## 同步驅動軟體 DRIVE SYNCHRONIZATION SOFTWARE

### 同步軟體使之變容易
### SYNCHRONIZATION SOFTWARE MAKES IT EASY!

我們的定制軟件可以讓你同步多個IMPULSE.VG+系列3驅動器。該"副"驅動器利用一個編碼器選項板輸入兩個編碼器，並監測其本身的編碼器反饋和"主"編碼器反饋，同時也發送定時狀態信息回主編碼器。副編碼器對任何位置誤差進行補償，通過調整電機轉速，在主機和副機的電機軸之間近乎完美對齊。副驅動器也具有自動重新同步電機的能力，並具有電子齒輪功能。雖然這兩個驅動器都在運行，有沒有位置誤差的積累，因此對齊始終保持。

Our 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.

### 你可以 YOU CAN:
- 操作多個獨立或同步吊車的應用
  Operate a multiple hoist application indepently or synchronized
- 捲線器同步到吊車
  Synchronize a cable reel to a hoist
- 同步多個小車到單一大車上
  Synchronize multiple trolleys on a single bridge
- 同步2個或更多的天車移動
  Synchronize multiple motions between 2 or more cranes

### 同步驅動軟體
### DRIVE SYNCHRONIZATION SOFTWARE:
- 藉著準確的控制位移提供增加安全性並預防操作者造成不均勻吊升
  Offers increased safety by precisely controlling motion, and preventing the operator from making an uneven lift
- 節省時間和金錢藉著不需要PLC
  Saves time and money by eliminating the need for a PLC
- 因為操作者勿須手動調整吊車水平因而增加生產率
  Increases productivity because the operator does not need to level the hoists manually

### 同步驅動軟體可以應用在
### DRIVE SYNCHRONIZATION SOFTWARE* MAY BE APPLIED ON:
- 速度匹配-2個或更多的獨立系統,像獨立吊車,大車或小車不需要機械連結或相結合在一起
  Speed matching- two or more independent systems, such as independent hoists, bridges or trollys that are not mechanically linked or bound together

  系統需要能去導正錯誤而不被機械約束(如:通過大車的輪子)
  System needs to be able to correct error without being mechanically bound (i.e. through the wheels of an end truck)
- 大車應用牽引同步電機驅動的另一端大車(不自動補償歪斜)
  Bridge applications where two synchronized motors are driving opposite end trucks (does not automatically compensate for skew)



## 抓斗控制軟件 BUCKET CONTROL SOFTWARE

### 應用我們的抓斗控制訂製軟件節省時間和金錢
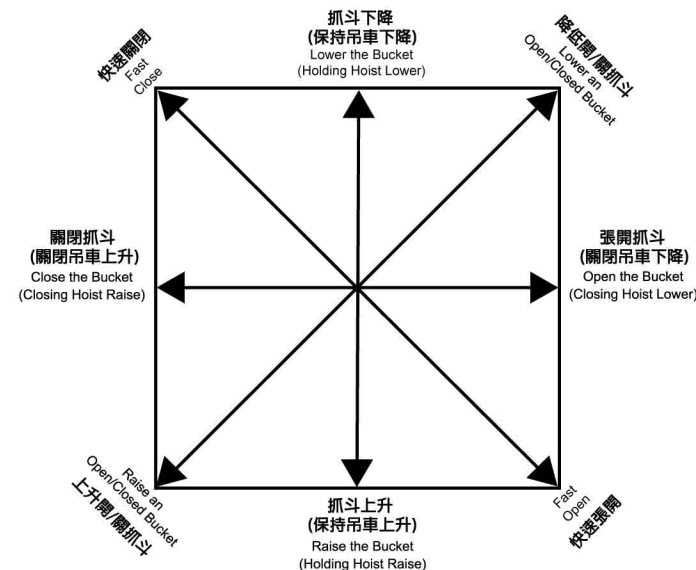### SAVE TIME AND MONEY WITH OUR BUCKET CONTROL CUSTOM SOFTWARE APPLICATION

這種新的訂製軟件可以用IMPULSE.VG+ 系列3驅動器利用裝載/關閉吊車去控制多行翻動或抓鉤抓斗。雖然開放和保持驅動器獨立運行，該軟件可以讓您控制抓斗的各種各樣的活動，而不需要PLC。
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.

