

CITY OF HIGH POINT

AGENDA ITEM



**Title: Agenda Item – Sole Source for City Lake Raw Water Pump #2 VFD
Siemens Industry Inc.**

From: Terry Houk – Public Services Director
Derrick Boone – Asst. Director Public Services
Wendell Pickett- Water Plant Superintendent

Meeting Date: October 5, 2020

Public Hearing: No

Advertising Date: N/A

Advertised By: N/A

PURPOSE:

To utilize Siemens Industry Inc. to perform a total cell refurbishment and panel upgrade on the VFD (variable frequency drive) for pump #2 at the City Lake Raw Water Pump Station.

BACKGROUND:

The City Lake Raw Water Pump Station is utilized to pump water from Arnold Koonce City Lake to the Ward Water Plant for treatment. There are two 18 MGD pumps and one 13 MGD pump in the pump station. VFDs were installed on the two 18 MGD pumps in 2004. Due to the age of the VFDs, the manufacturer (Siemens Industry Inc.) is recommending that the City replace the power cells and control panels to extend the life of the VFDs. The Public Services Department upgraded VFD# 3 during FY 2019-2020.

BUDGET IMPACT:

Funding is available in the 2020-2021 Budget.

RECOMMENDATION / ACTION REQUESTED:

The Public Services Department is recommending that Siemens Industry Inc. be approved as a sole source vendor to perform the total cell refurbishment and panel upgrade on VFD # 2 at the City Lake Raw Water Pump Station for \$123,692.60.



June 2, 2020

Mike Livengood
City of High Point
211 S Hamilton St
High Point, NC 27260
Email: mike.livengood@highpointnc.gov
Phone: 336-847-1192

Subject: Quotation # RC000202037; Refurbishment of Power cells for Gen3 Air-cooled Sinamics Perfect Harmony Drive

PO Acceptance: Purchase order must state "In accordance to Siemens Quotation Number RC000202037"

Dear Mike Livengood,

On behalf of Siemens, I would like to thank you for providing us the opportunity to submit this sales offer for the services requested at City of High Point.

The following pages detail the prices, components and configurations for the service(s) outlined below:

- Power cell refurbishment

Siemens Large Drives Repair Center is considered the Center of Excellence for repair of components of Medium Voltage Perfect Harmony Drives.

- Our repair technicians are trained and certified with the most current Quality Standards
- All testing of equipment follows Siemens ISO9001 standards before it leaves the factory
- All power cells are cleaned and bolt checked during the repair/refurbishment process
- All services are performed by factory trained technicians

In addition to the products referenced above, we offer a complete line of services to maximize the availability of your equipment including:

- Training programs to allow you to operate and maintain your equipment at peak performance
- Technical Service Agreement to maximize the reliability of your equipment
- Upgrade programs to enhance your equipment with our current state-of-the-art features
- Startup and Commissioning to ensure the best performance from your equipment
- Blanket Purchase Order (BPO) to ensure after hours dispatch of a Siemens FSR for emergency on-site service and parts

Should you have any questions or would like additional information on any of our services, please contact me at 724-420-3297, or your Siemens Regional Service Sales Specialist, Tom Sheffield at 770-548-6298.

Thank you for allowing Siemens to present our offering of services and we look forward to working with you in the near future.

Best Regards,

Marilyn Wills

Siemens Industry, Inc.
LDA Repair Center
Email: marilyn.wills@siemens.com
Phone: 724-420-3297

Siemens Industry, Inc.
500 Hunt Valley Road
New Kensington, PA 15068
Industry Customer Care Center: 800-333-7421

Opportunity #: Q2078362
Quote#: RC000202037

Proposal for Services

Date: June 2, 2020
Quotation #: RC000202037

Per your request Siemens Industry, Inc. is pleased to provide a proposal for the following solution.

1.0 PRICING

1.1 Repair Pricing Options - Refurbishment

Line Item	Description	Original Sales Order	Part No. Serial No.	Price per Item	Total Price
1	NBH,1250HP(932KW),4160V,200A Cell part no. A1A461D63.200 (15 cells)	HR9204918	A1A31000549.00 s/n 9686	\$5,632.84	\$84,492.60
Total Price (USD)					\$84,492.60

1.2 Shipping: Unless otherwise stated above this proposal is only for the services outlined here and does not include shipment of the product to or from the Siemens facility.

