

IMPULSE® • G+ / VG+ SERIES 3 DRIVES CUSTOM SOFTWARE APPLICATIONS

- Footbrake/Static Stepless Simulation Software
- Drive Synchronization Software
- Bucket Control Software
- Sway Control System (SCS®) Series 2



THESE SOFTWARE APPLICATIONS CAN BE ADDED TO OUR ALREADY ROBUST
IMPULSE® DRIVES TO MEET YOUR UNIQUE APPLICATION REQUIREMENTS



MAGNETEK
MATERIAL HANDLING

SWAY CONTROL SYSTEM (SCS®) SERIES 2

ENHANCE CRANE OPERATION WITH MAGNETEK'S SWAY CONTROL SYSTEM

Leading the way in innovative product development, Magnetek is excited to offer our Sway Control System (SCS) Series 2 to the overhead material handling industry. This custom software is embedded in our IMPULSE®•G+ Series 3 variable frequency drives for new or existing crane control systems without the need for external programmable logic controllers or costly height measurement devices.

SCS Series 2 Benefits:

- Improves productivity by allowing the crane operator to concentrate on load engagement/disengagement rather than focusing on minimizing load swing. The system also improves the accuracy of load placement
- Reduces material damage caused by incidental contact of swinging loads
- Enhances safety in operations and reduce the potential for personnel injuries and damage to equipment
- Reduces maintenance costs and downtime by decreasing stresses on structural, mechanical, and control components

SCS Series 2 has been designed to:

- Require only one IMPULSE Variable Frequency Drive (VFD) per traverse motion with SCS software. Additional IMPULSE VFDs are connected in a Master/Slave fashion
- Operate in V/F, Open Loop Vector and Flux Vector* control methods
- Be compatible with existing master switch and radio control configurations such as Multi-step and Infinitely Variable Uni-Polar/Bi-Polar analog
- Eliminate the need for an external programmable logic controller
- Accept a hook height measurement when combined with an IMPULSE®•VG+ Series 3* hoist drive
- Eliminate the need for a high maintenance feedback device such as an absolute encoder. The system can also be configured to operate in an operating hook height "zone"
- Work with multiple hoists on the same bridge

Performance features include:

- Optional inputs available to fine tune the pendulum length when using multiple below the hook attachments or varying load sizes
- Automatic hook height measurement when combined with an IMPULSE•VG+ Series 3* hoist
- Seamless integration with special functions within IMPULSE VFDs such as MicroSpeed™ and Reverse Plug Simulation™, end of travel slow down and stop limits
- Enabling or disabling with the flip of a switch

System Limitations:

- 100 Ft. Hoist height (consult factory for greater than 100 Ft. of lift)
- Motion must be stopped prior to enabling/disabling SCS function

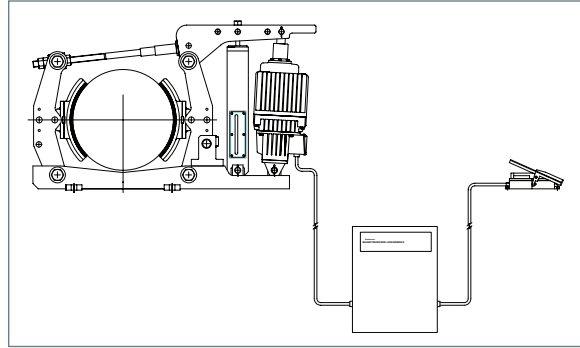
*Consult factory for use with IMPULSE•VG+ Series 3



FOOTBRAKE/STATIC STEPLESS SIMULATION SOFTWARE

CUSTOM FOOTBRAKE/STATIC STEPLESS SIMULATION SOFTWARE

This new software is designed for IMPULSE®•VG+ Series 3 drives used on traverse motions to provide an effective means to slow or stop the motion of the bridge or trolley. Encoder feedback is used to determine bridge or trolley speed at all times, allowing the operator to smoothly re-initiate a run command to a coasting crane. This prevents “jerking” motions and slow responsiveness found with acceleration and deceleration ramps.



