



Altivar Process Regenerative Drive Systems



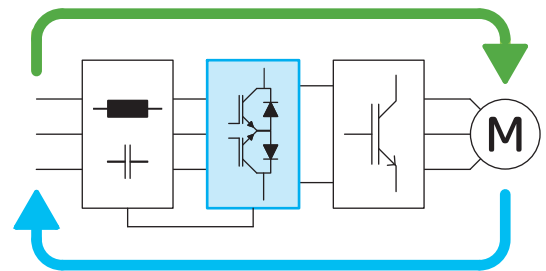
The customized solution for
your drive

"Ready-to-use" Regenerative Drive Systems:

- + Developed on highest quality level
- + Manufactured according to your needs
- + Tested at full-load operating conditions
- + Pre-set appropriate to the design

High efficient power regeneration

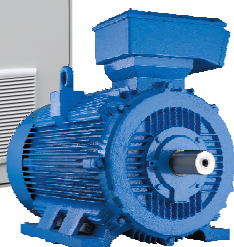
- + Lower heat losses compared to the classical AFE architecture
- + Dynamically adjusted DC link voltage
- + Reduced load of the mains
- + Enhanced motor lifetime due to decreased voltage load



3-level technology

Sophisticated motor control system

- + High overload capability
- + Especially good motor efficiency
- + Impressive robustness against load impacts
- + Excellent performance for all common motor types
- + Significant speed and torque accuracy with and without encoder feedback



- > Asynchronous motors
- > PM motors
- > Torque motors
- > Reluctance motors
- > Special motors like submersible pumps, sliding rotor motors,...

ATV980 – Regenerative Drive Systems



Regenerative Drive Systems as enclosure unit for speed control of asynchronous and synchronous motors in both energy directions.

Concept

The ATV980 Regenerative Drive Systems increase the efficiency by feeding back the drive energy to the mains.

An absolutely new developed concept based on a 3-level technology allows the full energy flow in both directions and reduces the total harmonic distortion THD(i) to a value less than 5 % at the same time.

During the development of the enclosure system special attention was paid to the "simplicity" of installation and during operation. The result is an enclosure ready to connect for drives where also generator operating state can occur. So it is an adequate 4-quadrant drive with shock-free change from motor operation to generator operation.

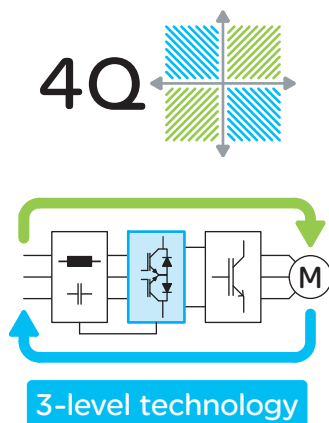
The modular system concept with more than 80 selectable options makes it possible to adapt the enclosure unit optimally to the individual requests. The completely tested enclosure ready to connect ensures a quick installation and commissioning of the drive.

Basic equipment

The basic equipment contains active infeed modules and their filter components as well as frequency inverter modules, semiconductor fuses, a main switch, a dv/dt filter choke (from 160 kW) for protection of the motor and spacious mains and motor bars for connection of the power cables. The design is based on the standard enclosure system Spacial SF with an graphical operating panel integrated into the enclosure door.

The control is located on a spacious control panel. It provides compact dimensions, nevertheless it is enough space for additional extensions and accessibility in case of maintenance.

Device features



Simple use

The ATV980 drives and brakes each motor without any additional effort. So this new 4Q technology is the perfect solution for drives where also generator operating state can occur. Thereby more complex multi-drive solutions with DC bus can be avoided.

Energy savings by high efficient power regeneration

The 3-level technology inside the active mains rectifier and the dynamically adapted DC link voltage make an efficient energy flow from and to the supplying mains possible. So the ATV980 makes an essential contribution to saving electrical energy.

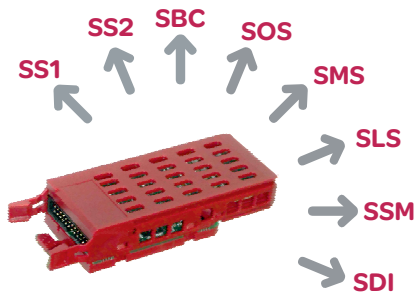
Reduced load of the mains by 3-level concept

In comparison with the classic circuit structure of active mains rectifiers, the 3-level technology allows an increase of the switching frequency and the current load is reduced at the same time. This new technology reaches a total harmonic distortion THD(i) below 2 % and thus fulfills the requirements according to IEEE 519 of $THD(i) < 5\%$ also in case of distorted mains. Additionally, the $\cos \Phi \approx 1$ in each load situation helps to reduce the load of the mains.