2.0 SITE & PRODUCT INFORMATION

City of High Point
121 N Pendleton St
High Point, NC 27260

3.0 DETAILED SCOPE OF WORK

3.1 Line Item 1 Description

- Siemens repair technician will perform a complete evaluation of the power cells.
- All power capacitors will be replaced to extend the lifecycle of the power cell.
- The power cell will be upgraded to the current version part no. A5E02757134.
 - The cell control board will be replaced with a newer version.
 - The wire harness will be replaced.
 - Thermistor will also be replaced.
 - Fuses and fuse blocks will be replaced.
 - IGBTs and snubber caps will be replaced.
- The power cells will be cleaned and all functional parts will be bolt checked.
- The power cell will be tested and inspected as per Siemens ISO9001 specifications.
 - Ohm check/inspect
 - High pot
 - Rectifier test
 - Preliminary test



- Current run
- Out of Saturation Check
- Thermal testing

4.0 ADDITIONAL WORK

Any additional scope of work required discovered during inspection or the repair itself, including replacement parts and labor, affecting the repairs necessary for proper operation of your equipment that are not specifically included in this Siemens proposal are considered additional and may result in project schedule delays and additional project costs. In this event, the matter will be brought to your attention and we will continue with the required repair upon your written authorization and receipt of your revised PO.

5.0 WARRANTY

Siemens standard warranty for repair of one year will apply.

- Labor: All labor provided by Siemens ("Labor") is warranted to be free from defects in workmanship.
- Product: Siemens warrants all materials, products, equipment and parts ("Product") provided by Siemens is free from defects in material and workmanship.

6.0 PURCHASE ORDER AND PAYMENT DETAILS

6.1 PO Submittal

Purchase Order should be addressed to:
Siemens Industry 500 Hunt Valley Road New Kensington, PA 15068

Please submit Purchase Order via Email to:
Marilyn Wills at Marilyn.wills@siemens.com

6.2 PO Requirements

To facilitate prompt order processing, Purchase Orders should include all of the following:

- Purchase Order number or reference number
- Customer's legal entity name and bill to address
- Ship to address of services and / or parts
- **Reference this Quote or proposal number: "Per your Quote / Proposal Number"**
- \$ value , noting agreement of payment
- Payment Terms - (as stated in this quote)
- Authorized contact name and phone number
- Siemens requests that the PO line items match the quoted line items

6.2.1 Requirements of a BPO

A Blanket Purchase Order (BPO) with Siemens Industry Large Drives Repair Center will ensure that any service request will have no delay in the processing of a purchase order or RMA request. This will alleviate any lost time when you need service on your Siemens equipment.

- *BPO must be no less than \$15,000 and will be valid for one year.*
- *There will be a pre-approved set of terms and conditions with BPO approval.*
- *The BPO will cover the equipment identified above.*



6.3 Terms of Payment

Terms of payment will be net 30 days from the date of the Siemens invoice to the customer for the total amount for the line items listed above. In some cases invoicing of the respective line items will be subject to progressive payments based on mile stone dates of completion for the scope of work being offered.

6.4 Offer Validity

This offer is valid for 30 days unless otherwise extended, modified or withdrawn, in writing, by Siemens Industry Inc. The return of a purchase order or any other reasonable manner of acceptance communicated to Siemens Industry Inc. during such validity period will be sufficient to form an agreement on the terms and conditions of this offer. Assumption that the services will be completed within one year of proposal date.

6.5 Taxes

All applicable duties, sales, use, excise, value-added, or similar taxes are excluded and will be added to the price and invoiced separately unless an acceptable exemption certificate is furnished when the contract is awarded.

6.6 Shipping & Freight

Shipments from the Customer site are the responsibility of the Customer. Customer assumes responsibility for goods upon shipment from Siemens Facility. Freight charges, including crating, will be prepaid by Siemens and added to the invoice. If shipped collect, payment will be the responsibility of the Customer.

Point of shipment: FOB New Kensington

6.7 Equipment Storage

If Customer sends equipment or components to a Siemens facility for repair or refurbishing, Customer is required to provide Siemens with authorization to proceed with repairs / refurbishing within sixty (60) days for Siemens receipt of such equipment or components. If Customer fails to provide such authorization, Siemens will be entitled, at its sole discretion, to either (i) return the equipment or component to Customer at Customer's sole cost; or (ii) charge Customer a storage fee in the amount of \$ 40.00 for each day that Siemens stores such equipment or component. If Siemens elects to store any equipment or component, Customer acknowledges that title and all risk of loss remains with Customer during storage.

7.0 PROPRIETARY STATEMENT

This document contains information proprietary to Siemens Industry Inc. Your acceptance of it is an acknowledgment of a confidential relationship between you and Siemens Industry Inc. with respect to this proposal document. We require it to be returned or destroyed when no longer required. We also require that neither this document nor any information obtained there from is to be reproduced, transmitted, disclosed or used otherwise in whole or in part without the written authorization of Siemens Industry Inc.

