PICTURED: PRATT STREET POWER PLANT, INNER HARBOR

In the heart of downtown Baltimore, this historic former power plant is where IBT calls home. Built in the 1900s, it supplied power to Baltimore railway companies for more than seventy years. The Power Plant is now home to several food and retail locations a short walking distance from the IBT office.
IBT is now over 25 years old. We’ve worked on dozens of projects, grown and shrunk and grown again in size, and changed offices several times. One thing hasn’t changed over time - the love of our home city of Baltimore. We think it’s a wonderful place; hopefully this edition of the catalogue inspires you to visit us.

-Your friends at IBT

PICTURED: VACCARO’S, ON ALBEMARLE AND STILES, LITTLE ITALY
Taken during Megan Day, when IBT celebrated Megan Hodgson’s last day at IBT before she moved on to Northwestern to pursue her MPO degree.

Their cannoli are legendary. Also, the photographer swears that black car pictured is parked there at the exact same spot, every day.
In 2008, we first saw the promise of pattern recognition, a gesture-based control strategy for prosthetic limbs, at our partner lab at Johns Hopkins University. We began a journey to transform this research project into a reality. And it wasn’t easy. We had to answer the hard questions. How do we make this control strategy reliable for an average user? How do we make the calibration process take as little effort as possible? How can we make the signals as stable as possible?

What we can tell you, after nearly a decade of development, is yes. Yes, you can make pattern recognition technology accessible. Yes, you can calibrate in the morning and have peace of mind for the rest of the week. Yes, you can build electrodes small enough to fit within a socket.

We’ve put everything we have into making Sense into the best pattern recognition-based controller it could be so that you can expect the best out of your prosthesis.
WHAT IS PATTERN RECOGNITION?

Pattern recognition is the foundation of modern gesture-based control for prostheses. At its core is a learning algorithm that first records EMG data from up to eight electrodes to create a data imprint of your muscle movements for each grip. Then, while running in real-time, whenever the system sees the same movements, it changes to the corresponding hand grip.

With up to eight electrodes in one prosthesis, there’s a lot more to work with than just open and close. Pattern recognition gives you free range to go into any grip you want. You’re not locked into one particular grip, and you don’t need to cycle through other grips to get to the one you want. With Sense, you’re always within one step of the grip you want.
TAKING ON PATTERN RECOGNITION

Sense gives you access to the most intuitive control yet. Your prosthetic arm becomes less of a device and more of an extension of yourself. With ample training on Sense, your arm moves along with you, not the other way around.

ALL IN THE TRAINING
Sense comes with a comprehensive Windows app to get your training exactly right. Pattern Recognition technology relies on consistent and repeatable motions, and our app guides you into the perfect setup. After using our app for the first time, including its virtual arm testing environment, streamlining partial training, and positional training, you’ll feel at home with pattern recognition in no time.

It used to be a large time and fabrication investment to find out whether your patient was compatible with pattern recognition. The virtual training system allows patients to experience prosthetic control from day one and can train with this system to gain better control of their actual prosthesis. Included is a series of game-based levels and performance tracking to provide a fun and realistic environment for pattern recognition training.

TRAIN THE WAY YOU WANT
It’s up to you to decide how particular you want your training to be. If you’re in a rush in the morning, one button and several minutes can be all you need. If you want finer control, the Sense app provides just that. You can train in different arm positions to reduce confusion and can retrain specific movements to save yourself time by not having to retrain the rest.

GOOD SOFTWARE NEEDS GOOD HARDWARE
A strong hardware interface is also essential for reliable pattern recognition. Noise and other interferences can make your movements unrecognizable. Sense relies on IBT Electrodes — all of the superior signal qualities of cased electrodes with none of its large footprints. This means a more robust Sense, and more importantly, a more confident you.
Compatible Devices List

**ELBOWS**
- Ottobock ErgoArm Hybrid Plus (12K44)
- Ottobock AxonArm Ergo (with Michelangelo Hand and AxonRotation only)
- Motion Control Utah Arm U3+
- Hosmer E2 Electric Elbow
- Espire Pro, Espire Hybrid Elbow

