

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

NUMATICS, INC.,

Plaintiff,

Case Number 13-11049
Honorable David M. Lawson

v.

BALLUFF, INC. and H.H. BARNUM
COMPANY,

Defendants.

OPINION AND ORDER CONSTRUING CLAIMS

In this patent infringement case, the plaintiff alleges that the defendants' product infringes its patent on a modular electrical bus system. The parties dispute the meaning of certain claim terms, and they have filed cross motions asking the Court to resolve their competing constructions. The Court held a hearing on August 5, 2014, at which the parties made their presentations. The Court determines that the claim terms will be construed as set forth below.

I.

The modern manufacturing plant is a complex and highly automated facility. Machines generally perform the tasks of fabricating and assembling a product. Those machines sometimes are controlled directly by a human operator, but more commonly they are automated, following a set of instructions programed through logic circuits — programable logic controllers (PLC), for example — connected through a network that directs the function of the manufacturing devices. At the bottom of the control chain is the fieldbus that links the PLCs to the components that actually do the work, such as sensors, actuators, solenoids, electric motors, console lights, switches, valves and contactors.

Plaintiff Numatics, Inc. is the owner of U.S. Patent No. 7,967,646 ('646 patent), which describes a modular electrical bus system. The system is intended to control the opening and closing of hydraulic and pneumatic valves. The invention incorporates interchangeable input-output (I/O) modules that can be interconnected to maintain communications to the bus system and mounted close to the valve manifolds, and can report information on an alphanumeric display. Numatics has filed a complaint alleging that defendants Balluff, Inc. and H.H. Barnum Company manufactured and sold products that infringe the '646 patent. Presently before the Court are cross motions by the parties to construe five disputed claim terms, although the parties have reached agreement on one of them. Those that remain in dispute are: (1) "module;" (2) "communication module;" (3) "main communication module"; and (4) "I/O modular unit" and "I/O unit."

A Background

Numatics is a Michigan corporation with its principal place of business in Novi, Michigan. The company manufactures pneumatic valves and motion control products used in all forms of industrial manufacturing. Balluff is a Kentucky corporation with its principal place of business in Florence, Kentucky. Barnum is a Michigan corporation with its principal place of business in Brighton, Michigan. Balluff manufactures switches and sensors for all areas of automation as well as modular I/O bus network solutions, which are manufactured by Balluff's German parent company and imported into the United States. Balluff sells these products to both users and distributors. Barnum is one of Balluff's largest distributors.

B. The '646 patent

The patent-in-suit resulted from two discrete patent applications. On July 20, 2007, Numatics filed U.S. Application Number 11/880,348 ("348 Application") for a modular electrical

bus system. The '348 application addressed two distinct needs in industrial manufacturing: (1) the need for "a modular electrical bus system with I/O modules that can be easily mounted together and separable to be used remotely from the main communication module;" and (2) the need for "an I/O module and fieldbus module that has a graphic visual display that can display status and varying parameters." '740 patent at 11, 1:26-31.

On January 30, 2009, the U.S. Patent Office issued a restriction requirement after concluding that the application contained more than one invention. U.S. Patent Office Action Summary at 2-4 (Jan. 8, 2009) ("The applicant contains claims directed to . . . distinct species . . . Applicant is required . . . to elect a single disclosed species for prosecution on the merits."). On February 25, 2009, Numatics submitted a revised patent application, electing to proceed in the '348 application with claims primarily directed to modules having interlocking features. On July 13, 2010, the U.S. Patent Office issued U.S. Patent Number 7,753,740. Claim 1 is exemplary:

1. A modular electrical bus assembly comprising;
a first module and a second module juxtaposed against each other;
said one module having one side with a unitary interlocking extension;
said second module having a juxtaposed side with a complementary interlocking cavity; and
a bridge member placed and aligned directly in front of both said interlocking extension and interlocking cavity and secured thereto to connect adjacent first and second modules together.

'740 patent at 15.