8.0 TERMS & CONDITIONS

This proposal is subject to the Standard Terms and Conditions of Sale for Siemens Joint Product and Services Offering and if software is provided, Siemens Software License/Warranty Addendum, both of which can be found at <https://new.siemens.com/us/en/company/about/standard-terms-and-conditions.html> and are hereby incorporated by reference into this document and any resulting contract.

However, if mutually accepted terms exist between Siemens and customer for the type of services provided herein, such terms may be used to govern this agreement upon written consent by both organizations.



Impacts of Coronavirus: As a result of the Coronavirus (COVID-19), temporary delays in delivery from or nonperformance by Siemens and/or its suppliers may occur. Therefore, the parties acknowledge and agree that any delays or nonperformance caused by or related to COVID-19 will be deemed a force majeure event subject to the terms of the Agreement.

May 20, 2020

Mike Livingood
City of High Point
211 S Hamilton St
High Point, NC 27260
Email: mike.livingood@highpointnc.gov
Phone: 336-847-1192

Subject: Siemens Proposal for Services
Siemens Quotation Number: CS-ID-Q2078331

Dear Mike Livingood

On behalf of Siemens, I would like to thank you for providing us the opportunity to submit this quotation to City of High Point.

Per your request Siemens Industry, Inc. is pleased to provide a proposal for the following solution. The pages in this proposal detail the prices, components and configurations for the service(s) outlined below:

- Budgetary Time & Material (T&M) NXGI to NXG PRO Control Upgrade on 1x Harmony VFD
- OPTIONAL T&M Service to re-install cells after In-Factory Cell Refurbishment on same VFD

I wish to thank you for this opportunity to be of service and for your interest and confidence in our abilities. Please feel free to contact Siemens if you need further assistance by phone or email listed below.

Best Regards,

Bobbie Stillions

Siemens Industry, Inc.
Industry Services

Email: bobbie.stillions@siemens.com
Phone: 724-472-7516
Customer Care Center: +1 (800) 333-7421
Outside USA: +1 (423) 262-5710

Proposal for Services

Date: May 20, 2020
Quotation #: CS-ID-Q2078331

Per your request Siemens Industry, Inc. is pleased to provide a proposal for the following solution.

1.0 PRICING

Item-Pos. ¹	T&M NXGI to NXG PRO Control Upgrade – One Drive	Qty	Price USD
1-1	T&M Onsite Service	1	\$15,270.00
1-2	Required Parts	1	\$23,930.00
Total Price (USD)			\$39,200.00
1-3	OPTIONAL NXG PRO Spare Parts Kit	1	\$7,000.00

2.0 DETAILED SCOPE

State-of-the-art control upgrade. Siemens FSR will Replace entire NXGI control system with NXG PRO Control



1.1 T&M Upgrade Service – NXGI to NXG PRO Control Upgrade

One Overnight Siemens FSR / One Visit
Onsite: Up to 3 x 10 Hour Days
Travel: Up to 2x 10 Hour Days
Travel Start: Monday
Onsite Start: Tuesday
Onsite End: Thursday
Travel End: Friday
Overtime Rates Included
Overnight Per Diem Expenses Included

1.2 Required Parts NXGI to NXG PRO Control Upgrade

NXGI to NXG PRO 15/18 Cell STD Kit : 1x EA
NXGpro Power Supply Kit, 15V, FAN x 1
MEM,PRGMD,NXGPro SW,STD,V6.1.0 x 1
RE SITOR,13.39 OHM,CURR XDUCER BURDEN x 4
DINRAIL MOUNT RELAY SOCKET 11 PIN X 2
SWITCH, KEY OPER, 2 POS, 1 NO X 1
MTG.BKT., PUSHBUTTON 3X3X3 X 1
SUPPRESSOR 0.1MF, 120 OHMS, 250V X 2
NMPLT, RESET X 1
RLY_POWER_RR2KP-UCAC120_120VAC_2CO X 1
COMM KIT, ANYBUS, MODBUS RTU x 1
COMM KIT, ANYBUS, ETHERNET MODBUS AND IP x 1
PH UPS Upgrade Kit x 1
Engineering / Drafting Hours Included
Service Project Management Hours Included
*Part Numbers to be assigned upon engineering review, after PO Acceptance

1.3 OPTIONAL NXG PRO Spare Parts Kit - See Pg 6 for Details

3.0 OVERALL COMMENTS AND CLARIFICATIONS

Note 1: Time and Material Pricing:

Pricing for labor and expenses is estimated. Invoices will be calculated in accordance with the attached Siemens Rate Schedule (Technician Level 4 / Engineering Level 4). Final billing will account for actual hours traveled, actual hours worked, and Overnight per diem Expenses. Invoice will be calculated per published service rate at the time service is performed.