**WRISTS**
- Motion Control Standard Wrist
- Ottobock 10517 Wrist
- AxonRotation (with Michelangelo Hand only)

**HANDS - WITH GRIP CONTROL**
- Taska Hand
- Ossur i-Limb Quantum
- Ottobock Michelangelo Hand
- Steeper bebionic series

**HANDS - OPEN/CLOSE ONLY**
- Ottobock SensorHand Speed, MyoHand VariPlus Speed, Greifer, Axon Hook
- Ottobock bebionic
- Motion Control ProPlus Hand, ProETD, ProETD2
- Ossur iLimb Ultra, iLimb Access
- Covvi Nexus

SKU and ordering details on next page

**SENSE**

US FDA 510(k) approved

**THE SENSE APP**

Calibrate on-the-go with our new Sense app for Android.
### SENSE FOR HAND AND WRIST

<table>
<thead>
<tr>
<th>Product</th>
<th>Part Num.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TASKA Hand</td>
<td>70101-3-1</td>
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<tr>
<td>iLimb Quantum</td>
<td>70101-3-3</td>
</tr>
<tr>
<td>Michelangelo Hand</td>
<td>70101-22</td>
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<tr>
<td>Hands without grip control</td>
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### SENSE FOR HAND ONLY

<table>
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<tr>
<td>iLimb Quantum</td>
<td>70101-1-3</td>
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<tr>
<td>Michelangelo Hand</td>
<td>70101-21</td>
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<tr>
<td>Hands without grip control</td>
<td>70101-2</td>
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### SENSE FOR ESPERE PRO AND ESPIRE HYBRID ELBOW

<table>
<thead>
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<th>Product</th>
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<tbody>
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<td>TASKA Hand, No Wrist</td>
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### SENSE FOR AXON-BUS

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<tbody>
<tr>
<td>Michelangelo Hand + AxonRotation</td>
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<td>Michelangelo Hand + AxonArm Ergo</td>
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### SENSE FOR E2 ELBOW

<table>
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<tr>
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<td>TASKA Hand, No Wrist</td>
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<tr>
<td>Hands without grip control, No Wrist</td>
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### SENSE FOR U3+ ELBOW

<table>
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**Order U3+ P/N 5010039, 40, 41 with P/N 3010677 for iLimb/bebionic battery upgrade**

### SENSE FOR PASSTHROUGH ELBOW

<table>
<thead>
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<th>Product</th>
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<tbody>
<tr>
<td>Hands + grip control + Wrist</td>
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</tr>
<tr>
<td>Hands + grip control, No Wrist</td>
<td>70101-6</td>
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<tr>
<td>Hands without grip control + Wrist</td>
<td>70101-7</td>
</tr>
<tr>
<td>Hands without grip control, No Wrist</td>
<td>70101-8</td>
</tr>
</tbody>
</table>

Sense System includes:
- 8 IBT Electrodes, 8 molding dummies for IBT Electrodes
- Sense Controller, Sense Controller molding dummy
- Android phone with pre-installed Sense App

### NOTES

- Sense requires a FlexCell Battery Kit, sold separately. The only exception is for the Axon-Bus system and Michelangelo hand, which do not need a FlexCell kit.

- Orders for TASKA Hand and No Wrist will come with a 6-band coaxial plug.

- Orders for TASKA Hand + Wrist must be for a Motion Control Standard Wrist (P/N 501045, 54, or 55) with upgrade 3010869.

- Order Ottobock 10S17 or Motion Control Standard Wrist 501045, 54, or 55, if you wish to use a wrist without hand grip control.

- Android phone provided only if the user does not already have one.
When we started building electrodes for our pattern recognition system, we realized that people may want to use these electrodes for direct control systems as well. We know a prosthetist has a multitude of electrodes to choose from. So, why would IBT enter that market now?

We’ll tell you why. With a Bluetooth-enabled controller, your electrode system can be fully sealed off. That means no more drilling holes into the socket to adjust gains or check if the electrode is connected properly. With the Element software, everything you need to know about the electrodes is possible without ever opening up the prosthesis again.

Combined with sophisticated noise-rejection algorithms and the smallest form factor of encapsulated electrodes, IBT electrodes are the next step in our goal to provide unparalleled control to prosthetic hands.
A LOW PROFILE SUCTION SEAL

The low-profile shape allows prosthetists to build form-fitting frames. An innovative snap-in design allows for the IBT electrodes to be pushed into the socket and still form a suction seal to secure the socket tightly onto the limb.