On June 10, 2010, before the '740 patent was issued, Numatics filed a second application, U.S. Application Number 12/797,708 ("708 App"). Although the application contained the same specification, the claims were primarily directed to the alpha-numeric display feature on the module. According to the patent, the display is innovative because it allows the "user to see important properties by scrolling through a menu as needed and even remotely adjust certain properties. The

module[']s automatic addressing system and automatic power selection provides for a more trouble free and updated fieldbus system that is particularly useful for solenoid actuated manifold valve and I/O systems.” ‘646 patent at 16, 9:24-30. On June 28, 2011, the U.S. Patent Office issued U.S. Patent, 7,967,646. Claim 1 is exemplary:

- 1.** An electrical serial fieldbus communication system comprising:
a module having an electronic numeric or alpha-numeric display thereon for displaying information relative thereto; and
said module being constructed to automatically select a choice of two power sources fed into said module.

‘646 patent at 16.

C. Procedure

On March 7, 2013, the plaintiff filed a complaint alleging that the defendants infringed claims 2, 3, 22-25, 31-34, 40, and 41 in the ‘646 patent. The plaintiff contends that 33 of Balluff’s products are infringing. Those claims state:

- 2.** An electrical serial fieldbus communication system comprising:
a module having an electronic numeric or alpha-numeric display thereon for displaying information relative thereto; and
said module being constructed to automatically select a choice of two power sources fed into said module.
- 3.** An electrical serial fieldbus communication system comprising:
a module having an electronic numeric or alpha-numeric display thereon for displaying information relative thereto; and
said module being an I/O modular unit having externally available connectors for connecting to a plurality of input sensors and/or output devices.
- 22.** An I/O unit in connection with a serial fieldbus system comprising:
a housing having a plurality of externally available connectors for connecting to a plurality of input sensors and/or output devices; and
an electronic numeric or alpha-numeric display mounted on a face of the I/O unit for displaying information relative thereto.
- 23.** An I/O unit as defined in claim **22** further comprising:

said electronic numeric or alpha-numeric display being manually manipulated for scrolling through menus and different indicia relating to different parameters of said I/O unit.

- 24.** An I/O unit as defined in claim **23** further comprising:
said electronic numeric or alpha-numeric display having operable buttons for scrolling through menus and different indicia relating to different parameters of said I/O unit.
- 25.** An I/O unit as defined in claim **24** further comprising:
said operable buttons being positioned laterally at each side of said electronic numeric or alpha-numeric display; and
said electronic numeric or alpha-numeric display extending laterally across a front face of said I/O unit near an upper end of said I/O unit.
- 31.** A main communication module in connection with an electrical serial fieldbus communication system, said main communication module comprising:
said main communication module constructed to be connectable to a plurality of external output devices; and
an electronic numeric or alpha-numeric display on a face of the main communication module for displaying information relative thereto.
- 32.** A main communication module as defined in claim **31** further comprising:
said electronic numeric or alpha-numeric display being manually manipulated for scrolling through menus and different indicia relating to different parameters of said main communication module.
- 33.** A main communication module as defined in claim **32** further comprising:
said electronic numeric or alpha-numeric display having operable buttons for scrolling through menus and different indicia relating to different parameters of said main communication module.
- 34.** A main communication module as defined in claim **33** further comprising:
said operable buttons being positioned laterally at each side of said electronic numeric or alpha-numeric display; and
said electronic numeric or alpha-numeric display extending laterally across a front face of said main communication module near an upper end of said main communication module.
- 40.** An electrical serial fieldbus communication system as defined in claim **2** further comprising:
said communication module being interposed between a bank of I/O units and a bank of valve units.
- 41.** A main communication module as defined in claim **31** further comprising:
said communication module being interposed between a bank of I/O units and a bank of valve units.

The parties stipulated to the construction of some of the limitations in the claims, and by the time of the hearing held on August 5, 2014, they agreed on several others. The stipulated construction of the respective terms are set forth in the following chart:

Affected Claim(s)	Claim Limitation	Stipulated Construction
3, 22	I/O	Input and/or output
22	Face of I/O unit	“Face” has its plain and ordinary meaning and “I/O unit” is defined according to the respective positions of the parties.
2, 31	Constructed to be connected [and] constructed to be connectable	Plain and ordinary meaning

The Court adopts the foregoing agreed construction of the terms stated above, and it is so **ORDERED**. The term “I/O unit” is discussed below.