Note 2: Pricing for Engineering / Drafting hours, Service Project Management hours, and Parts is firm. Invoice may be issued upon shipment.

Note 3: Customer Requirement: City of High Point is responsible for:

- Free and clear access to the drive for duration of onsite work.
- At least one (1) employee to assist Siemens while onsite for the duration of the job.
- For removal and proper disposal of all job- related waste and unwanted materials upon job completion.
- To provide cell lifter.

Note 4; Safety Training:

Estimated pricing does not include site Safety Training. If required, additional hours will be added to final invoice.

Note 5: Estimated Budgetary price includes up to 3 hours onsite for NXG PRO Control orientation upon completion of the upgrade. This orientation will be provided by Siemens FSR, before he leaves the site.

Note 6: Upon completion of this upgrade, Siemens will provide one flash drive containing the following files: Schematic Drawings, Outline Drawings, NXG Control Manual, Tool Suite Manual. Revised SOP is available upon request.

Note 7: Estimated pricing includes VFD Startup after upgrade. However, if startup is not performed during the same visit as the upgrade, additional time and expenses will be added to final invoice.

Note 8: Siemens requires **FIRM 16-20 Weeks from Purchase Order Acceptance**

4.0 OPTIONAL Service to Install Power Cells after In Factory Cell Refurbishment (In Factory Cell Refurbishment Quoted Separately)

Item-Pos.*	OPTIONAL: T&M Service	Price per VFD
4	T&M Onsite Service – Install Refurbished Cells	\$15,270.00
Total Price (USD) T&M OPTIONAL Service		\$15,270.00 per VFD

4.2 T&M Onsite Service – Install Refurbished Cells (One VFD)

One Remote Siemens FSR / One Visit
 Onsite: Up to 3x 10 Hour Days
 Travel: Up to 2x 10 Hour Days
 Travel Start: Monday
 Onsite Start: Tuesday
 Onsite End: Thursday
 Travel End: Friday
 Overtime Rates Included
 Overnight Per Diem Expenses Included

5.0 SERVICE SITES, EQUIPMENT LISTS AND CONTACTS

Service-Site: City Lake Pump Station

Company: City of High Point
Address: 211 S Hamilton St
High Point, NC 27260, USA

Equipment List:

Equipment Type	Siemens Part No.	Sales Order No.	Serial No.	Note	Qty
40371614	A1A31000549.00	HR9204918	9686	NBH, 1250HP	1

Additional Contacts:

Company	Name	Phone / Cell	E-mail
Polytech Services	Jeff Morton		jeff@polytechservices.com
Siemens Industry Inc	Tom Sheffield	+1 (770) 548-6298	Thomas.sheffield@siemens.com
Siemens Industry Inc	Tasha Miller	+1 (724) 393-4563	tasha.miller@siemens.com

6.0 PURCHASE ORDER AND PAYMENT DETAILS

Purchase Order should be addressed to:

Siemens Industry, Inc., 500 Hunt Valley Road New Kensington, PA 15068

Please submit Purchase Order via Email to:

Bobbie Stillions at bobbie.stillions@siemens.com

*To facilitate prompt order processing, Purchase Orders should include all of the following:

- Purchase Order number or reference number
- Customer's legal entity name and bill to address
- Ship to address of services and / or parts
- Reference this Quote or proposal number: "Per your Quote / Proposal Number"
- \$ value , noting agreement of payment
- Payment Terms - (as stated in this quote)
- Authorized contact name and phone number
- Siemens requests that the PO line items match the quoted line items

7.0 TERMS AND CONDITIONS

Quotations are subject to the Standard Terms and Conditions of Sale for Siemens Joint Product and Services Offering, which can be found at <http://www.usa.siemens.com/siemens-terms-dfcs> and are hereby incorporated by reference into this document and any resulting contract.

Any change to the scope of work will be reflected in a change to the quoted price.

Shipment: FOB Factory, Freight: Prepaid and Add, Payment Terms: Net 30

Impacts of Coronavirus: As a result of the Coronavirus (COVID-19), temporary delays in delivery from or nonperformance by Siemens and/or its suppliers may occur. Therefore, the parties acknowledge and agree that any delays or nonperformance caused by or related to COVID-19 will be deemed a force majeure event subject to the terms of the Agreement.