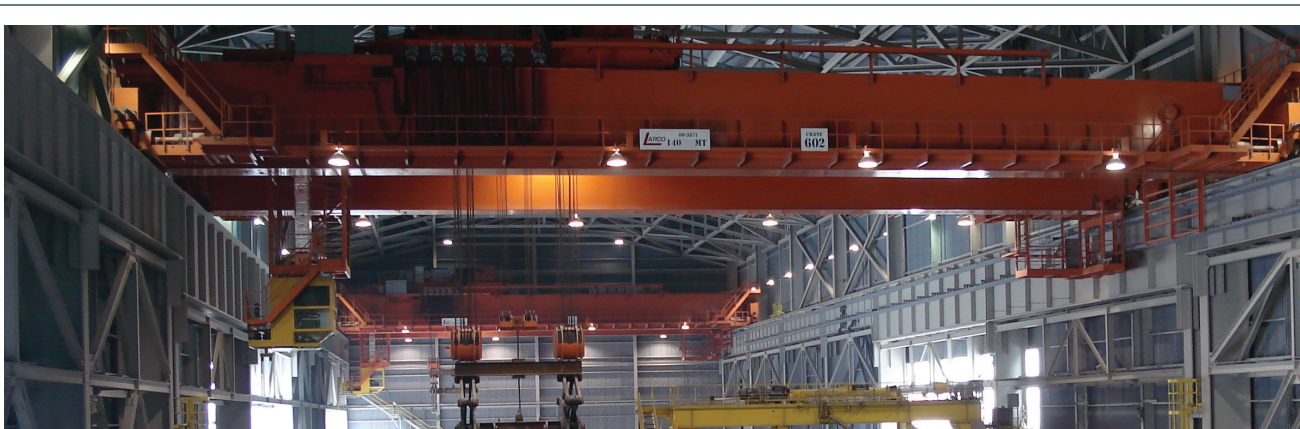
Improved torque control ensures a smooth transition from coasting to slowing down and is non-destructive to the controls or the crane itself. As more torque is applied, the crane will accelerate or decelerate faster. An optional input to the drive while the footbrake is applied prevents the motor from driving into the brake, saving wear and tear.

Apply this software to:

- New or existing cab controlled cranes
- Existing hydraulic brakes
- Footbrakes
- Static stepless retrofits
- Braketric®

The Static Stepless Simulation software:

- Eliminates current spikes and excess mechanical torque/stress on the drive train, and allows quick but smooth starting or changing of direction
- Reduces maintenance costs, with fewer moving parts that wear and require replacing, like contactor tips, brake pads, etc
- Provides higher reliability with digital technology
- Improves diagnostics and troubleshooting of any fault and alarm conditions with the English keypad, fault history, Datalogger and IMPULSE Link 4.1 for diagnostics and support tools
- Interfaces to the “Induction Master” joystick with IVM Board, making a retrofit easy
- Gives operators ultimate control and the same “feel” they are used to
- Utilizes standard squirrel cage motor or existing wound rotor



DRIVE SYNCHRONIZATION SOFTWARE

NEED TO SYNCHRONIZE MULTIPLE DRIVES? OUR IMPULSE® DRIVE SYNCHRONIZATION SOFTWARE MAKES IT EASY!

This new custom software allows you to synchronize multiple IMPULSE•VG+ Series 3 Drives. The “slave” drives utilize an encoder option board with two encoder inputs, and monitor both its own encoder feedback AND the “master’s” encoder feedback, while also sending timing status information back to the master. The slave compensates for any position errors by adjusting its motor speed, resulting in near-perfect alignment between the master and slave motor shafts. The slave drive also possesses the ability to automatically re-synchronize the motors, and has an electronic gearing feature. While both drives are running, there is no accumulation of position error, so alignment is always maintained.