The disputed claim terms identified by the parties are summarized in the table below:

Affected Claim(s)	Claim Limitation	Plaintiff’s Construction	Defendants’ Construction
2, 3, 31	Module	Plain and ordinary meaning or, alternatively, unit	A mechanically and electrically connectable and separable unit configured to interlock with other adjacent units

2, 40	Communication module	Plain and ordinary meaning or, alternatively, a unit suited to communicate in a serial fieldbus communication system and able to control valves or valve manifolds	A “module” as defined above that interlocks with and controls a valve or valve manifold
31, 32, 33, 34, 41	Main communication module	Plain and ordinary meaning or, alternatively, “main” is a relative term connoting “primary” in a serial fieldbus communication system	A “communication” module as defined above having a communication fitting and power fitting
3, 22, 23, 24, 41	I/O modular unit and I/O unit	Plain and ordinary meaning or, alternatively, a unit having inputs and/or outputs. “I/O modular unit,” “I/O unit” and “I/O module” are used synonymously in the ‘646 patent.	A stand-alone, self-contained “module” as defined above having only a plurality of input and/or output fittings, with electrical fittings for interlocking other such modules in proximity to the sides of the module

II.

The patent claims define the invention “to which the patentee is entitled the right to exclude.” *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004) (citing *Aro Mfg., Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339 (1961)). When there is a dispute as to the meaning of a claim term or an allegation that a claim is ambiguous, courts must “construe claims by considering the evidence necessary to resolve [such] disputes . . . to assign

a fixed, unambiguous, legally operative meaning to the claim.” *Liquid Dynamics Corp. v. Vaughan Co., Inc.*, 355 F.3d 1361, 1367 (Fed. Cir. 2004) (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Claim construction and interpretation is a question of law for the court to decide. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

A. General Rules of Claim Construction

“The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.” *DeMarini Sports, Inc. v. Worth, Inc.*, 239 F.3d 1314, 1322 (Fed. Cir. 2001) (internal quotations omitted). The process begins with consideration of the patent itself because “[i]t is a bedrock principle of patent law that the claims of a patent define the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (internal quotations omitted).

The words used in a claim are generally “deemed to have their ordinary and customary meaning in their normal usage in the field of the invention.” *Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1306 (Fed. Cir. 2003). That is, the terms of a claim presumptively bear the meaning that would be given them by one of ordinary skill in the art at the time of invention. *Research Plastics, Inc. v. Fed. Packaging Corp.*, 421 F.3d 1290, 1295 (Fed. Cir. 2005). This presumption may be overcome, however, “where the patentee chooses to be his or her own lexicographer by clearly setting forth a definition for a claim term in the specification” or where the written description and drawings of the invention indicate that “the patentee has disclaimed subject matter or has otherwise limited the scope of the claims.” *Anchor Wall*, 340 F.3d at 1306. In addition, a given claim should not be construed in an isolated or piecemeal fashion since “[i]t is presumed that the person of ordinary skill in the art read the claim in the context of the entire patent,

including the specification, not confining his understanding to the claim at issue.” *Research Plastics*, 421 F.3d at 1295. As the Federal Circuit has summarized,

[u]ltimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent’s description will be, in the end, the correct construction.

Renishaw PLC v. Marposs Societa’ per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998) (internal citation omitted). Of course, the Court’s task is limited to construing claim terms that are controverted. *Vivid Technologies v. American Science & Engineering, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (stating that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”).

In addition to the words set forth in the patent, “a court ‘should also consider the patent’s prosecution history.’” *Phillips*, 415 F.3d at 1317 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996)). The prosecution history is considered “intrinsic evidence” and “consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.” *Ibid.* “Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent.” *Ibid.* On the other hand, “because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Ibid.*

Although not as probative as intrinsic evidence, the Federal Circuit has also “authorized district courts to rely on extrinsic evidence, which ‘consists of all evidence external to the patent and

prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.”
Ibid. (quoting *Markman*, 52 F.3d at 980). Technical dictionaries can be particularly helpful because they provide sound evidence of “the way in which one of skill in the art might use the claim terms.”
Id. at 1318. Likewise, expert testimony can be useful insofar as it “provide[s] background on the technology at issue, . . . explain[s] how an invention works, . . . ensure[s] that the court’s understanding of the technical aspects of the patent is consistent with that of a person with skill in the art, [and] establish[es] that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” *Ibid.*