Air travel and car rental has been severely restricted due to the Coronavirus. As a result, instead of airline or car rental expenses related to Travel to/from the customer site, personal mileage greater than 100 miles is chargeable at cost + 15%. This is in addition to any per diem daily rates

6.1 SAFETY TRAINING OF SIEMENS FIELD PERSONNEL

All Siemens field personnel completed internal annual safety training. Furthermore, all Siemens field personnel received training to comply with the new OSHA CFR1910.269 Electrical Safety Standard that sets minimum safety rules and practices for the design, operation, and maintenance of high-voltage systems (over 600 volts). A morning safety meeting for Siemens employees and subcontractors is to be conducted by Siemens each day while on site.

All Siemens personnel and their subcontractors shall adhere to the Siemens Division Safety Guidelines, CS101. Copies can be made available upon request for client review. Siemens will hold daily safety meetings at the prior to all work on site, at shift changes and if the project changes in any manner.

6.2 OFFER VALIDITY

This offer is valid for 60 days unless otherwise extended, modified or withdrawn, in writing, by Siemens. The return of a purchase order to Siemens during such validity period, along with credit approval, will be sufficient to form an agreement on the terms and conditions of this offer.

6.3 PROPRIETARY INFORMATION

This document contains information proprietary to Siemens. Your acceptance of it is an acknowledgment of a confidential relationship between you and Siemens with respect to this proposal document. We require it to be returned or destroyed when no longer required. We also require that neither this document nor any information contained herein is to be reproduced, transmitted, disclosed or used otherwise in whole or in part without the written authorization of Siemens.

6.4 RESERVATION CLAUSE

Purchaser acknowledges that Siemens is required to comply with applicable export laws and regulations relating to the sale, exportation, transfer, assignment, disposal and usage of the Work, Equipment, and/or, Services provided under the Contract, including any export license requirements. Purchaser agrees that such Work, Equipment, and/or, Services shall not at any time directly or indirectly be used, exported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with such applicable export laws and regulations. It shall be a condition of the continuing performance by Siemens of its obligations hereunder that compliance with such export laws and regulations be maintained at all times. PURCHASER AGREES TO INDEMNIFY AND HOLD SIEMENS HARMLESS FROM ANY AND ALL COSTS, LIABILITIES, PENALTIES, SANCTIONS AND FINES RELATED TO NON-COMPLIANCE WITH APPLICABLE EXPORT LAWS AND REGULATIONS.

OPTIONAL NXG PRO Spare Parts Kit

Part Number	Description	Quantity
TBD	ANYBUS,DeviceNet,MODULE	1
A5E45300337	POWER_SPLY_K40154A_264V_16A	1
A5E44730404	WIRE HARNESS, NXGpro TDK POWER SUPPLY	1
A1A13000346.03	RESISTOR,HALL EFF BURD,17.00oh	2
A5E35236834	MEM PRGMD NXGpro SW v6.8.0 FW v1.5.0.25	1
A1A060205	CAP,.0047uF,100V,10%,CK05BX472K	3
A1A060419	CAP,0.001uF,200V,10%,CK05BX102K	3
A1A083223	TRANSIENT SUPPRESSOR,P6KE27CA	6
A5E32168144	Final ASSY, NXGpro SIB (5CT)	1
A5E33032452	NXGpro DCR 15/18 Cell	1

Note# 1 Siemens requires a separate Line Item on the Purchase Order for Spare Parts Kit

Note# 2 Pricing is valid through 9/30/2020

Note# 3 Please allow 16-20 Weeks from PO Acceptance

Annex A: Engineering Service Rate Sheet

January 01, 2020

Prices effective January 01, 2020 and
subject to the following terms: (a) change without
notice; (b) the terms and conditions set forth herein.

Page 1 of 2

Service Rates for Medium Voltage Motors & Drives

Siemens Industry, Inc., Large Drives Applications Unit, maintains a highly-skilled staff of competent, trained technicians, engineers, specialists and consultants for the purpose of furnishing Commissioning Services, Maintenance Services, Consulting and Digital Services related to Medium Voltage Motors and Drives, at customer facilities or at Siemens Industry, Inc. offices.

Commissioning Services typically include services related to the supervision of the installation of equipment and/or components such as motors, drives, transformers, controls etc. and may include the initial testing, tuning and commissioning of the equipment.

Maintenance Services typically provide continuing engineering services and repair to maintain equipment or system integrity.

Consulting and Digital Services typically include engineering studies, tests and evaluations including system or equipment modification and special customer training programs. The exact scope of services will vary from project to project and will be exclusively described in the agreement for such services.