ELEMENT

ADVANCED SIGNAL PROCESSING

Using digital signal processing, Element also employs industry-leading interference noise rejection to give users confidence in using their myoelectric prosthesis anywhere. The companion software enables users to fine-tune the electrode signal to their maximum potential, which includes not only gain, but smoothness and sensitivity.

THE THINNEST ELECTRODES AROUND

With a height of 6.7 mm, the IBT electrodes are the thinnest cased electrodes on the market. Combined with software-based gain adjustment, advanced signal processing, and ease of fabrication, Element is the electrode system for the modern prosthesis.

WIRELESS GAIN ADJUSTMENT

The Element system has built-in Bluetooth® for wireless gain adjustment through the Element software. No more unsightly holes for manual gain adjustment – with Element, you can create a truly sealed pocket for the IBT electrode within a socket. With the pocket formed, IBT electrodes can be snapped right into the socket.

AFFIX DUMMIES MOLD PRESTO!

EASY INSTALLATION

Element saves you time in fabrication because it plugs right in, eliminating the need to order separate cables and make difficult cable connections. Simple electrode dummies help form a sealed pocket for the IBT electrode within a socket. With the pocket formed, IBT electrodes can be snapped right into the socket.

ACCESSORIES

For Coaxial Plug, Ottobock Wrist, or ProWrist®
For DynamicArm

For DynamicArm

For Coaxial Plug, Ottobock Wrist, or ProWrist®

Each Element system includes 2 IBT Electrodes, 2 molding dummies for electrodes, Element signal processing box, Element desktop software, and USB Bluetooth® Adapter.
The battery that started it all. With over ten years on the market, our first product exemplifies the goals we strive to achieve in all of our work at IBT: solve a key need, lead the way with innovation, and build a quality product. If you have used FlexCells in the past – Thank you! If you haven’t used it yet, we invite you to see how FlexCells can simplify your fabrication and make power issues a thing of the past.
### The Flexible Solution

Worry less about making spaces for batteries. At less than 4mm thick and leveraging space-age flexible battery technology, FlexCells can fit into tight spaces. Building a natural-looking and streamlined prosthesis shell. Our low-profile design means no bulges for battery space. Patients enjoy the look; prosthetists appreciate the ease of fabrication.

#### EASY AND SAFE TO CHARGE

The magnetic charging connector simply snaps to the charging port to charge the batteries. If the charger cable is inadvertently pulled, the controller comes right off, leaving the prosthesis safe.

#### ONE BUTTON FOR EVERYTHING

The single button interface of the charging port lets you check battery function easily. Press and hold the button to power the device on or off, or press it once to show battery level.

Because it’s only 5mm tall, the charging port can be fabricated into a socket with little inward protrusion, allowing for more versatility in battery and controller placement.

FlexCells now fabricated with injection molded plastics, the charging port face can withstand more drops and bumps than before.

### CAPACITY FOR YOU

Tailor the capacity to your needs. FlexCells come in two different pack sizes and up to four packs can be combined in one system. Combine four FlexCells for an all-day capacity of 2200 mAh, or install two FlexCell Minis for the ultimate lightweight prosthesis. For every case in between, there’s a FlexCell system that’s right for you.

With our battery recycling program, you can exchange aged batteries for new ones at little cost and extend the utility of the prosthesis.

### ACCESSORIES

<table>
<thead>
<tr>
<th>FlexCell Accessory</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 FlexCell Battery Kit (550 mAh)</td>
<td>1027201</td>
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<tr>
<td>2 FlexCell Battery Kit (1100 mAh)</td>
<td>1027202</td>
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<tr>
<td>3 FlexCell Battery Kit (1650 mAh)</td>
<td>1027203</td>
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<tr>
<td>4 FlexCell Battery Kit (2200 mAh)</td>
<td>1027204</td>
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<tr>
<td>2 FlexCell Mini Battery Kit (660 mAh)</td>
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<td>3 FlexCell Mini Battery Kit (990 mAh)</td>
<td>1037203</td>
</tr>
<tr>
<td>4 FlexCell Mini Battery Kit (1320 mAh)</td>
<td>1037204</td>
</tr>
</tbody>
</table>

*Charging Port output uses the 2-pin Ottobock connector by default. A 4-pin Motion Control connector version is available for an additional price.