B. Claim terms

1. “Module”

The plaintiff argues the term “module” should be given its plain and ordinary meaning. If additional direction is required, the plaintiff believes the jury should be told that a module is a “unit.” However, the term denotes something more specific: according to Webster’s Universal College Dictionary, a module is defined as a “separable component, frequently one that is interchangeable with others, for assembly into units of differing size, complexity, or function.” *Webster’s Universal College Dictionary* 515 (2001). Similarly, the Oxford English Dictionary defines module as “[e]ach of a series of standardized parts or units from which a complex structure, e.g. a building or a piece of furniture, is or can be assembled; *loosely* a more or less independent component part.” *Shorter Oxford English Dictionary* 1813 (6th ed. 2007). A module, in other words, in common parlance, is a standardized and self-contained component that is separable and connectable with other components.

This customary meaning is consistent with “the ordinary meaning in the context of the written description and the prosecution history.” *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (internal quotation marks omitted). The patent refers to the term “modular” as possessing a particular characteristic or quality. For instance, the prior art refers to efforts in the industry to create a modular fieldbus:

Efforts have been made to *modularize* the fieldbus with input-output modules (I/O) so additional I/O components can be more easily added or replaced. Each input/output module has a plurality of fittings which can all be used as input fittings, all be used as output fittings, or as a mix of input and output fittings. The *modularity* is desirable to remotely place certain I/O modules closer to a particular sensor or machine. In the past, when such remote mounting is achieved, different remote components must be used.

What is needed is a *modular* bus system with I/O modules that can be easily mounted together and separable to be used remotely from the main communication module.

‘646 patent at 12, 1:23-34 (emphasis added). The words *modularize*, *modularity*, and *modular* are more than generic terms in the patent. The fieldbus’s modular quality — the ability to separate and connect units to other units — addressed a gap in the automation industry’s technology. Indeed, the title of the patent is a “*Modular* Electrical Bus System,” signifying the importance of the invention’s modular quality.

This construction — that is, the ordinary and customary meaning — is consistent with the description in the patent’s specification. The specification refers to the invention as having “modular properties.” *Id.* at 15, 7:35. Although a module may be mounted by itself, it is the ability to connect and separate the modules to and from each other that distinguishes the product. *Id.* at 13, 4:10-12 (“For purposes of this invention, a module may be modular to be connected with other units or may be a stand alone unit.”). The invention’s “modular properties” allow a consumer to customize the product to meet its individual needs. “The *modularity* and self containment of the

modules allows them to be removed and remotely mounted by themselves as remote substations either individually or with other connected modules and valves.” *Id.* at 16, 9:12-15. A consumer can customize the product “expeditiously” because of the product’s “unique connecting structure.” *Id.* at 16, 9:16-18.

Balluff asks the Court to construe the term more narrowly as “[a] mechanically and electrically connectable and separable unit configured to interlock with other adjacent units.” It advocates that expanded construction not because Numatics acted as its own lexicographer or disavowed the scope of the term “module.” Instead, Balluff argues that there is no description in the patent of any module that is not a mechanically and electrically connectable and separable unit configured to interlock with other adjacent units. However, courts “have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.” *Phillips*, 415 F.3d at 1323 (citing *Gemstar-TV GuideIntern., Inc. v. Intern’l Trade Comm.*, 383 F.3d 1352, 1366 (Fed. Cir. 2004)). To avoid importing limitations from the specification into the claims, *Phillips* instructs district courts to be sensitive to whether the specification describes specific examples of the invention to “teach and enable those of skill in the art to make and use the invention,” or whether “the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive.” *Ibid.*

The specification does not contain language that the definition of module must be limited to the exact representations depicted in the embodiments. Indeed, the specification is titled, “Detailed Description of the *Preferred* Embodiment.” ‘646 patent at 13:63-64 (emphasis added). Rather than defining the scope of the term module, the title suggests that the specification contains specific examples to teach and enable those skilled in the art to make and use the invention.