Classification of Medium Voltage Motor & Drive Services
Siemens Industry, Inc. offers the following classifications of services for Medium Voltage Motors & Drives:

- a). Motor Field Service Specialist
- b). Drive Field Service Specialist
- c). Service Project Management
- d). Service Engineering Consulting

Rates for the above categories of services are listed on page 2 of this Price List.

Description of Classifications of Services:

The following general guidelines are used to determine the rate applied to work performed.

The following hierarchy of documents shall control in the determination of applicable rates;

- Siemens Service Proposal
- Siemens Quick Quote
- Field Service Authorization Form
- Master Service Agreement
- This document

This guideline and application thereof may be subject to change by Siemens without notice.

1. **Motor & Drive Field Service Specialist** services typically include, but are not limited to; installation checkout, startup, inspection, maintenance, standard configuration, repair, troubleshooting & analysis of configured equipment or hardware systems with application knowledge etc.
2. **Service Project Management** services typically include, but are not limited to; management of aftermarket and commissioning projects, overseeing project communications, serving as the primary customer advocate throughout the lifecycle of a project etc.
3. **Service Engineering Consulting** services typically include, but are not limited to; the provision of principal engineers, Sr. process experts or Sr. Systems Engineers for consulting, system analysis, process studies, optimization, architecture design, etc.

Foreign Engineering Service

Services commensurate with those listed above are also available to customers serving foreign markets. Your local Siemens Industry, Inc. representative can provide you with additional pricing information upon request.

Trade and Other classifications

On selected jobs where it is practical to utilize fitters, mechanics, winders, welders, machinists, etc. to perform a portion of the work, their services will be provided at current local rates.

Invoicing

Unless otherwise specified in its proposal, Siemens Industry, Inc. shall have the right to invoice the customer for all material delivered and work performed under this order at such times that it considers appropriate.

Terms and Conditions of Service

The Standard Terms and Conditions of Sales for Siemens Joint Product and Services Offering found at <http://www.industry.usa.siemens.com/to-pics/us/en/standard-tandc/Documents/Siemens-Standard-Terms-for-Joint-Product-and-Services-Offering.pdf> are incorporated by this reference and made a part of this document.

January 01, 2020

Prices effective January 01, 2020 and
subject to the following terms: (a) change without
notice; (b) the terms and conditions set forth herein.

Page 2 of 2

Service Rates for Medium Voltage Motors & Drives

Classification / Rate Schedule

Service Rates	Hourly Rate ①	Overtime	Premium	Min. Billing
		Weekday & Saturdays ②	Sundays & Holidays ③	≤ 4 Hours
Motor Field Service Specialist	\$ 220	\$ 330	\$ 440	\$ 880
Drive Field Service Specialist	\$ 254	\$ 381	\$ 508	\$ 1,016
Service Project Management	\$ 254	\$ 381	\$ 508	\$ 1,016
Service Engineering Consulting	\$ 330	\$ 495	\$ 660	\$ 1,320
Nuclear & Offshore	Applicable Service Level Hourly Rate x 1.20			
Per Diem (Local) ¹	\$115/day			
Per Diem (Overnight) ²	\$265/day			

¹Includes meals, ground transportation (i.e. vehicle mileage, tolls, parking, etc.) and incidental expenses
(excludes airfare and hotel expenses)

²Includes **hotel**, meals, ground transportation and incidental expenses (excludes airfare expenses)

① **Straight time** rates apply to all time worked or traveled during a normal eight-hour workday. The normal eight-hour workday is defined as any consecutive eight-hour day shift period (Monday through Friday, excluding holidays) between the hours of 7am and 7pm, with an allowance for lunchtime.

② **Overtime rate** applies to all hours worked or traveled outside of the normal eight-hour workday or in excess of eight hours on weekdays and all time worked or traveled on Saturdays.

③ **Premium rate** applies to all hours worked or traveled on Sundays and Holidays.

Hourly and Daily Rates do not include travel or living costs. Should the customer require additional documentation such as copies of employee expense reports and/or expense receipts, a written request must be submitted to Siemens Industry, Inc.

Per Diem Rates

The Per Diem rates include Field Service Representative meals, ground transportation (vehicle mileage, tolls, parking, etc.) incidental expenses and hotel expenses (if applicable). If required, airline travel mobilization and demobilization expenses will be invoiced at actual cost plus 15% in addition to Per Diem. Consult your local Siemens Industry, Inc. representative for additional information.

Standby Time

When service personnel are on the job site but unable to perform services requested due to circumstances beyond Siemens Industry, Inc. control, the customer will be charged up to eight hours per day standby time at applicable rates.

