T38 - What’s New in PowerFlex® Drives
Today’s PowerFlex family of AC drives offer customers more flexibility, connectivity, and productivity than any other drive portfolio in the market.
PowerFlex® 755T Drives

PowerFlex 755TL drive for Harmonic Mitigation

PowerFlex 755TR drive for Regeneration

PowerFlex 755TM drive system for Common Bus Solutions
PowerFlex 755T Drives
TotalFORCE® Control

New control platform to help optimize systems and improve productivity
PowerFlex 755T Drives
TotalFORCE Control helps improve productivity

- Blown fuse indication and feedback
- Measuring and monitor the run time hours
- Thermal manager
- Predict remaining life span of components
PowerFlex 755T Drives
Innovative design for efficient installation and maintenance

LCL Filter
- Reduces harmonic distortion from the power source
- Minimizes current distortion into the utility grid

Line Side Converter
- Draws energy without harmonic distortion
- Provides a means for regeneration

Motor Side Inverter
- Controls voltage, current and frequency of the rectifier

Power wiring stays connected while units are rolled out
PowerFlex Medium Voltage Drives

PowerFlex 6000
PowerFlex 6000 Extension

New Increased Capabilities and Features

- Improved performance
- 100% starting torque
- Constant torque capability
- Auto-tuning
- Application expansion

- Increase up to 680A
- Air-cooled
- New output voltage ratings including 6.9 and 11kV
- 690V Power Cells
- Optimized dimensions

New Features (200-680A only)

- Eco Design Cooling Fans
- Automatic Cell Bypass up to 680A
- Optional dv/dt filter
- Optional pre-charge circuit
- Optional IP42 and seismic enclosures
- Optional redundant fans
PowerFlex 6000 Drives
Automatic cell bypass helps improve productivity

Drive Running Healthy
Failed Power Cell
PowerFlex 6000 Drives
Automatic cell bypass helps improve productivity

Failed Power Cell
A6

Bypassed Power Cells
B6 & C6
What’s New for PowerFlex Drives?

Safety Solutions

- Helps Protect personnel & assets
- Helps Faster system restarts
- Helps Reduce exposure to electrical hazards
- Helps Lower wiring & installation costs & space
Safety Solutions
## Safety Solutions via Hardware (IO & Relay)

### Flexible Options for All Applications

<table>
<thead>
<tr>
<th>Safe Torque Off</th>
<th>Safe Speed Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerFlex 525 drive</td>
<td>PowerFlex 753 drive*</td>
</tr>
<tr>
<td>PowerFlex 527 drive</td>
<td>PowerFlex 755 drive*</td>
</tr>
<tr>
<td>PowerFlex 753 drive*</td>
<td>PowerFlex 755T drive*</td>
</tr>
<tr>
<td>PowerFlex 755 drive*</td>
<td>* Via Option Card</td>
</tr>
<tr>
<td>PowerFlex 755 drive*</td>
<td></td>
</tr>
<tr>
<td>PowerFlex 7000 drive*</td>
<td></td>
</tr>
<tr>
<td>Kinetix 5500</td>
<td></td>
</tr>
<tr>
<td>Kinetix 5700</td>
<td></td>
</tr>
<tr>
<td>ArmorStart ST</td>
<td></td>
</tr>
</tbody>
</table>
Scalable Software Safety Solutions
Control and Safety on the same wire

**Networked Safe Torque Off**
- PowerFlex 527 drive
- Kinetix 5500 servo drive
- Kinetix 5700 servo drive
- PowerFlex 755T drive S3*
- PowerFlex 755 drive S3*

**Networked Safety Functions**
- Kinetix 5700 servo drive
- PowerFlex 755 drive S4*
- PowerFlex 755T drive S4*

* Via Option Card

New for 2018
V31
20-750-S4

* Via Option Card
Integrated Safety Functions Opt. Module
Product Overview for 20-750-S4

- Designed for the **PowerFlex 755** and **755T** AC drives
- Provides networked Safety Functions over **EtherNet/IP**
- **SIL3, PLe, CAT4**
- Supported IEC 61800-5-2 Safety Functions:
  - **STO** Safe Torque Off
  - **SS1** Safe Stop 1
  - **SS2** Safe Stop 2*  
    *PF755T only
  - **SOS** Safe Operational Stop*
  - **SLS** Safely-Limited Speed
  - **SDI** Safe Direction
  - **SBC** Safe Brake Control
  - **SLP** Safely-Limited Position

*PF755T only

Preliminary mock-up (PCB final version is red)

(Additional Safety Functions under consideration)
Integrated Safety Functions Option Module Example

- PointGuard I/O™
- GuardLogix® Integrated Safety System Controller
- PowerFlex 755 with Networked Safe Monitor
- Stratix 5700™ Industrial Ethernet switch
- 20-750-S4 Integrated Safety Functions Option Module
- Feedback Options (20-750-UFB-1 or 20-750-DENC-1)
# PowerFlex® 750-Series Drives