Consistent with the title, the specification does not indicate that the modules *must* be interlocking and electrically and mechanically connectable and separable, only that those qualities are *preferable*. *See id.* at 12, 1:47-51 (“*Preferably*, the first module has an interlocking extension . . . *Preferably* the . . . first and second modules . . . [are] both electrically and mechanically connectable . . .”). Moreover, several of the modules described in the written description do not appear to interlock and only appear to be connectable and separable through a clip. *See, e.g., id.* at 16, 9:16-21 (“The removal and replacement of the modules are expeditiously accomplished through its unique connecting structure. The clip easily connects the modules together . . .”); *see also id.* at 12, 2:38-41, 13, 3:4-19. Additionally, the specification explicitly states that “[o]ther variations and modifications are possible without departing from the scope and spirit of the present invention as defined by the appended claims.” *See id.* at 16, 9:32-34.

Further, the doctrine of claim differentiation provides a “powerful argument” against construing the term module to mean “configured to interlock.” *See InterDigital Comm., LLC v. Int’n’l Trade Comm’n*, 690 F.3d 1318, 1324 (Fed. Cir. 2012). That doctrine creates a presumption that each claim in a patent has a different scope. *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998). “[T]he presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). The presumption is “especially strong” if the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim. *InterDigital Commc’ns*, 690 F.3d at 1324-25 (internal citations omitted). Moreover, the Patent Act emphasizes that a dependent claim must add a limitation to those recited

in the independent claim. *See* 35 U.S.C. § 112(d) (2012) (“[A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed.”). “Thus, reading an additional limitation from a dependent claim into an independent claim would not only make that additional limitation superfluous, it might render the dependent claim invalid.” *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006).

Several of the independent claims in the patent do not require the modules to interlock. *See, e.g.*, claims 1, 2, 3, and 31. For instance, claim 1, an independent claim, refers to a module with an alpha-numeric display but claim 9, a dependent claim, describes the “said module having a first side with an interlocking extension of a first shape; and . . . a second opposite side with two spaced interlocking extensions” *Id.* at 16, 9:45-52. Likewise, claim 3, an independent claim, refers to a module with an alpha-numeric display and claim 4, a dependent claim, adds that the module has an “interlocking extension of a first shape; and . . . a second opposite side with two spaced interlocking extensions” *Id.* at 16, 9:52-67. Under Balluff’s construction, there would be no meaningful difference between those dependent and independent claims.

Balluff argues that its proposed construction does not violate the doctrine of claim differentiation because the dependent claims refer to “interlocking extensions,” which is narrower than the term “connected to interlock.” But “claim drafters can also use different terms to define the exact same subject matter.” *Curtiss*, 438 F.3d at 1380; *see also Hormone Research Found. v. Genentech, Inc.*, 904 F.2d 1558, 1567 n.15 (Fed. Cir. 1990) (“It is not unusual that separate claims may define the invention using different terminology, especially where (as here) independent claims are involved.”). Although Balluff attempts to distinguish the term “configured to interlock” from

“interlocking extensions,” Balluff has not explained how the differences are meaningful. Instead, it appears that the claim drafters employed slightly different language to describe the capacity to interlock. Those slight differences do not appear to be significant. *Compare* ‘646 patent at 12, 1:41-47 (“In accordance with one aspect of the invention, a modular electrical bus system for a valve manifold has a first module and second module juxtaposed against each other with complementary interlocking shapes.”) *with id.* at 12, 2:2-5 (“In one embodiment, the first and second front face sections have complementary shaped dove tail female and male shapes to interlock together.”) *and id.* at 12, 2:23-27 (“In another embodiment . . . [t]he two adjacent modular I/O units may have opposing receptacles with dovetail shapes that face each other. The protrusion may have a tapered dovetail shaped section that is received in both facing female receptacles.”). Balluff has offered no persuasive explanation why the interlocking features are found in *some* of the dependent claims but not others or the corresponding independent claims.

The prosecution history also cautions against engrafting an interlocking feature onto the term “module.” *See Phillips*, 415 F.3d at 1317 (holding that a court may also consider the patent’s prosecution history in constructing claims). Numatics’s original patent application addressed two separate needs in the industry: (1) “a modular electrical bus system with I/O modules that can be easily mounted together and separable to be used remotely from the main communication module” and (2) “an I/O module that has a graphic visual display that can display status and varying parameters.” ‘646 patent at 12, 1:32-37. As noted above, on January 30, 2009, the Patent Office issued a restriction requirement on Numatics’s application because it concluded that the application contained more than one invention. The Patent Office required Numatics to restrict its application to either claims drawn to “electrical connectors” or claims drawn to “digital processing systems.”