ATV980 - General technical data	
Mains voltage	3 AC 380 V -10 % ... 415 V +6 %, 50/60 Hz ±5 % for TT, TN-C or TN-S Other voltages and other types of mains possible
Maximum current	Normal duty (ND): 120 % for 60 s per 10 minutes Heavy duty (HD): 150 % for 60 s per 10 minutes
Ambient temperature	-10...+50 °C (below 0 °C with additional enclosure heating, above +40 °C with derating)
Standard equipment	Enclosure system Spacial SF in RAL 7035, protection degree IP23, graphical operating panel in the enclosure door, Regenerative Drive System with active mains rectifier for energy regeneration, mains and motor terminals, cable entry from bottom
Interfaces	Pluggable control terminals, fieldbus connection via Ethernet or Modbus
Possible customizations	<ul style="list-style-type: none"> • Braking unit BUO • Increased protection degree IP54 • Enclosure plinth for basic device • Connection enclosure cable from top/bottom • Enclosure lighting • Enclosure heating • Key switch "local/remote" • Ethernet port on front door • Digital and analog I/O card • Relay output card • Communication cards for various fieldbus systems • Encoder interface modules • STO - SIL 3 Stop category 0 or 1 • Front display module (FDM) • Modified wiring colors • Remote monitoring • Seaworthy packaging • Differing mains voltages • Design without main switch • Increased short-circuit strength (100 kA) • Indicator lamps on front door • Motor temperature monitoring • Bearing temperature monitoring • dv/dt filter choke • Motor heating • Circuit breaker • Undervoltage coil for circuit breaker 230 V • Automated mains disconnect • Safety labels in local language • Air intake from back • Differing enclosure colors • Customized documentation • Customized labeling • Design for IT mains • Motor contactor • ...
Standards	CE, EAC, ATEX, IEEE 519 (THDi < 5 %), RFI filter for second "industrial environment" C3 integrated

Type	Size	Motor rating (ND / HD)	Output current (ND / HD)	Dimensions		
				Width	Depth ⁽¹⁾	Height
ATV980C11Q4X1	1a	110 kW / 90 kW	210 A / 173 A	600 mm	600 mm	2150 mm
ATV980C13Q4X1		132 kW / 110 kW	250 A / 210 A	600 mm	600 mm	2150 mm
ATV980C16Q4X1		160 kW / 132 kW	302 A / 250 A	600 mm	600 mm	2150 mm
ATV980C20Q4X1	2a	200 kW / 160 kW	370 A / 302 A	1000 mm	600 mm	2150 mm
ATV980C25Q4X1		250 kW / 200 kW	477 A / 370 A	1000 mm	600 mm	2150 mm
ATV980C31Q4X1		315 kW / 250 kW	590 A / 477 A	1000 mm	600 mm	2150 mm
ATV980C35Q4X1	3a	355 kW / 280 kW	660 A / 520 A	1600 mm	600 mm	2150 mm
ATV980C40Q4X1		400 kW / 315 kW	730 A / 590 A	1600 mm	600 mm	2150 mm
ATV980C45Q4X1		450 kW / 355 kW	830 A / 660 A	1600 mm	600 mm	2150 mm
ATV980C50Q4X1		500 kW / 400 kW	900 A / 730 A	1600 mm	600 mm	2150 mm
ATV980C56Q4X1	4a	560 kW / 450 kW	1020 A / 830 A	2000 mm	600 mm	2150 mm
ATV980C63Q4X1		630 kW / 500 kW	1140 A / 900 A	2000 mm	600 mm	2150 mm
ATV980C71Q4X1	5a	710 kW / 560 kW	1260 A / 1020 A	2600 mm	600 mm	2150 mm
ATV980C80Q4X1		800 kW / 630 kW	1420 A / 1140 A	2600 mm	600 mm	2150 mm
(1) Total depth including door handle and switch handle: 664 mm						

Optimally equipped for safety-relevant applications



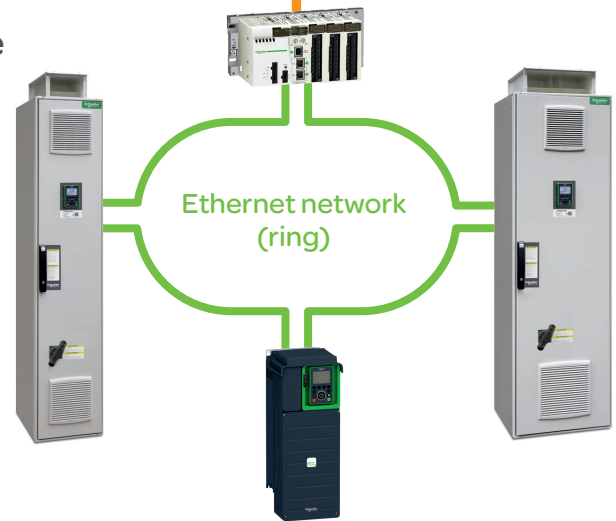
Support of all major safety functions:

- + SS1, SS2 (Safe Stop 1, 2)
- + SBC (Safe Brake Control)
- + SOS (Safe Operating Stop)
- + SMS (Safe Maximum Speed)
- + SLS (Safe Limited Speed)
- + SSM (Safe Speed Monitor)
- + SDI (Safe Direction)



Extended connectivity

- + Integrated Dual Ethernet for simple wiring and increased availability
- + Dynamic drive-to-drive communication for multi-motor operation
- + Easy integration thanks to standardized FDT/DTM and ODVA technology
- + Easy access via PC, tablet or smartphone



Sophisticated service concept with QR code

- + Modular design allows easy logistics of spare parts
- + Optimized costs for maintenance due to dynamic maintenance schedule with integrated monitoring of the individual components
- + Simple exchange of power modules and fans
- + Quick assistance with dynamic QR codes and Customer Care App

Schneider Electric Power Drives GmbH

Ruthnergasse 1
A-1210 Vienna
Phone: +43 (0) 1 29191 0
Fax: +43 (0) 1 29191 15

Due to evolution of standards and equipment, the characteristics indicated in texts and images of this document do not constitute a commitment on our part without confirmation.
Design: Schneider Electric Power Drives
Photos: Schneider Electric Power Drives