Special Training

All time to complete site-specific training will be billed at the applicable Service Level Hourly Rate indicated in the Classification / Rate Schedule table provided above.

Nuclear & Offshore

The hourly rate for nuclear and offshore applications will be billed at the applicable Service Level Hourly Rate x 1.20 due to the special badging, qualifications, and certifications required by these applications.

Other Charges

The following charges will be applied in addition to the service rates outlined above;

A. Expendable Small Tools, Special Tools and Equipment

When a particular job requires the furnishing of small expendable tools or specialized tools, equipment, or instruments not included in standard Field Service Representative "Truck Stock", a charge will be made equal to either the cost of acquisition plus 15% or a rental charge, as appropriate. "Truck Stock" is defined to include small standard hand tools, digital multimeter, small scope, 500V insulator tester and 10A contact resistance tester. Refer to Siemens Price List 49020B for Test Equipment Rental Charges.

B. Material Furnished by Siemens Industry, Inc.

All Siemens Industry, Inc. material used on the job will be billed at current prices.

C. Material Purchased from Subcontractors or Other Vendors

Materials or services from Subcontractors or Vendors will be billed at cost plus a handling fee.

The Siemens logo is displayed in a bold, teal, sans-serif font. It is positioned in the upper left corner of the page, above a large photograph of industrial equipment. The photograph shows a large, grey metal cabinet with multiple blue-tinted doors and windows, representing a medium voltage drive. To the right of the main cabinet, a smaller, vertical component is shown, which is a rack-mounted control unit. A teal-colored beam of light or projection originates from the main cabinet and points towards the smaller unit, suggesting a connection or upgrade process. The background of the image is a light, neutral color.

Industry Services

Secure your Perfect Harmony MV Drive Investment with the latest technology

NXGpro Digital Control System Upgrade

The NXGpro Digital Control is standard in new drives and is also designed to quickly and economically upgrade your existing control

NXGpro is the latest generation of control for SINAMICS PERFECT HARMONY GH180 medium voltage drives. NXGpro is easily retrofitted into existing NXGI and NXGII drives while utilizing the same software and software tools.

NXGI/NXGII hardware and software are currently controlling over 10,000 SINAMICS PERFECT HARMONY GH180 medium voltage variable frequency drives with an excellent history of reliability. The NXGI control was introduced in 2001 and followed by the NXGII control in 2005. NXGpro is the latest evolution in control systems and is smaller, more powerful, reliable, and efficient than previous generations.

NXGpro software has the same basic functionality as NXGII but with an additional Tamper Resistant Input Protection feature. The

purpose of this new feature is to ensure protection of the drive by verifying that the upstream input circuit breaker is functioning properly. NXGpro also uses the same compiler and operating system as NXGII, so maintenance tools such as ToolSuite remain virtually unchanged.

Existing drives with NXGI or older control systems may contain parts which are no longer available and could result in extended downtime in the event of a failure. Retrofitting your SINAMICS PERFECT HARMONY medium voltage variable frequency drive with the NXGpro control provides you with maximum reliability, simplifies maintenance, and increases performance. To learn more about the NXGpro control or to discuss an upgrade program to transition your fleet, please contact your local Siemens representative.

This state-of-the-art upgrade package has been developed for your Perfect Harmony Drive to improve its control performance and reliability while minimizing the issues with obsolescence.

The NXGpro Digital Control unit improves performance, simplifies maintenance, and enhances reliability by:

- Adding a control feature to better protect the drive
- Changing the physical design to allow faster and easier service
- Simplifying complexity of assembly and number of components
- Increasing microprocessor capability to enable future software enhancements

Benefits when Upgrading from NXGI/NXGII to NXGpro

Description	NXGpro Improvements	Benefits
Input Protection	<ul style="list-style-type: none"> • Enhanced Control Feature with Tamper Resistant Input Protection function 	<ul style="list-style-type: none"> • Better input protection scheme through the addition of Tamper Resistant Input Protection function. This feature tests the timing of the opening of the contactor in the input circuit breaker to ensure that the breaker functions properly
Serviceability and Maintenance	<ul style="list-style-type: none"> • Test board available for fast and easy test access • Smaller footprint for easier service • Moved flash disk for access without disassembly • Designed to update software and firmware without special tools 	<ul style="list-style-type: none"> • Shorter downtime for testing, troubleshooting, and maintenance service due to improved accessibility and the ability to quickly swap the complete unit if needed
Reliability	<ul style="list-style-type: none"> • Reduced number of circuit boards by as much as 50% • Reduced the number of inter board connections by as much as 80% • Reduced active DCR electronic components and bulk capacitors by 40% • Reduced DCR external electrical connections by 50% • Eliminated ISA bus card edge connections that can become misaligned • Eliminated use of ribbon cables within the control rack • Eliminated the need for control rack cooling fans • Built in support for redundant power supplies 	<ul style="list-style-type: none"> • Improved reliability by eliminating and reducing components, reducing possibilities for connection failures, and simplifying the overall complexity of the control system
Communications	<ul style="list-style-type: none"> • NXGpro supports NXGI/NXGII standard Communication protocols • Also supports EtherNet/IP™ communication protocol • If other Communication methods are needed, please contact the factory 	<ul style="list-style-type: none"> • Easy transition since NXGpro is compatible with NXGI and NXGII standard communication protocols • Increased communication capability with the addition of EtherNet/IP™ on NXGpro