You can:

- Operate a multiple hoist application independently or synchronized
- Synchronize a cable reel to a hoist
- Synchronize multiple trolleys on a single bridge
- Synchronize multiple motions between 2 or more cranes

This new Drive Synchronization software:

- Offers increased safety by precisely controlling motion, and preventing the operator from making an uneven lift
- Saves time and money by eliminating the need for a PLC
- Increases productivity because the operator does not need to level the hoists manually

Drive synchronization software may be applied on:

- Speed matching - two or more independent systems, such as independent hoists, bridges or trolleys that are not mechanically linked or bound together
 - System needs to be able to correct error without being mechanically bound (i.e. through the wheels of an end truck)
 - Bridge applications where two synchronized motors are driving opposite end trucks (does not automatically compensate for skew)

Performance Features	Benefits
Position error stored at power down	Motions can be automatically re-synchronized even after a power down, without the need for re-homing or calibrating synchronized hook off sets.
Multiple gear ratios	Allows motions with different hook speeds, like gearing, encoder ppr's, etc.
Advance/retard function	The user can very easily fine position one or multiple motions.
Availability of software features	Standard Crane & Hoist software features (such as Ultra Lift™, Load Check™, Weight Measurement & more) are available even while utilizing the Drive Synchronization software. Must be specified at the time of order.

Drive synchronization software should NOT be applied on:

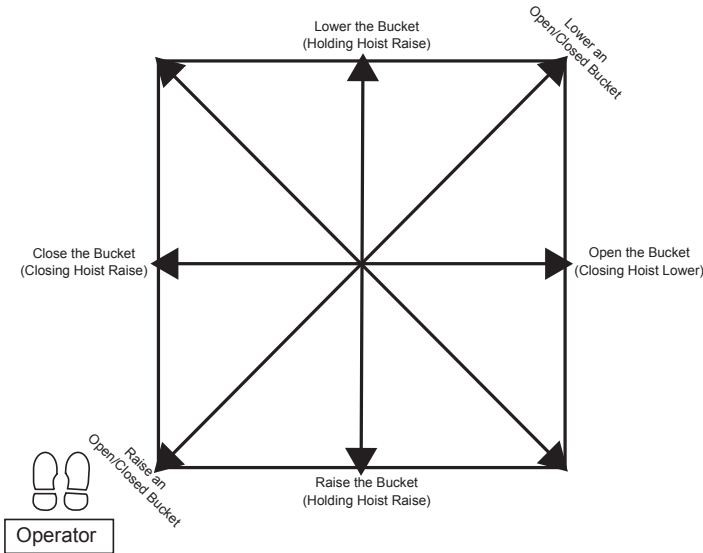
- Load sharing applications with two or more mechanically coupled systems. This includes directly coupled motor shafts, trolleys or bridges which are mechanically coupled together, or two or more motors which are indirectly tied together through a structure, such as a bridge or trolley
- Driving two or more wheels on the same rail, such as the swing motion on a log handling crane, or a bridge motion on a polar crane

In these cases, the “Load Share” feature within Magnetek’s standard IMPULSE Crane & Hoist software is a better solution.

Note: Because customers may not be familiar with programming application specific software of this nature, Magnetek strongly recommends and may in some

BUCKET CONTROL SOFTWARE

SAVE TIME AND MONEY WITH OUR BUCKET CONTROL CUSTOM SOFTWARE APPLICATION



This new custom software can be used with IMPULSE•VG+ Series 3 drives to control multi-line clamshell or grapple buckets that utilize a loading/closing hoist. Although the open and hold drive operate independently, the software lets you control the various motions of the bucket without the need for a PLC.

It features Bucket Position Indication, providing the operator with the open/close status of the bucket while dredging (underwater) or the bucket just isn't visible. This is done via analog output from the closing hoist and is received by an analog meter, or by an MMI.

