Product comparison

	VFDs i510 cabinet	VFDs i550 cabinet	VFDs i550 protec	VFDs i550 motec	VFDs i650 motec
Design/mounting	Control cabinet	Control cabinet	Wall	Wall or motor	Wall or motor
Degree of protection	IP20	IP20	IP55/66	IP66	IP66
Mains connection/power range					
1 AC 120 V	-	0.25 ... 1.1 kW	0.37 ... 1.1 kW	-	-
1 AC 230/240 V	0.25 ... 2.2 kW	0.25 ... 2.2 kW	0.37 ... 2.2 kW	-	-
3 AC 230/240 V	0.25 ... 7.5 kW	0.25 ... 7.5 kW	0.37 ... 45 kW	0.37 ... 22 kW	0.37 ... 22 kW
3 AC 480 V	0.37 ... 15 kW	0.37 ... 132 kW	0.37 ... 75 kW	0.37 ... 45 kW	0.37 ... 45 kW
3 AC 600 V	-	-	0.75 ... 45 kW	-	-
Market approvals/environ-ment					
CE	✓	✓	✓	✓	✓
UKCA	✓	✓	✓	✓	✓
cULus	✓	✓	✓	✓	✓
RoHS	✓	✓	✓	✓	✓
Energy efficiency	Class IE2	Class IE2	Class IE2	Class IE2	Class IE2
Ambient conditions					
Degree of pollution	2	2	2	2	2
Vibration resistance during operation	Up to 1 g	Up to 1 g	Up to 1 g	Up to 1 g	Up to 1 g
Insulation resistance	Category III	Category III	Category III	Category III	Category III
Operation (EN 60721-3-3)	3K3 (-20 ... +60 °C)	3K3 (-20 ... +60 °C)	3K3 (-30 ... +60 °C)	3K3 (-30 ... +60 °C)	3K3 (-30 ... +60 °C)
Derating	2.5 %/°C above 45 °C	2.5 %/°C above 45 °C	2.5 %/°C above 45 °C	2.5 %/°C above 40 °C	2.5 %/°C above 40 °C
Storage (EN 60721-3-1)	1K3 (-25 ... +60 °C)	1K3 (-25 ... +60 °C)	1K3 (-30 ... +60 °C)	1K3 (-30 ... +60 °C)	1K3 (-30 ... +60 °C)
Transport (EN 60721-3-2)	2K3 (-25 ... +70 °C)	2K3 (-25 ... +70 °C)	2K3 (-30 ... +70 °C)	2K3 (-30 ... +70 °C)	2K3 (-30 ... +70 °C)
Control connections					
Digital inputs	5	5 (Standard-I/O) 7 (Application-I/O)	5	Configurable: 3 ... 4 (Standard-I/O) 4 ... 8 (Application-I/O)	Configurable: 4 ... 8 (Application-I/O)
Digital outputs	1	1 (Standard-I/O) 2 (Application-I/O)	1	Configurable: 0 ... 1 (Standard-I/O) 0 ... 4 (Application-I/O)	Configurable: 0 ... 4 (Application-I/O)
Analog inputs	2	2	2	-	-
Analog outputs	1	1 (Standard-I/O) 2 (Application-I/O)	1	-	-
Relay	1	1	1	-	-
IO-Link ports	-	-	-	Configurable: 0 ... 4 (Application-I/O)	Configurable: 0 ... 4 (Application-I/O)

✓ = standard O = option P = planned

	VFDs i510 cabinet	VFDs i550 cabinet	VFDs i550 protec	VFDs i550 motec	VFDs i650 motec
Protective measures					
Earth-fault protected	✓	✓	✓	✓	✓
Short-circuit-proof	✓	✓	✓	✓	✓
Overvoltage-proof	✓	✓	✓	✓	✓
Motor stall protection	✓	✓	✓	✓	✓
Motor overtemperature	I^2xT	With PTC, I^2xT	With PTC, I^2xT	With PTC, I^2xT	With PTC, I^2xT
Operation on public networks					
Device below 1 kW (EN IEC 61000-3-2)	With mains choke	With mains choke	With mains choke	✓	✓
Devices above 1 kW up to 16 A (EN IEC 61000-3-2)	✓	✓	✓	✓	✓
Devices above 16 A up to 75 A (EN IEC 61000-3-12)	With mains choke	With mains choke	From 30 kW mains choke integrated	Rsce ≥ 250	Rsce ≥ 250
Motor cable lengths					
EMC category C1	-	Max. 3 m up to 2.2 kW	Max. 3 m up to 2.2 kW	-	-
EMC category C2	Max. 15 m up to 0.37 kW Max. 20 m from 0.55 kW	Max. 15 m up to 0.37 kW Max. 20 m from 0.55 kW	Max. 20 m up to 11 kW	Max. 10 m	Max. 10 m
Fusing					
Fuses (EN 60204-1), characteristic	gG/gl or gRL	gG/gl or gRL	gG/gl or gRL	gG/gL or gRL up to 11 kW gR	gG/gL or gRL up to 11 kW gR
Circuit breakers (EN 60204-1), characteristic	B or C	B or C	B	B	B
Residual current devices (RCD), characteristic	≥ 30 mA up to 11 kW Type B or F	≥ 30 mA up to 11 kW Type B or F	≥ 30 mA up to 11 kW Type B	≥ 30 mA Type B	≥ 30 mA Type B
Communication					
CANopen	O	O	O	-	-
EtherCAT	-	O	O	✓	✓
EtherNet/IP	-	O	O	✓	✓
IO-Link	-	O (device)	O (device)	O (4 x IO-Link master)	O (4 x IO-Link master)
Modbus RTU	O	O	O	-	-
Modbus TCP	-	O	O	✓	✓
POWERLINK	-	O	-	-	-
PROFIBUS	-	O	-	-	-
PROFINET	-	O	O	✓	✓
Feedback					
HTL incremental encoder	-	✓ (2 track)	✓ (2 track)	✓ (2 track)	✓ (2 track)
Motor controls					
V/f characteristic control	✓	✓	✓	✓	✓
Vector control for asynchronous motors	✓	✓	✓	✓	✓
Vector control for synchronous motors	✓	✓	✓	-	-
Vector control for synchronous motors with frequency support at low speeds	✓	✓	✓	✓	✓
V/f characteristic control with feedback	-	✓	✓	✓	✓
Vector control for asynchronous motors with feedback	-	✓	✓	✓	✓
Additional functions for the motor controls					
Auto-tuning	-	-	-	-	-
Boost	✓	✓	✓	✓	✓
Slip compensation	✓	✓	✓	✓	✓
Oscillation damping	✓	✓	✓	✓	✓
Torque control	✓	✓	✓	✓	✓
Skip frequencies	✓	✓	✓	✓	✓
Motor stall protection	✓	✓	✓	✓	✓
Motor monitoring	✓	✓	✓	✓	✓