Dkt. #31-11 at 102. Numatics argued in response that the inventions were “not that easily divided” because “[b]oth groups of claims have limitations relating to electrical fittings to connect different members of an electrical bus communication system together.” Dkt. #31-11, at 96. However, the Patent Office disagreed, reasoning

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because it does not require electrical fittings as claimed in Invention I. The subcombination has separate utility such as using it with a system without a bridge member.

U.S. Patent Office Action Summary at 3 (Aug. 16, 2008). Numatics pursued two separate patent applications after the Patent Office’s decision: the ‘348 Application and the ‘709 Application. The ‘348 Application requested a patent for modules having interlocking features and the ‘709 Application requested a patent for modules having an alpha-numeric display. *Compare* dkt. #31-11 at 107-118 (revising the ‘348 application to emphasize the invention’s interlocking features) *with* dkt. 31-12 at 137-150 (revising the ‘709 application to emphasize the invention’s electronic numeric or alpha-numeric display). The Patent Office approved both applications. *See* dkt. #31-13 (‘740 patent), and dkt. #1-2 (‘646 Patent). The claims in the patents reflect the distinct inventions: most of the claims in the ‘740 patent reference modules with “interlocking extensions” and most of the claims in the ‘646 patent reference modules with alpha-numeric displays. *Ibid.* The prosecution history therefore does not support Balluff’s proposed construction.

It is a somewhat closer call whether “module” should be construed to mean “mechanically and electrically connectable and separable.” These limitations are not contained in the claims. But the abstract explicitly states that a modular electrical bus system has modules that are “electrically

and mechanically connectable.” ‘646 patent at 1. “[A] statement in the Abstract may operate as a clear expression of manifest exclusion.” *Innova/Pure Water*, 381 F.3d at 1111; *see also Netcraft Corp. v. eBay, Inc.*, 549 F.3d 1394, 1398-99 (Fed. Cir. 2008). The Court therefore must consider whether Numatics disavowed the full scope of the term “module” in the abstract.

Numatics does not address the abstract in its brief. Instead, it argues that clip 20 and conductive threaded fastener 126 are the only parts that are mechanically and electrically connectable. Pl.’s Br. at 20. Numatics’s statement is somewhat misleading. It is true that “[t]he clip 20 . . . electrically connects modules together . . . and also mechanically affixes modules together.” ‘646 patent at 15, 7:7-11; *see also id.* at 13, 4:4-9 (“The fieldbus system can also have a plurality of I/O modules 18 connected together via bridge members . . . that bridge over and connect two adjacent modules and physically and electrically connect together to the main communication module.”); *id.* at 14, 6:39-42 (“The fasteners 126 both mechanically affix two adjacent modules together as well as provide a continuous grounding circuit between two adjacent modules.”). But that does not mean that the modules are not mechanically and electrically connectable, only that they are mechanically and electrically connectable *through* the clips and bridge members. Whether through cables, clips, or bridge members, the specification shows that the modules are all mechanically and electrically connectable and separable.

Nonetheless, the prosecution history cautions against construing the term “module” to require mechanical and electrical connectability. As discussed already, the Patent Office required Numatics to limit its claims in the ‘346 application after concluding that the application contained two different inventions. The Patent Office eventually approved the patent after Numatics submitted two patent applications: the ‘346 application focused on the invention’s interlocking features and

the '709 application focused on the invention's alpha-numeric display. However, it does not appear that Numatics revised the specification when it submitted the second application: although the claims in the '740 and '646 patent are different, the specifications are identical in both patents. The patents' specifications therefore may shed less light on the limitations of the term "module" than they might have otherwise provided.

There is some indication in the specification that the electrical and mechanical connectability feature is a distinct invention from modules with an alpha-numeric display. For instance, the written description characterizes the industry as having two distinct needs, noted above. Moreover, the specification describes the modular electrical bus system as having different aspects. '646 patent at 2:38-41 ("In accordance with another aspect of the invention, an electrical bus communication system has a modular unit with an alpha-numeric graphical display for displaying information relative thereto.").