No communication (such as master/slave) is needed!

In order to maintain the bucket in the open position while lowering, both hoists must operate at the same speed. In order to keep a full bucket closed while raising it out of the pile, torque must be proportionally shared between the two hoists.

Use Bucket Control software* to:

- Lower an open bucket
- Close the bucket on a pile
- Raise a closed bucket
- Raise an open bucket
- Stop with a loaded bucket
- Perform horizontal winch applications

For more information, contact Magnetek Material Handling or your local Magnetek Sales Representative.

* Requires a Uni-Polar Analog Master Switch or Multi-Step Digital Speed/Torque References



This new software will **save you money** by eliminating the need for a PLC or additional external logic. You will also **save time** when replacing wire ropes by utilizing the built-in Electronic Programmable Limit Switch function, making this a **much quicker and easier task**.



MAGNETEK
MATERIAL HANDLING

**ELECTROMOTIVE SYSTEMS
TELEMOTIVE
ENRANGE
MONDEL**

YOUR ONE-STOP SOURCE FOR MATERIAL HANDLING CONTROL SOLUTIONS



ENGINEERED SYSTEMS & SOLUTIONS

Project Evaluation
Project Management
Engineering Design
System Manufacturing and Testing
Field Startup, Testing, Training and Support
Customer Training and Maintenance Support
Application Solutions
PLC/PC Program Development

IMPULSE™ AC ADJUSTABLE FREQUENCY DRIVES

230, 460 and 575 Volt Power Platforms
.25–1,500 Hp
Exclusive Application Software
Specific Crane & Hoist Software

OMNIPULSE™ DIGITAL DRIVES

DSD – AC in/DC out
15–800 Hp
DDC – DC in/DC out
5–500 Hp

MAC™•2000 MOTOR ACCELERATION CONTROL

Single & 2 Speed — up to 15.2 Amps
Contactor Panels

VARIABLE SPEED MOTOR CONTROL PANELS

Standard Pre-Engineered Systems
Custom Engineered Systems

MOTORS & ACCESSORIES

Standard Inverter Duty AC Induction Motors
Flux Vector Designed Motors

POWER DELIVERY SYSTEMS

ELECTROBAR® 8-Bar — 90, 110, 250, 350 Amps
ELECTROBAR® FS — 90, 110, 125, 250, 400 Amps
ELECTROBAR® ELITE — 60, 100, 130, 200 Amps
ELECTROBAR® HX — 400, 700, 1000 Amps
FABA® Conductor Bar Systems — 100 Amps

ELECTROMOTIVE™ FESTOONING SYSTEMS

Standard Duty
Heavy Duty
Mill Duty

SBP® & SBP2® PENDANT PUSH BUTTON STATIONS

Standard 2 through 12 Button Stations
Custom Configured Stations

RADIO REMOTE CONTROL SYSTEMS

Flex Ex
telePendant™
300T
Pendant™
telePilot™
100T
PGT
DTX
MLTX™
SLTX™
700T
JLTX™
Locomotive Control Systems

COLLISION AVOIDANCE SYSTEMS

LaserGuard™
ReFlex™

BRAKES

200S Industrial Shoe Brakes
4"–19" Diameter
6–2,250 Lb. Ft. Torque
AC, DC, Hydraulic Actuators
AC Explosion Proof Actuators

AIST-NEMA 300M Mill Duty Shoe Brakes

5"–30" Diameter
10–11,000 Lb. Ft. Torque
AC, DC, Hydraulic Actuators
AC Explosion Proof Actuators

400D Heavy Duty Disc Brakes

8"–50" Diameter
50–30,000 Lb. Ft. Torque
AC, DC, Hydraulic Actuators
AC Explosion Proof Actuators

Bracketronic™ Control System

Bracketronic Controller
Standard Pre-engineered Panel
Mill Duty Foot Pedal (optional)

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