設有抓斗位置指示，提供操作者隨著抓斗的打開/關閉狀態，當正在挖泥（水下）或當看不見抓斗。這是從關閉吊車通過模擬輸出和從模擬儀表上接收到，或由MMI。
It features Bucket Position Indication, providing the operator with the open/close status of the bucket while dredging (underwater) or when the bucket in not visible. This is done via analog output from the closing hoist and is received by an analog meter, or by an MMI.

無通訊（如主/從）是必要的！為了維持在打開位置，而抓斗降低，這兩個吊車必須以相同的速度運行。為了要保持一個全關閉的抓斗，而提高了抓斗，兩吊車之間的扭矩必須按比例分擔。
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.

### 使用抓斗控制軟件去
### USE BUCKET CONTROL SOFTWARE* TO:
- 降低一個張開的抓斗 Lower an open bucket
- 在一堆抓取物上關閉抓斗 Close the bucket on a pile
- 將此關閉的抓斗上升 Raise a closed bucket
- 上升一個張開的抓斗 Raise a open bucket
- 執行一個水平捲揚機 Perform horizontal winch applications



## 性能特點 PERFORMANCE FEATURES / 優點 BENEFITS

| 性能特點 PERFORMANCE FEATURES | 優點 BENEFITS |
|---|---|
| 存儲在掉電的位置誤差<br>Position error stored at power down | 移動可以自動重新同步即使在斷電時,無需要重新歸位或同步校準解除鉤頭設定。<br>Motions can be automatically re-synchronized even after a power down, without the need for re-homing or calibrating synchronized hook off sets |
| 多個齒輪比<br>Multiple gear ratios | 允許隨著不同的鉤頭速度移動,像齒輪和編碼器 PPRs。<br>Allows motions with different hook speeds, like gearing and encoder PPRs |
| 推進/延遲功能<br>Advance/ retard function | 使用者可以很容易的微移1個或多個位移。<br>The user can very easily fine position one or multiple motions |
| 軟件功能的可用性<br>Availability of software features | 標準天車和吊車軟體特點(如超舉,負載檢查,重量測量等等)能夠被利用在同步驅動軟體上。必須在指定的時間順序上。<br>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 |

### 抓斗控制方向圖

抓斗下降<br>(保持吊車下降)<br>Lower the Bucket<br>(Holding Hoist Lower)

校速關閉<br>Fast Close

降在在關閉抓斗<br>Lower an<br>Open/Closed Bucket

關閉抓斗<br>(關閉吊車上升)<br>Close the Bucket<br>(Closing Hoist Raise)

張開抓斗<br>(關閉吊車下降)<br>Open the Bucket<br>(Closing Hoist Lower)

Raise an<br>Open/Closed Bucket<br>上升一個關閉抓斗

抓斗上升<br>(保持吊車上升)<br>Raise the Bucket<br>(Holding Hoist Raise)

Fast Open<br>校速裝開

驅動同步軟件不應該用於：
- 負載共享應用程序與兩個或更多的機械耦合系統。這包括直接連接的電機軸,小車或大車機械聯接在一起,或兩種或多種電機間接連網在一起的結構,如大車或小車。
- 駕駛同一軌道上,如有搖見移動的處理木的頭道起重機,或大車在極性天車上移動這些情況下,"負載共享" 功能在MAGNETEK的標準IMPULSE起重機和吊車軟件是一個更好的解決方式。

\*注：因為客戶可能並不熟悉這種性質的特定應用軟件編程，MAGNETEK強烈建議，並可能在某些情況下要求買方在購買時使用MAGNETEK的現場服務人員初始啟動部分。了解更多信息請諮詢工廠。

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 cases require that the purchaser use Magnetek's Field Service Personnel for initial startup as part of the purchase. Please consult factory for additional information.