**Fabrication Kit includes 4 battery dummies as well as a charging port fabrication dummy. An initial kit can be requested for free (one per clinic).

| Each FlexCell kit contains batteries, charging port, and magnetic wall charger. All batteries are 7.4V
ToughWare Prosthetics develops and manufactures cutting-edge, affordable prosthetic gear for amputees who need dependable performance. New polymer and alloy materials, state-of-the-art manufacturing processes, and innovative engineering ensure our designs delight users worldwide with robust simplicity, functionality, and longevity in service. ToughWare builds products that put the user in the driver’s seat. There are no worries about getting them wet or expensive adjustments and repairs – they just work.
The ToughWare Equilux is the world’s first body-powered hook that can switch between voluntary-opening and voluntary-closing mode with the flip of a lever. Having the choice of both control modes in one device gives the user a whole new level of functional ability.

This voluntary opening terminal device uses a simple slide selector that allows the user to select the pinch force that is appropriate for each task. The power is there when you need it. The ability to choose a lighter grip also saves stress that the harness places on the body.

All ToughWare products use the industry-standard 1/2-20 UNF boss thread. That’s all you or your patient needs to begin using Toughware products right away.

The ITAL is designed to provide a fully functional, body-powered, transradial prosthesis without the need for custom fabrication. It can be fit in a matter of minutes and is an excellent choice for an immediate post-operative fitting. A lightweight, ventilated design allows for use in the worst environments.

Self-suspension is achieved using an innovative Humeral Suspension Cuff (HSC) that can be easily adjusted for comfort or to allow for limb volume changes. The HSC can be ordered separately to be used to suspend a custom fabricated prosthesis.
EQUILUX
Equilux VO/VC Terminal Device
Equilux VO/VC Replacement Pad Set

V2P
Vari-Pinch Prehensor (V2P) - Stainless Steel
Vari-Pinch Prehensor (V2P) - EMS Grivory®
Replacement Tip Boot Set
Black Rubber Band Set
Elastic Bungee Ring (Band Replacement)
Ball Terminal Connector Plate - 9/32“ Ball
Ball Terminal Connector Plate - 3/16” Ball
Thumb Plate
No-Thumb (Filler) Plate

RETRO CLASSIC HOOK
Retro Classic Hook - Lite Spring
Retro Classic Hook - Standard Spring
Retro Classic Hook - Heavy Spring
Retro Classic Hook Spring Kit (Lite)
Retro Classic Hook Spring Kit (Standard)
Retro Classic Hook Spring Kit (Heavy)

ITAL
International Transradial Limb (ITAL) / EMS Grivory® V2P Unit
International Transradial Limb (ITAL) / Equilux VO/VC Unit
Ventilated Transradial Sport Socket
Adjustable Humeral Suspension Duff
Four (4) Piece Strap Set
Swivel Retainer Kit
Humeral Duff Suspension Strap Kit
ITAL Service & Fitting Tool Kit

ACCESSORIES
Figure-of-Nine Harness
Quick-Disconnect (QD) Detachable Harness Hanger
Quick-Disconnect (QD) Detachable Ball Terminal—Short Version
Quick-Disconnect (QD) Detachable Ball Terminal—Bent Version
Quick-Disconnect (QD) Kit - One (1) Each: HH, DBS, DBB
Control Cable Set
Rubber Grommets (6 Pcs)

† R/L denotes Right-(R) or Left-(L) side unit — Select either R or L in Part Number.
‡ Color Code: Black (BK), Brown (BN), Metal (MT), Silver (SV), Custom (XX)—Insert one color code (BK,BN,MT,XX) into Part Number.

Other V2P, Retro Classic, and Equilux components (i.e. minor screws, repair parts) available upon request. Call IBT for pricing.
Custom colors, patterns, and finishes available for additional charge. Call IBT to discuss options.
Point Designs is a sister company spun out of the Biomechatronics Development Lab at the University of Colorado. After repeated requests from industry clinicians for durable partial hand prostheses, Point was formed to serve this need in early 2017. The engineers at Point leverage years of experience designing, building, and testing prostheses. Point’s innovative 3D metal printed manufacturing process ensures superior strength of their devices, while maintaining a low weight.
The Point Digits are mechanical, passive (i.e. not powered) and robust articulating prosthetic fingers. They use a ratcheting mechanism that enables 11 unique positions (7 for Point Partial) of flexion. They also feature integrated compliant, touchscreen-compatible fingertip pads for enhanced grip. A semi-hollow titanium construction ensures a high strength-to-weight ratio.