Although the abstract suggests that Numatics — at one time — intended a narrower construction, the prosecution history and claims do not redefine or disavow the plain and ordinary meaning of the term "module." It is axiomatic that "[t]he written description . . . is not a substitute for, nor can it be used to rewrite, the chosen claim language. 'Specifications teach. Claims claim.'" *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (quoting *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 n. 14 (Fed. Cir. 1985) (en banc)). Numatics did not intend to redefine or disavow the full scope of the term module.

The Court will adopt the plaintiff's construction of the term "module" and give it its ordinary and customary meaning. The claim term will be construed to mean "a standardized and self-contained component that is separable and connectable with other components."

2. “Communication module”

Balluff asks the Court to construe the term “communication module” as “a module that interlocks with and controls a valve or valve manifold.” Although Numatics originally asked the Court to construe the term according to its plain and ordinary meaning, in its reply brief Numatics conceded that a communication module is a module that is “suited to communicate in a serial fieldbus communication system and able to control valves or valve manifolds.” Pl.’s Br. at 24; *see also* Pl.’s Reply at 13. Therefore, the only dispute between the parties is whether a communication module *interlocks* with a valve or valve manifold.

The claim, specification, and prosecution history does not express a clear intent to redefine the term communication module or disavow the full scope of the term. Instead, Balluff argues that figure 1 shows a communication module that is connected to and interlocks with a bank of solenoid valves and valve manifold. But “patent coverage is not necessarily limited to inventions that look like the ones in the figures.” *MBO Laboratories, Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) (citing *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1342 (Fed Cir. 2001)). “To hold otherwise would be to import limitations onto the claim from the specification, which is fraught with ‘danger.’” *Ibid.* (quoting *Phillips*, 415 F.3d at 1323). “Limiting claims from the specification is generally not permitted absent a clear disclosure that the patentee intended the claims to be limited as shown.” *Id.* at 1334 (citing *Phillips*, 415 F.3d at 1323). There is no evidence in the claims, specification, or prosecution history that Numatics intended to redefine or limit the scope of the term to the drawing in figure 1. The term “communication module” will be construed to mean a module that is “suited to communicate in a serial fieldbus communication system and able to control valves or valve manifolds.”

3. “Main communication module”

Balluff asks the Court to construe the term “main communication module” as “a communication module with a communication fitting and power fitting.” Numatics says the term should have its plain and ordinary meaning. If the Court determines that a jury needs additional guidance, Numatics proposes that the Court construe the term “main” as “a relative term connoting ‘primary’ in a serial fieldbus communication system.”

The plain and ordinary meaning of the term “main” is “principal or primary.” *See Webster’s Webster’s Collegiate Dictionary Tenth Edition 701 (1997)* (defining the term main as “chief” or “principal”). However, the Court must examine the internal evidence to determine whether Numatics intended to redefine or disavow the full scope of the term. Claims 31 through 41 reference a main communication module, but do not define the term. The patent also references the term on six other occasions. *First*, the abstract indicates that “[a] modular electrical bus system for a valve manifold has a main communication module with a plurality of modular I/O units . . .” Patent, dkt. #1-2, at 1. *Second*, the written description states that “[w]hat is needed is a modular electrical bus system with I/O modules that can be easily mounted together and separable to be used remotely from the main communication module.” *Id.* at 12, 1:32-34. *Third*, the specification states that “[a]ccording to another aspect of the invention, an electrical bus communication assembly has a main communication module and a bank of modular I/O units mounted to the side of the main communication module and adjacent each other.” *Id.* at 12, 2:42-44; *see also id.* at 13, 3:4-7 (same). *Fourth*, the specification also states that “[t]he main communication module is constructed to automatically address each modular I/O unit with a sub-network address on either the main bank or on the remote location.” *Id.* at 13, 3:14-17. *Fifth*, the description of the preferred embodiment

indicates that figure one has a main communication module, which connects to and controls the solenoid valves. *Id.* at 13, 4:2-12. *Sixth*, the description of the preferred embodiment states that “[t]he main communication module 30 has a communication fitting 33 and power fitting 43 for main and auxiliary power supplies.” *Id.* at 13, 4:18-20.

