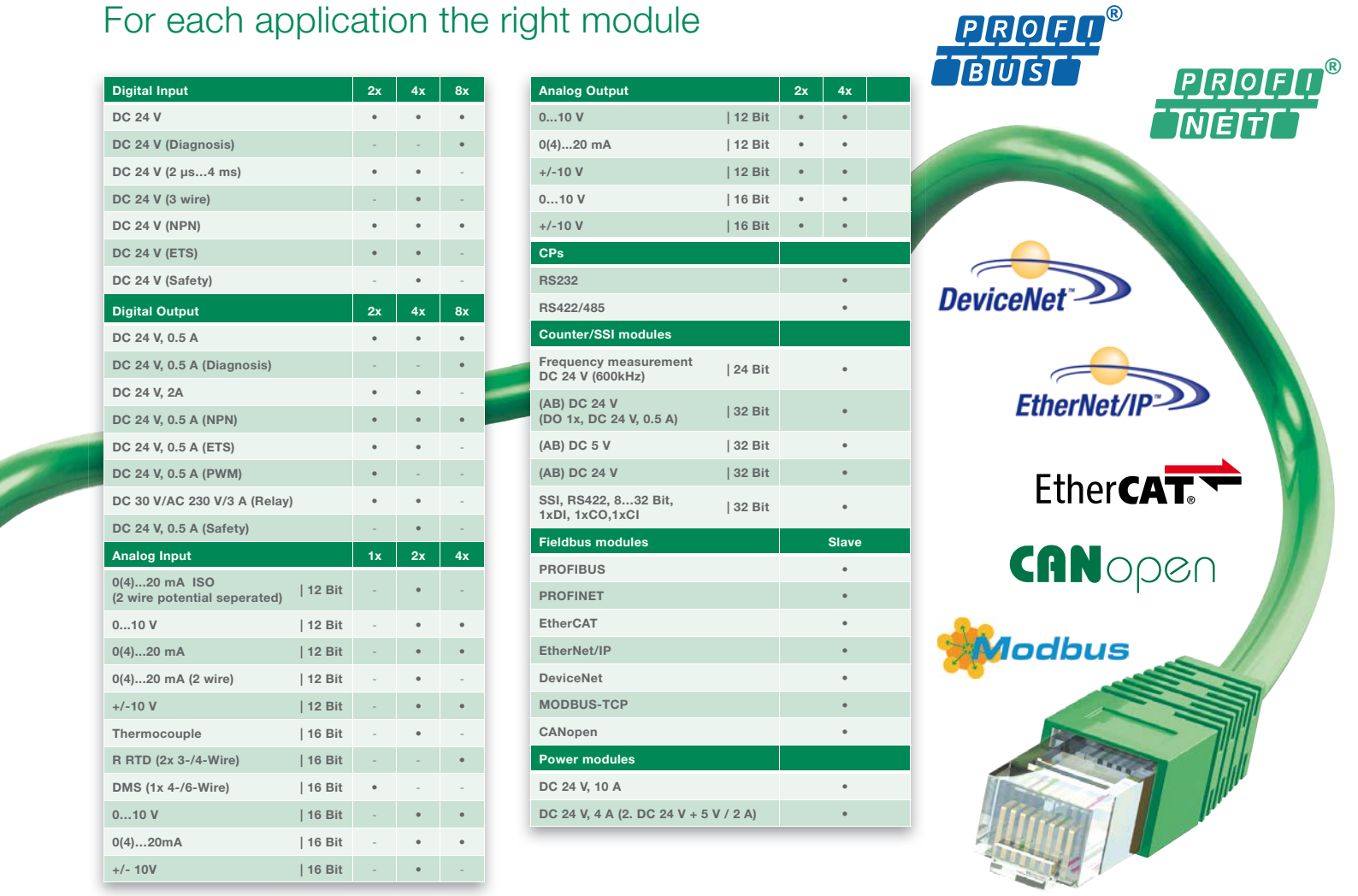
SLIO – open for everything



For each application the right module

Digital Input	2x	4x	8x
DC 24 V	•	•	•
DC 24 V (Diagnosis)	-	-	•
DC 24 V (2 µs...4 ms)	•	•	-
DC 24 V (3 wire)	-	•	-
DC 24 V (NPN)	•	•	•
DC 24 V (ETS)	•	•	-
DC 24 V (Safety)	-	•	-
Digital Output	**2x**	**4x**	**8x**
DC 24 V, 0.5 A	•	•	•
DC 24 V, 0.5 A (Diagnosis)	-	-	•
DC 24 V, 2A	•	•	-
DC 24 V, 0.5 A (NPN)	•	•	•
DC 24 V, 0.5 A (ETS)	•	•	-
DC 24 V, 0.5 A (PWM)	•	-	-
DC 30 V/AC 230 V/3 A (Relay)	•	•	-
DC 24 V, 0.5 A (Safety)	-	•	-
Analog Input	**1x**	**2x**	**4x**
0(4)...20 mA ISO (2 wire potential seperated) | 12 Bit	-	•	-
0...10 V | 12 Bit	-	•	•
0(4)...20 mA | 12 Bit	-	•	•
0(4)...20 mA (2 wire) | 12 Bit	-	•	-
+/-10 V | 12 Bit	-	•	•
Thermocouple | 16 Bit	-	•	-
R RTD (2x 3-/4-Wire) | 16 Bit	-	-	•
DMS (1x 4-/6-Wire) | 16 Bit	•	-	-
0...10 V | 16 Bit	-	•	•
0(4)...20mA | 16 Bit	-	•	•
+/- 10V | 16 Bit	-	•	-

Analog Output	2x	4x	
0...10 V | 12 Bit	•	•	
0(4)...20 mA | 12 Bit	•	•	
+/-10 V | 12 Bit	•	•	
0...10 V | 16 Bit	•	•	
+/-10 V | 16 Bit	•	•	
CPs			
RS232		•	
RS422/485		•	
Counter/SSI modules			
Frequency measurement DC 24 V (600kHz) | 24 Bit		•	
(AB) DC 24 V (DO 1x, DC 24 V, 0.5 A) | 32 Bit		•	
(AB) DC 5 V | 32 Bit		•	
(AB) DC 24 V | 32 Bit		•	
SSI, RS422, 8...32 Bit, 1xDI, 1xCO,1xCI | 32 Bit		•	
Fieldbus modules		**Slave**	
PROFIBUS		•	
PROFINET		•	
EtherCAT		•	
EtherNet/IP		•	
DeviceNet		•	
MODBUS-TCP		•	
CANopen		•	
Power modules			
DC 24 V, 10 A		•	
DC 24 V, 4 A (2. DC 24 V + 5 V / 2 A)		•	



SPEED7 Studio

Hardware configuration

- Simplified hardware configuration
- Clever Drag & Drop function
- Intelligent input help by means of tooltips
- Photo-realistic representation of the modules used

Networking

- Networking via PROFIBUS, PROFINET, EtherCAT and Standard-Ethernet
- The topology display is unchanged independent of the bus protocol
- The topology display is unchanged independent of the bus protocol

Programming

- The hand tools of the SPEED7 Studios are STL, FBD, and LAD
- The diagnosis is possible by means of module status and monitoring chart – even with history and trend graph
- Different color designs, hierarchical levels & clear allocation

Visualization

- Web and vector based visualization
- Easy and locally independent access via panel, laptop, smart phone and tablet PC
- Complete integration of your project variables for use in visualization

Notes

VIPA
A YASKAWA COMPANY

www.vipa.com