Evolution of the NXG Control System



Let us help you plan your migration. Our on-site service is never more than a phone call away and we're available 24/7. Call 1-800-333-7421 to find a local service representative near you.

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SINAMICS PERFECT HARMONY Control Update

Overview

NXG/NXGII hardware and Eagle software are currently controlling over 10,000 SINAMICS PERFECT HARMONY GH180 medium voltage variable frequency drives with an excellent history of reliability. Siemens is committed to a philosophy of constant product improvement aimed at increasing customer value. The latest generation of control is the NXGpro control which is smaller, more powerful, more reliable, and more efficient than previous generations. The NXGpro control rack is standard in new drives but is also designed to quickly and economically replace existing NXG and NXGII hardware. NXGpro is easily retrofitted into existing NXG and NXGII drives while utilizing the same software and software tools.

Background

The NXG control hardware for SINAMICS PERFECT HARMONY medium voltage variable frequency drives was introduced in 2001. In 2005, NXGII hardware was introduced to reduce the number of circuit boards and improve reliability. The NXGII hardware remained constant from 2005 through 2014 while the software was periodically upgraded to achieve better performance and improve reliability.



Figure 1: NXG Hardware



Figure 2: NXGII Hardware



Figure 3: NXGpro Hardware

As part of Siemens commitment to continuous improvement, NXGpro hardware was developed to enhance reliability and simplify maintenance. In addition, NXGpro was specifically designed to reduce inconvenience to the user by being easily retrofitted into existing NXG and NXGII drives while utilizing the same software and software tools.

NXGpro

NXGpro hardware includes the following changes which improve reliability and performance.

- Reduced number of circuit boards from 6 to 3 (9 and 12 cell systems)
- Reduced the number of inter board connections from 10 to 2 (9 and 12 cell systems)
- Eliminated use of ribbon cables within the control rack
- Eliminated ISA bus card edge connections that can become misaligned
- Eliminated control rack cooling fans by substantially reducing control rack energy consumption
- Eliminated power supply cooling fan by utilizing an optional sealed power supply
- Reduced complexity of assembly
- Reduced DCR electronic components (ICs) and bulk capacitors by 40%
- Reduced DCR external electrical connections by 50%
- Added support for redundant power supplies
- Moved flash disk for access without disassembly
- Increased input/output capability to enable more flexible design
- Increased microprocessor capability to enable future software improvements
- Designed to update software and firmware without special tools

Upgrading to NXGpro

NXGpro uses software (Version 6.1 or later) which interfaces with NXGpro hardware with the same functionality as the existing NXGII (Eagle Version 5.3) but with additional input protection checks. The NXGpro uses the same compiler and operating system as the NXGII so maintenance tools such as ToolSuite remain virtually unchanged. The NXGpro control hardware has been designed for easy retrofit into Drives with both NXGI and NXGII controllers. The NXGpro's hardware organization is similar to NXGII.



Figure 4: NXGII control tub

Existing Drives with NXGII

Existing drives with the NXGII control will be supported with in-kind parts for many years. However, for customers interested in the benefits of NXGpro, upgrade kits will soon be available.

Existing Drives with NXGI or Legacy Controls

Existing drives with NXGI or Legacy controls may contain parts which are no longer available. There are currently kits available to upgrade these drives to NXGII, and there will soon be a kit to upgrade these drives directly to NXGpro.

Summary

NXGpro upgrades your SINAMICS PERFECT HARMONY medium voltage variable frequency drive control hardware to improve its reliability, increase performance, and enable the implementation of additional software features and enhancements in the future. A scheduled upgrade program can be developed to transition your fleet to NXGpro before the existing control hardware becomes obsolete and to take advantage of future software enhancements. To learn more about the NXGpro control or to discuss an upgrade program, please contact your local Siemens representative.



Figure 5: NXGpro control tub

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