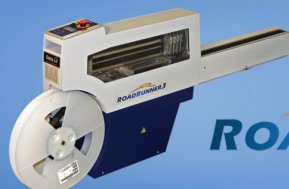# Data i/O

Factory Integration Software

for

PS 388
PS 588

ROADRUNNER3

Reduce costs and risks with Factory Integration Software

Key Benefits

REDUCES OPERATOR ERRORS

- Automates job selection & download
- Reduces scrap
- Minimizes rework

ALLOWS DATA-DRIVEN DECISION MAKING

- Ensures traceability
- Tracks yield to improve efficiency
- Immediate alerts improve productivity
- Programming results and process data records sent to MES/QMS factory software
- Save time collecting/evaluating programming statistics

IMPROVES PRODUCTIVITY
via Machine Alerts by E-Mail or SMS

Conditions that trigger alerts:

- job is paused
- device is dropped
- device is reinserted into a socket
- yields drop below a specified threshold
- socket is enabled
- socket is disabled

Alerts can go to multiple e-mail addresses or text messages (SMS) to mobile phones.

Reduce Programming Costs & Improve Quality with FIS

Factory Integration Software (FIS) monitors and manages the programming process to enable traceability, improve productivity, increase quality, and reduce operator errors. FIS is now an integral part of Data I/O's automated programming systems RoadRunner3, PS388, and PS588. With FIS Modules *Track* and *Remote*, and your custom software via FIS SDK, you can connect PS and RoadRunner3 to your Manufacturing Execution System (MES) or production control software. In turn, your MES can connect to your company Engineering Resource Planning system to enable decision-making based on the data.

FIS Track automates the collection and export of programming results. Collected data includes time and date, job name, Socket Adapter number, programming algorithm, and error information. With this data you're able to make informed decisions that optimize programming, support traceability requirements, and minimize scrap and rework.

FIS Remote gives you remote monitoring of PS Systems and RoadRunner3 and remote control of RoadRunner3 commands, whether the RoadRunner3 is located in your factory or in another country. Messages sent via e-mail or SMS notify you when specified events occur so you can take immediate action to improve productivity. On RoadRunner3, remote control eliminates operator errors in job selection and downloads, ensuring that the correct data is programmed into the correct device on each line. On PS Systems, FIS *Remote* includes a barcode scanner for error-free job selection.

With FIS SDK, your software engineers can use FIS *Track* to develop applications to access device programming audit data and FIS *Remote to* configure remote control operation. FIS *SDK* includes sample programs and documentation to help you connect Data I/O programming systems to an MES or production software through Web Services.

Factory Integration Software is flexible to your needs and control systems while delivering immediate economic value to your programming processes. This value increases as your software team creates customization.

Data I/O Corporation
- Redmond, WA USA
- Shanghai, China
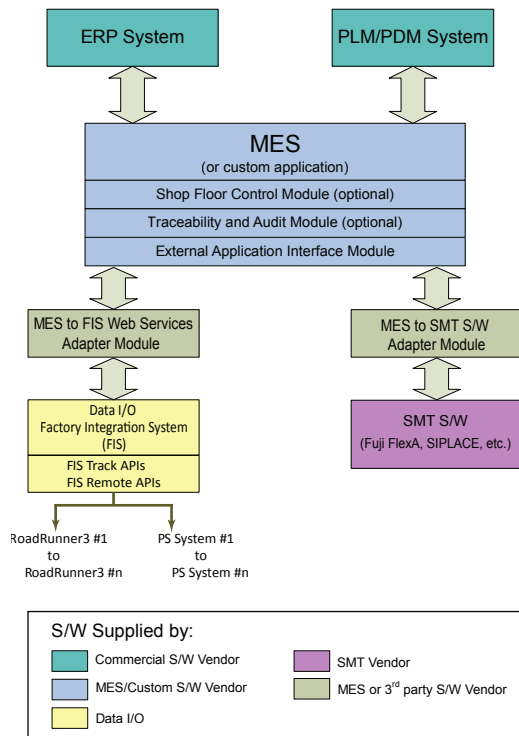- Graefelfing, Germany

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Data i/O

Incorporating Data I/O's FIS

Diagram:

- ERP System
- PLM/PDM System

↓

MES (or custom application)
- Shop Floor Control Module (optional)
- Traceability and Audit Module (optional)
- External Application Interface Module

↓

- MES to FIS Web Services Adapter Module
- MES to SMT S/W Adapter Module

↓

- Data I/O Factory Integration System (FIS)
  - FIS Track APIs
  - FIS Remote APIs
- SMT S/W (Fuji FlexA, SIPLACE, etc.)

↓

- RoadRunner3 #1 to RoadRunner3 #n
- PS System #1 to PS System #n

S/W Supplied by:
- Commercial S/W Vendor
- SMT Vendor
- MES/Custom S/W Vendor
- MES or 3rd party S/W Vendor
- Data I/O

Specifications

» Server PC for Data I/O FIS
  - Minimum: Windows XP SP3 (32-bit only), or Windows 7 (32-bit or 64-bit)
  - 1 GHz processor
  - 1 GB RAM
  - 10 GB disk space
» Optional: Client PC (or use Server)
  - same as Server

Supported Languages
- C#
- VB.NET
- Java

FIS Track

Data I/O software queues up to ten days of programming data, allowing your application to retrieve data as results become available or in batches to accommodate interfacing with factory software systems. The API uses a two-step process: first retrieve the records (*GetNextRecords*) and process them, then remove the records (*RemoveRecords*). The *FIS Track* APIs are:

FIS Track API	RoadRunner3	PS Systems
GetNextRecords	✓	✓
GetRecordCount	✓	✓
RemoveRecord	✓	✓

FIS Remote

FIS Remote provides remote control of the RoadRunner3 including: download a job, delete jobs from the programmer, start, stop, pause, and resume a job, clear the conveyor belt, adjust the pass quantity on a running job, retrieve status (running, paused with info, Reject Bin missing, etc.) and query properties (completed devices, adapter, etc). As noted below, Remote APIs are determined by the programming systems. APIs include:

FIS Remote API	RoadRunner3	PS Systems
AdjustPassQuantity	✓	
ClearBelt	✓	
DownloadJob	✓	
GetAllProperties	✓	
GetStatus	✓	✓
GetSystemInfo	✓	✓
PauseJob	✓	
ResumeJob	✓	
SetProperty	✓	
StartJob	✓	
StopJob	✓	
FIS Hardware Features		
Bar Code Scanner		✓

Information about API parameters and expected returns is documented in the FIS Developer's Guide, available with the FIS SDK.