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	VFDs i510 cabinet	VFDs i550 cabinet	VFDs i550 protec	VFDs i550 motec	VFDs i650 motec
Component control/additional functions					
Fixed frequencies (jog values)	✓	✓	✓	✓	✓
Motor potentiometer	✓	✓	✓	✓	✓
Sequence control	✓	✓	✓	-	-
Logic PLC	-	-	-	-	O
Table positioning	-	-	-	-	O
PID controller	✓	✓	✓	✓	✓
Position counter	✓	✓	✓	✓	✓
Parameter set changeover	✓	✓	✓	✓	✓
Energy efficiency					
DC bus	-	✓	✓	-	-
Energy-saving function "VFC eco"	✓	✓	✓	✓	✓
Regenerative feedback mode	-	-	-	✓	✓
Additional motor functions					
Flying restart circuit	✓	✓	✓	✓	✓
DC-injection brake	✓	✓	✓	✓	✓
Holding brake control	✓	✓	✓	✓	✓
Switching frequency setting	✓	✓	✓	✓	✓
System protection					
Access protection	✓	✓	✓	✓	✓
Temperature monitoring	✓	✓	✓	✓	✓
Mains failure control	✓	✓	✓	-	-
Operation on a UPS	✓	✓	✓	-	-
Safe stop functions					
Safe Torque Off (STO)	-	O	O	O	O
Safe stop 1 (SS1)	-	-	-	-	O
Safe stop emergency (SSE)	-	-	-	-	P
Safe brake control (SBC)	-	-	-	-	P
Cascading STO (CAS)	-	-	-	-	P
Safe monitoring functions					
Safe maximum speed (SMS)	-	-	-	-	P (sensorless)
Safely limited speed (SLS)	-	-	-	-	P (sensorless)
Safe speed monitoring (SSM)	-	-	-	-	P (sensorless)
Safe direction (SDI)	-	-	-	-	P (sensorless)
Auxiliary and maintenance functions for functional safety					
Operation mode selector (OMS)	-	-	-	-	P
Enable switch (ES)	-	-	-	-	P
Safe Muting (MUT)	-	-	-	-	O
Safe inputs and outputs					
Sensor inputs (SIL 3/PL e)	-	1 (Basic Safety - STO)	1 (Basic Safety - STO)	-	1 (Basic Safety - STO)
Safety bus					
FSoE	-	-	-	-	P
CIP Safety	-	-	-	-	O (STO, SS1-t)
PROFIsafe	-	-	-	-	P

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		VFDs i510 cabinet	VFDs i550 cabinet	VFDs i550 protec	VFDs i550 motec	VFDs i650 motec
Operation and diagnostics						
	Keypad	Accessories	Accessories	O (not replaceable)	-	-
	Diagnostic interface	Accessories: USB module (Micro-USB)	Accessories: USB module (Micro-USB)	✓ (Micro-USB)	✓ (USB-C)	✓ (USB-C)
	WLAN	Accessories: WLAN module	Accessories: WLAN module	O (WLAN module, not replaceable)	P	P
Options						
	Mains connection	- (Terminals)	- (Terminals)	- (Terminals)	Han Q4/2 connectors or terminals	Han Q4/2 connector
	Motor connection	- (Terminals)	- (Terminals)	- (Terminals)	Han Q8 connectors, M23 connectors, M40 connectors, or terminals	Han Q8 connectors, M23 connectors, M40 connectors, or terminals
	I/Os	Basic-I/O (standard)	Standard-I/O (standard) or Application-I/O	Standard-I/O (standard)	Standard-I/O (standard) or Application-I/O	Application-I/O (standard)
	Functional safety	-	Basic Safety - STO	Basic Safety - STO	Basic Safety - STO	Basic Safety - STO or Extended Safety - S

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