None of these references evidences a clear intent to redefine the term “main” or disavow the full scope of the term. The specification does not state that a main communication module *is* or is *defined as* a module with a communication fitting and power fitting. *See Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365-66 (Fed. Cir. 2012). Instead, Balluff improperly attempts to limit the scope of the claims based on the specification. The term “main communication module” will be construed to mean a communication module, as defined above, that is principal or primary.

4. I/O modular unit and I/O unit

The parties agree that the term I/O means input and/or output and the terms I/O modular unit and I/O unit are used interchangeably in the patent. However, the parties disagree on the meaning of the terms. Balluff asks the Court to construe the terms “I/O modular unit” and “I/O unit” as “[a] stand alone, self-contained module having only a plurality of input and/or output fittings, with electrical fittings for interlocking other such modules in proximity to the sides of the module”; whereas Numatics asks the Court to construe the terms according to their plain and ordinary meaning. If the Court determine that a jury needs further guidance, Numatics proposes that the Court construe the terms as a “unit having inputs and/or outputs.”

Balluff concedes that the claims do not define the terms “I/O modular unit” or “I/O unit.” However, Balluff argues that all of the embodiments describe “[a] stand alone, self-contained

module having only a plurality of input and/or output fittings, with electrical fittings for interlocking other such modules in proximity to the sides of the module.”

The specification is consistent with Balluff’s definition. The written description describes the I/O modules as self-contained. *See, e.g.*, ‘646 patent at 13, 4:53-54 (“Each I/O module is self contained with a housing.”); *id.* at 16, 9:10-11 (“The individual I/O modules are self contained.”). Moreover, the specification describes the I/O modules as having a plurality of input and/or output fittings. *See, e.g., id.* at 1 (“A modular electrical bus system . . . has . . . a plurality of modular I/O units each having a plurality of I/O fittings.”); *see also id.* at 4:56-57 (“The front main face [of the I/O module] also has a plurality of I/O connections or fittings.”); *id.* at 1:47-49 (“Preferably the bus system has . . . modular I/O units each having a plurality of I/O fittings.”). Further, the specification describes the I/O module as containing “electrical fittings.” *See id.* at 5:6-7 (“The front face has electrical fittings.”); 5:20-21 (“Each extension has an electrical fitting.”); *id.* at 13, 3:7-8 (“Each modular I/O unit has an electrical fitting . . .”). Additionally, the specification describes the I/O modules as having the capacity to interlock with other modules. *See id.* at 5:4-5 (“One side 41 of housing 19 has an interlocking extension extending laterally.”); *id.* at 5:12-13 (“The other side of housing has two complementary shaped interlocking extensions near the upper end and lower end.”); *id.* at 5:25-26 (“In other words the two modules are locked together . . .”); *id.* at 2:16-19 (“The modular I/O units are juxtaposed adjacent each other with the bridge members having an interlocking protrusion.”).

However, “[i]t is not enough that the only embodiments, or all of the embodiments contain a particular limitation. We do not read limitations from the specifications into the claims; we do not redefine the words. Only the patentee can do that. To constitute disclaimer, there must be a clear

and unmistakable disclaimer.” *Thorner*, 669 F.3d at 1366. The patent does not clearly and unmistakably redefine or disclaim the full scope of the term “I/O modular unit” or “I/O unit.” These terms will be construed to mean a unit or modular unit having inputs and/or outputs.

III.

For the reasons stated above, the Court adopts the constructions of the claim terms agreed by the parties. The Court determines that the disputed claim terms shall have the construction discussed above.

Accordingly, it is **ORDERED** that the following disputed terms in the ‘646 patent are construed as follows:

- A. “Module” is construed to mean “a standardized and self-contained component that is separable and connectable with other components”;
- B. “Communication module” is construed to mean “a module that is suited to communicate in a serial fieldbus communication system and able to control valves or valve manifolds”;
- C. “Main communication module” is construed to mean “a communication module, as defined above, that is principal or primary”; and
- D. “I/O modular unit” or “I/O unit” are construed to mean “a unit or modular unit having inputs and/or outputs.”

Dated: December 4, 2014

s/David M. Lawson
DAVID M. LAWSON
United States District Judge

PROOF OF SERVICE

The undersigned certifies that a copy of the foregoing order was served upon each attorney or party of record herein by electronic means or first class U.S. mail on December 4, 2014.

s/Susan Pinkowski
SUSAN PINKOWSKI