**Point Digits**

The Point Digits are mechanical, passive (i.e. not powered) and robust articulating prosthetic fingers. They use a ratcheting mechanism that enables 11 unique positions (7 for Point Partial) of flexion. They also feature integrated compliant, touchscreen-compatible fingertip pads for enhanced grip. A semi-hollow titanium construction ensures a high strength-to-weight ratio.

**Point Partial**

- 7 locking levels of flexion
- Anatomical rotation about the patient’s PIP joint
- 3 lengths: 45, 50, and 55 mm, measured from PIP joint center to fingertip

**Point Digit & Point Digit Mini**

- Up to 11 locking levels of flexion
- Anatomical rotation about the patient’s MCP joint
- 11 lengths, measured from MCP joint center to fingertip:
  - 55, 65, 70, 75 mm for Point Digit Mini, and 80, 85, 90, 95, 100, and 105 mm for Point Digit

**Point Thumb**

- 11 locking levels of flexion
- Anatomical rotation about the patient’s MCP joint
- 3 lengths: 59, 66, and 73 mm, measured from MCP joint center to fingertip

**Mounting Kits**

- Breakaway design for easy integration into socket for 1-4 Point Digit or Point Digit Mini systems
- Mounting bracket shape enables anatomical flexion with addition of multiple digit installations
- Mounting areas are labeled for intuitive orientation and installation

- Steel construction for high strength - 300 lb tear out strength
- Torx™ screws are used to minimize stripping and tampering
- Bendable tabs for easy tacking during alignment and strength after lamination
- Alignment tool demonstrating full flexion/extension enables alignment without using prosthetic digit
- Alignment transfer post provides secure attachment during transfer of alignment from diagnostic socket
- Lamination spacers maintain mounting area during bracket embedding process

**Product Numbers**

- Point Digit PNTDG2-XXX-G
- Point Digit Mini PNTMN-XXX-G
- Mounting Kit, Left PNTDG012MK-L
- Mounting Kit, Right PNTDG012MK-R
- Point Thumb PNTTHB-XXX-G
- Point Partial PNTPL2-XXX-G
- Mounting Kit PNTPLMK-0XX
- Point Digit Mini PNTMN-XXX-G
- Mounting Kit, Left PNTDG012MK-L
- Mounting Kit, Right PNTDG012MK-R

XXX refers to the digit length. Lengths are written above.
Midwest ProCAD is the result of years of dedication to helping amputees get back to doing what they love. When founder, Matt Razink, lost his arm in a construction accident, he didn’t know how he would be able to work again. With limited available options, he chose to create his own product that has all the features he needed to start living his new normal. The results are durable prosthetic devices that can be customized to fit a person’s exact needs.
Whether it’s getting the perfect angle to adjust a bolt, or cutting fruits comfortably, always achieve the perfect angle for the job. With all of the different locking positions on three degrees of freedom, the 2-way wrists are capable of 500 unique positions and the 4-way raises that to 2500.

Designed with purpose - with an aluminum body and stainless-steel locking parts the wrists were engineered for the best combination of performance and durability. Trust this design for the most rugged tasks.

MidWest ProCAD offers a myriad of typical attachments, ranging from wrenches and hammers to kitchenware and combs. With years of experience in welding, they can turn any of your favorite tools into an attachment. Any device with a 1/2"-20" thread will also work with the MIDWEST wrist, either through direct threading or with the quick-disconnect adapter spring for swapping devices easily.

1-WAY WRIST 2-WAY WRIST 4-WAY WRIST

Custom Attachments

MidWest ProCAD offers a myriad of typical attachments, ranging from wrenches and hammers to kitchenware and combs. With years of experience in welding, they can turn any of your favorite tools into an attachment. Any device with a 1/2"-20" thread will also work with the MIDWEST wrist, either through direct threading or with the quick-disconnect adapter spring for swapping devices easily.
You want crabs? Get some here. Check the next spread if you’re not convinced.

PICTURED: LP STEAMERS, ON FORT AND WOODALL, LOCUST POINT (the “LP” in the name)