PowerFlex® 750-Series drives offer scalable solutions from 200V to 690V

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>200…240V</th>
<th>400…480V</th>
<th>600…690V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Range</td>
<td>0.5 to 200 Hp</td>
<td>1 to 2000 Hp</td>
<td>1 to 1500 Hp</td>
</tr>
<tr>
<td></td>
<td>0.37 to 132 kW</td>
<td>0.75 to 1400 kW</td>
<td>7.5 to 1500 kW</td>
</tr>
<tr>
<td>Current Range</td>
<td>2.2 to 477 A</td>
<td>2.1 to 2330 A</td>
<td>1.7 to 1530 A</td>
</tr>
</tbody>
</table>
PowerFlex 750-Series 240V Input Drives

Product Specifications

- Input Voltage: 200…240V
- Power Range: 0.5…200 Hp / 2.2…477 A
- Motor Control: V/Hz, SVC, FVC, Permanent Magnet

Multiple Enclosures
- IP00/20, NEMA Type Open (NEMA Type 1 with Kit)
- IP54, NEMA Type 12
- Flange (Front: IP20, NEMA Open; Back: IP66, NEMA 4X)

Integrated dynamic braking transistor
- Standard for Frames 1…5
- Optional for Frames 6…7

AC Input and DC Input
- Frames 1…4: AC input including DC terminals
- Frames 5…7: AC or DC Input Catalog Options
### PowerFlex® DC Drive Family

**PowerFlex DC Drives and Field Controllers**

**Ideal for DC motor applications and retrofits up to 6000 Hp (4000 kW)**

- Core capabilities aligned with the PowerFlex Family of drives
- Additional capabilities
  - Designed for standalone as well as drive system applications
  - Multiple network and feedback options
  - On-board I/O and encoder feedback
  - Seamless integration into the Logix control architecture
  - Integrated power solution up to 1400 Hp and engineered solutions up to 6000 Hp

<table>
<thead>
<tr>
<th>PowerFlex DC</th>
<th>1.5 to 6000 Hp / 1.2 to 4000 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed &amp; Torque Control</td>
<td></td>
</tr>
<tr>
<td><strong>Regeneration &amp; Non-Regeneration</strong></td>
<td></td>
</tr>
</tbody>
</table>

**New!**

- PowerFlex DC Field Controller
  - 17 – 570 Amp
  - Current & Voltage Control
  - Motor/Generator Reversing Field & Non-motor Loads
Focus on Productivity

RESULTS

REAL-TIME REPORTING saves an equivalent of 3 days per week on manual data collection for the technician and process engineer.

INCREASED engineering efficiency trimming development time by 30 man days.

VISIBILITY INTO PRODUCTION, including energy consumption, based on area of production.

The Connected Enterprise
Design Productivity
Reduced development time

Premier Integration... **Accelerates** Device Configuration
Automatic Device Configuration

Field Device + Controller + EtherNet/IP

Configuration Firmware IP address

LOWER TIME TO REPAIR
Premier Integration
Application Code Manager

Registered Libraries:
- (RA-LIB) ACM 2.00 (278)
- (RA-LIB) MachineBuilder (101)
  - 01 EquipmentFramework (3)
  - 02 Logical Devices (9)
    - Pump (3)
    - Conveyors (2)
    - Unwinder (1)
    - Lift (1)
    - Blower (2)
  - 03 Operation (41)
  - 04 Technology (23)
  - Controller (2)
- (RA-LIB) Automation Devices
  - Power (3)
    - PowerFlex 525 (1)
    - PowerFlex 527 (1)
    - PowerFlex 755 (1)
  - Network (4)
  - Sensing (15)

Physical Equipment

Automation Device

Automation Device Object

raC_Dvc_PF527
raP_Dvc_Blower
raM_Dvc_Lift
raM_Dvc_Unwinder
raM_Dvc_Conveyor
raP_Dvc_Pump
Intelligent Motor Control
Common User Experience (Integrated Motor Control)

Kinetix 5500
PowerFlex 527
PowerFlex 755

Common Tabs for Configuration, Common Information in Each Tab
PlantPAX Libraries

- Easily integrate PowerFlex drives into the PlantPAX control system
- Add on instructions allow PowerFlex drives to be incorporated into your graphical interface and gain valuable information
- Network-fast and real time access to data
- History/trends for accurate reporting and runtime info
- Diagnostics - see what went wrong and where
- Optimization - improve your process with loop tuning and tighter control
- Prediction - integrate condition monitoring for proactivity
FactoryTalk Analytics

Optimization
Orchestration / Presentation
Machine Performance
Device Health

More to Come...

Edge ➔ On-Premise ➔ Cloud
ALL DONE AUTOMATICALLY!

DASHBOARDS

IDENTIFIES THE DEVICE

PERFORMS DIAGNOSTIC ASSESSMENT

IMPORTANT SUPPORTING DATA

SIGNIFICANT DIAGNOSTICS

FACTORY TALK® Analytics
for Devices

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PowerFlex Drives
What's New and What's Coming later in 2018

PowerFlex 755TL
PowerFlex 755TR
PowerFlex 755TM

PowerFlex 753 & PowerFlex 755
240V Drives

PowerFlex 6000
Medium Voltage Drive

Integrated Safety Functions Module
PowerFlex DC Field Controller
Thank You!